

Psychopathy Traits and Violent Assault Among Men With and Without History of Arrest

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Abstract

Although research suggests that the antisocial behavior (ASB) facet of psychopathy generally carries the greatest predictive power for future violence, these findings are drawn primarily from forensic samples and may reflect criterion contamination between historical violence and future violence perpetration. Likewise, these findings do not negate the association of other psychopathy facets to violence or their role in the development of violence, nor do they offer practical utility in the primary prevention of violence. There are a number of empirical and theoretical reasons to suspect that the callous affect (CA) facet of psychopathy may demonstrate stronger statistical association to violence in nonforensic populations. We tested the association of CA to severe acts of violence (e.g., assault with intent to harm, injure, rape, or kill) among men with and without history of arrest ($N = 600$) using both the three- and four-facet models of psychopathy. CA was robustly associated with violence outcomes across the two groups in the three-facet model. When testing the four-facet model, CA was strongly associated with violence outcomes among men with no history of

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arrest, but only moderately associated with assaults causing injury among men with history of arrest. These results are consistent with data from youth populations that implicate early emotional deficits in later aggressive behavior and suggest CA may help to identify individuals at risk for violence before they become violent. Implications for the public health system and the primary prevention of violence are discussed.

Keywords

psychopathy, violence, callous affect, antisocial behavior, assault with a weapon, injury

Introduction

Psychopathy is a personality disorder comprising a constellation of traits associated with affective, interpersonal, and behavioral dysfunction (Cleckley, 1941; Hare, 2003; Lykken, 1995). Like most or all other personality disorder constructs, psychopathy appears to be dimensionally distributed (e.g., Guay, Ruscio, Knight, & Hare, 2007; Murrie et al., 2007), with increasing levels of traits reflecting more pathology and dysfunction. Psychopathy is most frequently measured in forensic and clinical settings with the family of Psychopathy Checklist (PCL) measures (Forth, Kosson, & Hare, 2003; Hare, 2003; Hart, Cox, & Hare, 1995; Paulhus, Neumann, & Hare, in press). Factor analyses of these measures often indicate that the covariation among their items can be accounted for by two broad and moderately intercorrelated dimensions: Factor 1, reflecting emotional detachment, and Factor 2, reflecting social deviance. In some models, these factors are further decomposed into four facets in which the original two factors each comprise two facets. Factor 1 is decomposed into the interpersonal (interpersonal manipulation [IPM]) and affective (callous affect [CA]) facets, and Factor 2 is decomposed into the lifestyle (erratic lifestyle [ELS]) and antisocial (antisocial behavior [ASB]) facets.

Some authors have argued that the deficits in affect are the core feature of psychopathy, which disrupt “normal” socialization in early life. In turn, this disruption in normal development predisposes these individuals to the persistent perpetration of severe violence (Blair, 2013; Blair, Mitchell, & Blair, 2005; Herba et al., 2007; Lykken, 1995; Skeem & Cooke, 2010a). Although psychopathy was not originally conceived of as a criminal construct per se, its association with crime and violence is well established (Lynam, 1996; Porter & Woodworth, 2006; Reidy, Kearns, & DeGue, 2013; Reidy et al., 2015; Reidy, Shelley-Tremblay, & Lilienfeld, 2011). Psychopathy is tied to

heightened risk for some of the most severe acts of violence, such as unprovoked and instrumental aggression, physical and sexual assaults, homicides, and gratuitous and sadistic violence (Porter & Woodworth, 2006; Reidy et al., 2011; Robertson & Knight, 2014; Woodworth et al., 2013). Furthermore, although highly psychopathic individuals comprise a small percentage of the population, they impose a substantial burden on society in terms of the amount of violence they contribute. For example, using a cutoff score of 13 on the Psychopathy Checklist: Screening Version (PCL-SV), Coid and Yang (2011) reported a prevalence of psychopathy at 0.7% but a population attributable risk of 17.5% for violence in the community over a 5-year period. In other words, less than 1% of the population was responsible for almost 20% of the violence. Thus, psychopathy appears to be a significant risk factor for frequent and severe violence (e.g., Leistico, Salekin, DeCoster, & Rogers, 2008; Reidy et al., 2011).

Despite the well-documented association between psychopathy and violence, there is continued debate regarding the utility of psychopathy for incrementally predicting future violence over and above past violence (e.g., Hare & Neumann, 2010; Skeem & Cooke, 2010a, 2010b). For example, Skeem and Cooke (2010a) noted that the core features of psychopathy (i.e., affective and interpersonal features) account for relatively little variance in future violence. Indeed, results from a multitude of studies, including several meta-analyses, indicate that Factor 2 of the PCL measures, and in particular the antisocial component of Factor 2 (i.e., Facet 4), best predicts violent recidivism (Edens & Campbell, 2007; Edens, Campbell, & Weir, 2007; Leistico et al., 2008; Walters, 2003; Walters, Knight, Grann, & Dahle, 2008). This issue is pragmatically important given that Facet 4 of the PCL measures comprises items pertaining to violent ASB (Skeem & Cooke, 2010a). As such, extant evidence indicates that past violence better predicts violent reoffending than does the interpersonal attributes and affective deficits of psychopathy (i.e., IPM and CA facets). This finding is perhaps yet another instantiation of “Meehl’s maxim” (in honor of clinical psychologist Paul E. Meehl), namely, the best predictor of future behavior is past behavior (see Lopez, 2014), and raises the possibility that criterion contamination accounts for many previous findings linking psychopathy with current and future antisocial and criminal behavior.

At the same time, the true picture may be more complicated. Leistico and colleagues (2008) pointed out that most if not all of the samples in the meta-analyses that identified ASB as the strongest predictor of future violence were forensic in nature (i.e., all participants had been arrested for some criminal infraction). As a consequence, these meta-analyses may offer little practical utility in pinpointing factors associated with violence in nonclinical

populations, such as community settings. In samples drawn from these populations, in which the levels of initial antisocial and criminal behaviors tend to be lower than in forensic samples, other personality variables, such as affective deficits, may play a larger correlational and perhaps causal role. Indeed, in community samples, where individuals are less likely to have been identified by the criminal justice system, there are several reasons to expect the emotional deficits of psychopathy to be more predictive of aggression and violence than in forensic populations. For example, nonforensic samples may contain “successful” psychopaths: individuals with marked psychopathic traits who are at risk for violence but who either avoid antisocial and criminal behavior or who manage to go undetected by the forensic system (Aharoni & Kiehl, 2013; DeMatteo, Heilbrun, & Marczyk, 2005, 2006; Lilienfeld, Watts, & Smith, 2015; Skeem & Cooke, 2010a). Some evidence suggests that emotional components of Factor 1 may be associated with violence that is less impulsive and more calculated, namely, proactive or instrumental violence (Reidy et al., 2011). If so, these individuals may be less likely to be apprehended by the criminal justice system. In addition, research on psychopathy and aggression using nonforensic convenience samples suggests that the callous and detached emotion components of Factor 1 are more predictive than the antisocial components of aggression in controlled laboratory settings (Reidy, Zeichner, & Martinez, 2008; Reidy, Zeichner, Miller, & Martinez, 2007; Reidy, Zeichner, & Seibert, 2011). However, despite the substantial validation of laboratory aggression paradigms in undergraduate samples as analogues to real-world violence (Anderson, Lindsay, & Bushman, 1999; Parrott & Zeichner, 2003; Verona, Joiner, Johnson, & Bender, 2006; Wolfe & Baron, 1971), studies using college students and artificial settings may be of limited external validity for violence in the community. Although laboratory aggression may correlate with aggression occurring outside of controlled settings, it may not be indicative of the severity of violence that is prevalent among persons identified by the criminal justice system, including weapons use, injury, rape, and murder. Thus, if the CA component of psychopathy is associated only with aggression that is less severe and without significant consequences among general community samples, it may be of limited utility for understanding and ultimately preventing impactful violence. In turn, it would not yield a substantial impact on population levels of violence.

The goal of the present study was to compare the association of CA with violence in a community sample of men with and without a history of arrest. To examine the implications of our findings for acts of severe violence that bear consequences for the victim and the judicial and health care systems (e.g., injury, emotional trauma, health care costs, criminal investigation, and prosecution costs), we assessed extreme acts of violence (i.e., physical

fighting, assault with intent to harm or kill, assault with a weapon, and assault causing injury). In addition, we compared the three-facet model (i.e., without the ASB facet) versus the four-facet model in their statistical associations with violence. This comparison allowed us to ascertain the association of CA with violence absent the problem of potential criterion contamination—whereby past violence merely predicts future violence—that exists when the ASB facet is included in the statistical model.

Method

Participants and Procedure

Six-hundred U.S. men completed a set of self-report measures in an Internet survey in 2012. To enhance the relevance of the study to the populations that pose the highest risk of violence to others, women were excluded because (a) women commit substantially less physical violence with less severe consequences than do men (Archer, 2004; Cooper & Smith, 2011; Zeichner, Parrott, & Frey, 2003) and (b) studies have consistently found significantly lower rates of psychopathic traits in women than in men (Coid et al., 2009; Weizmann-Henelius, Viemerö, & Eronen, 2004). In addition, the generalizability of the psychopathy construct to females remains a point of active scientific contention (Cale & Lilienfeld, 2002; Miller, Watts, & Jones, 2011). Likewise, because violence and associated injury are highest among men aged 18 to 44 (Centers for Disease Control and Prevention [CDC], 2013; Cooper & Smith, 2011; Courtenay, 2000), which is also the largest group of the male U.S. population (U.S. Census Bureau, 2015), we restricted our sample to men aged 18 to 50. Men of this age range make up approximately 80% of the incarcerated population in the United States (Carson, 2014).

Participants from the United States were recruited via Amazon's Mechanical Turk (MTurk) website to participate in a study titled "Personality and Social Interaction Styles." This site permits the collection of national data from individuals by means of an online method that yields reliable and construct-valid data with more diversity in samples than in traditional convenience samples, such as college samples (Buhrmester, Kwang, & Gosling, 2011; Mason & Suri, 2012; Polacci & Chandler, 2014; Shapiro, Chandler, & Mueller, 2013). Participants were informed that the purpose of the survey was to explore how general personality traits relate to social interaction. Individuals were compensated US\$2.00 for completion of the questionnaires, an amount consistent with typical reimbursement values on MTurk. All materials and procedures used in this study were approved by the University Institutional Review Board.

Measures

Demographics. Participants responded to a series of questions about age, ethnicity, relationship history, income, level of education, and history of arrests (of any type other than driving under the influence [DUI]).

Self-Report Psychopathy Scale (SRP). SRP Version III (SRP-III; Paulhus et al., in press) is a well-validated and widely used 64-item self-report measure of psychopathic traits modeled after Hare's (2003) two-factor/four-facet model of psychopathy, in turn derived from the Psychopathy Checklist: Revised (PCL-R). Hence, our findings may be broadly relevant to the constructs assessed by the PCL family of instruments. Items are rated using a Likert-type scale from 1 (*disagree strongly*) to 5 (*agree strongly*). In the present sample, we focused on the four facets: IPM ($\alpha = .84$), CA ($\alpha = .80$), ELS ($\alpha = .78$), and ASB ($\alpha = .80$).

Violent behavior. Participants responded to four questions pertaining to lifetime history of violence and aggression: (a) Fighting: "How many times have you been in a *physical* fight with another individual?"; (b) Assault: "How many times have you attacked someone with *intent* to harm, injure, rape, or kill?"; (c) Assault With a Weapon: "How many times have you attacked someone *with a weapon* intending to harm, injure, rape, or kill them?"; and (d) Injury: "How many times have you *intentionally* hurt someone to a degree that he or she needed bandages or a doctor?"

Data Analysis

Examination of the distributions of criterion variables revealed that they were positively skewed, violating normality assumptions (confirmed by significance testing), and that their variances exceeded conditional means by more than 3 times the values (see Table 1), which is typical of count data. For these reasons, we performed negative binomial regressions for all violence outcomes. Results of negative binomial models provide parameter estimates based on the logged value of the outcome variable, which precludes meaningful interpretation of betas. Therefore, interpretation of the regression parameters are better expressed in terms of incident rate ratios (IRRs), which are obtained by exponentiation of the regression coefficients. An IRR is interpreted similarly to an odds ratio except that the outcome of interest is the rate of incidents rather than the odds of an incident occurring. That is, for each one-unit change in the predictor variable, the rate of

Table 1. Means and Standard Deviations for Predictor and Criterion Variables.

No Arrest History (<i>n</i> = 488)			History of Arrest (<i>n</i> = 106)		
Variable	<i>M</i>	<i>SD</i>	Variable	<i>M</i>	<i>SD</i>
Age	26.56	6.7	Age	30.12	7.1
Education	5.39	0.8	Education	5.14	0.9
Income	7.64	3.7	Income	6.85	3.7
IPM	42.31	8.7	IPM	45.82	11.0
CA	41.72	7.7	CA	44.59	8.9
ELS	43.05	9.0	ELS	50.72	8.4
ASB	26.19	9.1	ASB	36.49	9.6
Fighting	2.56	8.4	Fighting	7.41	13.4
Assault	0.49	3.0	Assault	2.34	6.8
Weapon	0.03	0.4	Weapon	0.69	2.1
Injury	0.14	1.1	Injury	1.42	5.3

Note. IPM = interpersonal manipulation; CA = callous affect; ELS = erratic lifestyle; ASB = antisocial behavior.

outcome incidents changes by a factor of $(IRR - 1) \times 100\%$. Thus, an IRR of 3.0 indicates that for each unit increase in the predictor variable, the rate of the incidents increases by 200%, whereas an IRR of 0.30 would indicate a 70% decrease in the rate of the outcome for each 1 standard deviation increase in the predictor variable (see Hilbe, 2011, for an in-depth explanation of negative binomial regression).

For each outcome, we first conducted two simultaneous negative binomial regressions with age entered as a control variable (given that older men would have had more opportunity to acquire an arrest history than younger men) and three facets entered as predictors, removing the fourth facet, ASB: one for men with no history of arrest and one for men with a history of arrest. We repeated these regressions with the four-facet structure. We present IRRs, which are derived from the exponentiated regression coefficients, as measures of effect size for each facet-level predictor. Finally, to determine whether regression coefficients differed across the two subsamples, we computed interaction terms between centered CA psychopathy facet scores and the dichotomous arrest variable. We then recomputed multiple regression equations with age, all psychopathy facet predictors, the dichotomous arrest history variable, and the interaction term. A significant interaction term indicates that regression coefficients differed between men with no history of arrest and men who had a history of arrest.

Table 2. Mean Comparisons of Men With and Without History of Arrest.

Variable	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Age	4.93	592.00	.000	0.41
Education	2.76	591.00	.006	0.40
Income	1.99	591.00	.047	0.21
IPM	3.06	132.32	.003	0.53
CA	3.03	138.07	.003	0.52
ELS	7.90	571.00	.000	0.66
ASB	10.42	582.00	.000	0.86
Fighting	3.52	119.27	.001	0.64
Assault	2.73	114.04	.007	0.51
Weapon	3.14	105.20	.002	0.61
Injury	2.47	104.91	.02	0.48

Note. Significance tests of mean comparisons for IPM, CA, and all four violence outcomes were corrected for unequal variances. IPM = interpersonal manipulation; CA = callous affect; ELS = erratic lifestyle; ASB = antisocial behavior.

Results

Respondents completed the online surveys in approximately 30 min on average ($M = 34.0$; $SD = 38.3$; Range = 5.3-677.8).¹ Descriptive statistics of the study sample revealed it to be relatively consistent with the general U.S. population (U.S. Census Bureau, n.d.) in terms of ethnicity (72% Caucasian; 13% Asian; 7% Black or African American; 7% Hispanic or Latino) and income (Median = US\$37,500; Mode = US\$55,000; Range = \leq US\$5,000 to \geq US\$100,000) but slightly younger ($M = 27.2$; $SD = 6.8$; Median = 25.5; Range = 18 to 50)² and slightly more educated (Median = some college; Mode = some college; Range = \leq 7 years of school to graduate school or professional training) compared with the general population of men. Of the 600 men, 488 (81.3%) reported no history of arrest, whereas 106 (17.7%) reported a history of one or more arrests. Six men (1.0%) did not respond to the question and thus were not included in analyses of subgroups. Table 1 displays mean demographics, psychopathy facet scores, and violence outcomes for each group. As would be expected, men reporting a history of arrests were older, less educated, had lower income, were more psychopathic, and reported more instances of all types of violent assaults. Effect sizes of these differences were generally moderate in magnitude (see Table 2).

We first conducted regressions using the three-facet structure as predictors. Without the ASB facet included in the model, CA was the only facet consistently associated with all violence outcomes within and across the two groups (see Table 3). A pattern emerged wherein CA was most strongly associated with the

Table 3. Negative Binomial Regressions With Three-Facet Structure.

Criterion	Predictor	No Arrest History (n = 488)				History of Arrest (n = 106)				
		B	SE	p	IRR	B	SE	p	IRR	
Fighting	Age	0.56	0.11	.000	1.75	Age	0.43	0.15	.004	1.54
	IPM	0.08	0.10	ns	1.09	IPM	-0.08	0.14	ns	0.93
	CA	0.25	0.09	.007	1.28	CA	0.30	0.14	.04	1.35
	ELS	0.22	0.09	.02	1.24	ELS	0.09	0.19	ns	1.10
Assault	Age	0.43	0.21	.04	1.54	Age	0.15	0.19	ns	1.16
	IPM	0.22	0.21	ns	1.24	IPM	-0.31	0.27	ns	0.74
	CA	0.49	0.17	.004	1.63	CA	0.63	0.24	.01	1.87
	ELS	0.31	0.26	ns	1.36	ELS	1.15	0.40	.003	3.17
Assault with a weapon	Age	0.50	0.45	ns	1.64	Age	0.11	0.10	ns	1.12
	IPM	1.28	0.81	ns	3.58	IPM	-0.20	0.19	ns	0.82
	CA	2.03	0.44	.000	7.58	CA	1.12	0.31	.000	3.05
	ELS	0.61	0.56	ns	1.83	ELS	0.07	0.41	ns	1.07
Injury	Age	1.51	0.29	.000	4.53	Age	0.48	0.26	ns	1.61
	IPM	0.12	0.34	ns	1.13	IPM	-0.08	0.26	ns	0.92
	CA	1.21	0.29	.000	3.34	CA	0.84	0.28	.003	2.31
	ELS	0.29	0.46	ns	1.33	ELS	-0.26	0.35	ns	0.76

Note. B = regression coefficient; IRR = incident rate ratio; IPM = interpersonal manipulation; CA = callous affect; ELS = erratic lifestyle. Bolded numbers refer to effect sizes that are significant at $p < .05$.

most severe acts of violence: The IRRs of 7.58 and 3.34 for CA indicate a 658% and 234% increase in the rate of assaults with weapon and assault causing injury, respectively, for every 1 standard deviation increase in CA. We next computed and tested the interaction term between CA and arrest history to determine whether slopes differed significantly across men with and without history of arrest. The CA facet was more strongly associated with assault with a weapon for men with no arrest history compared with men with an arrest history, $b = -1.37, SE = 0.51, p = .007$. There were no statistically significant differences in CA on the three other violence outcomes.

We repeated the regression equations of the four violence outcomes using the four-facet structure as predictors (see Table 4). As expected, among men without arrest history, CA was the only facet consistently related to all violence outcomes. In fact, it was most strongly associated with the most severe acts of violence (i.e., assault with a weapon, assault causing injury). The ASB facet was not significantly associated with any violence outcomes among men with no history of arrest. However, ASB was the most consistent statistical predictor of

Table 4. Negative Binomial Regressions With Four-Facet Structure.

Criterion	Predictor	No Arrest History (<i>n</i> = 488)				History of Arrest (<i>n</i> = 106)				
		<i>B</i>	<i>SE</i>	<i>p</i>	IRR	<i>B</i>	<i>SE</i>	<i>p</i>	IRR	
Fighting	Age	0.57	0.11	.000	1.76	Age	0.42	0.15	.005	1.52
	IPM	0.08	0.10	<i>ns</i>	1.08	IPM	-0.08	0.13	<i>ns</i>	0.92
	CA	0.25	0.10	.01	1.28	CA	0.21	0.15	<i>ns</i>	1.24
	ELS	0.23	0.10	.02	1.25	ELS	0.04	0.19	<i>ns</i>	1.04
	ASB	-0.01	0.11	<i>ns</i>	0.99	ASB	0.23	0.17	<i>ns</i>	1.26
Assault	Age	0.43	0.21	.05	1.53	Age	0.18	0.18	<i>ns</i>	1.20
	IPM	0.22	0.21	<i>ns</i>	1.24	IPM	-0.30	0.24	<i>ns</i>	0.74
	CA	0.42	0.20	.04	1.53	CA	0.42	0.28	<i>ns</i>	1.53
	ELS	0.27	0.28	<i>ns</i>	1.30	ELS	1.00	0.44	.02	2.72
	ASB	0.28	0.29	<i>ns</i>	1.32	ASB	0.62	0.27	.02	1.86
Assault with a weapon	Age	0.45	0.45	<i>ns</i>	1.57	Age	0.29	0.27	<i>ns</i>	1.34
	IPM	1.78	0.57	.002	5.86	IPM	-0.31	0.37	<i>ns</i>	0.73
	CA	1.53	0.38	.000	4.60	CA	0.54	0.43	<i>ns</i>	1.71
	ELS	0.38	0.64	<i>ns</i>	1.47	ELS	-0.38	0.46	<i>ns</i>	0.69
	ASB	0.49	0.40	<i>ns</i>	1.63	ASB	1.76	0.60	.003	5.80
Injury	Age	1.53	0.29	.000	4.61	Age	0.58	0.28	.04	1.79
	IPM	0.07	0.36	<i>ns</i>	1.07	IPM	-0.13	0.25	<i>ns</i>	0.88
	CA	1.15	0.31	.000	3.15	CA	0.57	0.27	.03	1.76
	ELS	0.28	0.46	<i>ns</i>	1.33	ELS	-0.52	0.34	<i>ns</i>	0.59
	ASB	0.09	0.31	<i>ns</i>	1.10	ASB	1.10	0.25	.000	2.99

Note. *B* = regression coefficient; IRR = incident rate ratio; IPM = interpersonal manipulation; CA = callous affect; ELS = erratic lifestyle; ASB = antisocial behavior. Bolded numbers refer to effect sizes that are statistically significant at $p < .05$.

violence among men who had been arrested, predicting increased rates of assault, assault with a weapon, and assault causing injury. Contrary to expectation, CA was associated with assault causing injury among men with a history of arrest even when the ASB facet was included in the model, although the effect size was not as large as for men without history of arrest. Again, CA was more strongly associated with assault using a weapon among men without history of arrest versus men with a history of arrest, $b = -1.10$, $SE = 0.47$, $p = .02$, in the four-facet model, but not for any of the other violence outcomes.

Discussion

The present study was undertaken with the goal of better understanding the association between CA and severe acts of violence in a nonforensic sample.

We sought to determine whether the CA facet of psychopathy demonstrated differential association to violence among men with versus without a history of arrest. In doing so, we conducted the analyses using both the four-facet model (including the ASB facet) and the three-facet model (excluding the ASB facet) to account for potential problems with criterion contamination. We expected that in the four-facet model, the CA facet would be more strongly and consistently associated with violence among men without an arrest history. In addition, we expected that when using the three-facet model, the CA facet would be associated with violence across the two groups, although still more strongly among men without an arrest history. Indeed, in the four-facet model, the CA facet was consistently associated with all violence outcomes among men with no arrest history. In fact, in the three-facet model, CA was associated with all violence outcomes regardless of whether men had an arrest history. Thus, in nonforensic populations, in which the rates of initial aggression and violence tend to be markedly lower than in forensic populations, the detection of CA may prove fruitful in identifying men at risk for significant violence.

Not surprisingly, the ASB facet was the most consistent predictor of violence among men who did have an arrest history. However, it was not associated with any violence outcomes in the subgroup of men with no arrest history. Notably, the CA facet remained associated with violent injury in the group of men with criminal history even with the ASB facet included in the statistical model. In fact, the regression coefficients for the CA facet only differed statistically across the two subsamples of men for one outcome: assault with a weapon. Although we may have lacked statistical power to identify a significant difference between the coefficients of the two populations on the three other outcomes, regression coefficients for fighting and assault were nearly identical, suggesting there was no difference between the two groups of men on these violence outcomes. Regardless of its statistical association with violence (or lack thereof) in men with a criminal background, the CA facet was clearly strongly associated with violence in the subsample of men who had evaded arrest despite their lifetime history of violence. Moreover, the fact the CA facet was associated with violence for both groups of men when using the three-facet model suggests CA may be an important marker for violence, if not a causal factor in the development of violence (e.g., Blair, 2013).

Implications for Public Health

Violence is of paramount importance to both the criminal justice and public health systems. Considerable effort and resources have been directed toward violence, with most efforts going toward innovation in health care for victims

or criminal justice interventions to deter recidivism (Mercy, Rosenberg, Powell, Broome, & Roper, 1993; Moore, 1995). However, these efforts have not come close to eradicating violence or its tragic consequences (Mercy, Krug, Dahlberg, & Zwi, 2003). For these reasons, the public health system strives to prevent violence before it emerges and becomes entrenched in individuals' behavioral repertoires, an approach known as primary prevention. For such prevention to be effective, however, one must identify those persons at highest risk for violence, the risk factors associated with their violence, and, ideally, potential etiological processes that give rise to violence (Mercy et al., 1993). This study addresses the potential utility of CA to identify such persons at risk.

Our findings are consistent with research by Hall, Benning, and Patrick (2004) indicating that the CA facet is associated with violence over and above the interpersonal and lifestyle facets of psychopathy in the context of the three-facet model. Our results also suggest that the link between psychopathy and future violence is not entirely due to criterion contamination resulting from the inclusion of explicitly antisocial and criminal items in psychopathy measures. In addition, some data suggest the affective deficits of psychopathy measured in adolescence predict aggressive behavior in adulthood incrementally (albeit modestly) over both concurrent and preexisting antisocial and aggressive behavior (e.g., Forsman, Lichtenstein, Andershed, & Larsson, 2010). Indeed, preliminary evidence suggests that the emotional deficits of psychopathy may be reliably assessed and distinguished from the behavioral dimensions of associated disorders in childhood and perhaps even as early as 3 years of age (Hyde et al., 2013; Willoughby, Mills-Koonce, Gottfredson, & Wagner, 2014; Willoughby, Waschbusch, Moore, & Propper, 2011). Moreover, these early-assessed traits are predictive of stable aggression into early adolescence (Willoughby et al., 2014). This finding may bear significant implications for the primary prevention of violence. Specifically, CA assessed in adolescence (i.e., callous-unemotional traits) appears to designate a particularly violent type of juvenile who offends earlier, and with greater severity, chronicity, and persistence into adulthood (Frick & White, 2008; Lynam, 1997; Porter & Porter, 2007; Reidy et al., 2015). However, by adolescence, many of these youths' violent behaviors have begun to consolidate and may be deeply entrenched as stable behavioral patterns. If we can reliably and validly assess CA at an early enough age, we may be able to identify youth who are at risk for persistent and severe violence (Lynam, 1996; Reidy et al., 2015). Preliminary evidence suggests that we can identify CA in young children before the onset of aggression and behavioral problems (Hyde et al., 2013; Willoughby et al., 2014; Willoughby et al., 2011), suggesting that this trait may ultimately be useful as a primary prevention target.

Of course, there is justified hesitation by researchers and clinicians to apply the term “psychopath” to youth, and we do not argue for such use here. Measures of CA and associated psychopathic traits are not infallible and there exists risk of false positives. Likewise, some youth may “age out” of these predispositions and others may remain callous in their affect but never become violent (Reidy et al., 2015). At the same time, refining our ability to identify at-risk populations is a critical role of public health and an essential step in violence prevention (Mercy et al., 1993). Elsewhere, we have argued that psychopathy is a public health problem that requires public health solutions (Reidy et al., 2015). Thus, we envision this as a process to identify youth most in need of prevention resources to maximize their health and the health of those in their communities, not as a method to diagnose psychopathy in youth.

Importantly, effect sizes for the CA facet were largest for the most severe types of violence. For example, when considering how many times men attacked someone with a weapon intending to harm, injure, rape, or kill, the CA facet evinced an IRR of 4.60 in the four-facet model. This means that for every standard deviation increase in CA, the incident rate of these assaults increased by 360%. Put another way, in the present sample, men high in CA (i.e., $+1 SD$) committed assaults with a weapon at a rate 720% higher than men low in CA (i.e., $-1 SD$). In the three-facet model, the rate was 1,316% higher. Likewise, high CA men reported causing injuries at a rate 430% higher than low CA men (or 468% in the three-facet model). Notably, the base rates of such violent acts were low in the present sample, although generally consistent with those of the general population. Still, the rarity of these incidents should not lead us to dismiss them as exerting little effect on collective levels of violence. The average combined medical and work loss cost of a violent assault injury treated in an emergency department is approximately US\$7,052, and this number jumps to nearly US\$162,755 for assaults requiring hospitalization (CDC, n.d.).³ Moreover, each homicide imposes a burden of more than US\$1.5 million in health care and lost wages (CDC, n.d.).

Limitations

The present research is not without limitations. The data are cross-sectional and derived from a community sample of men recruited by means of an online crowd sourcing site. The design of the study does not allow for either longitudinal or causal inferences regarding the role of psychopathy in the development of violence. Replicating these findings with longitudinal data starting in early childhood would improve our ability to understand the role of CA in the development, identification, and primary prevention of violence.

In addition, to fully understand the public health implications of psychopathy and CA, it would be important to use targeted probability sampling procedures to increase the representativeness of such research. Although our data are broadly consistent with the proportion of the population with the highest rates of violence, and comparable with the general population in terms of ethnicity and income, our sample is not entirely representative of the general U.S. population as it is slightly more educated and younger (U.S. Census Bureau, 2015). In addition, pertinent questions about the role of racial and ethnic diversity are still to be answered. Although our sample is generally consistent with the U.S. population in terms of race and ethnicity, it is largely Caucasian. However, African American and Hispanic men are disproportionately represented in forensic populations as well as in violent crime relative to Caucasian men (e.g., Carson, 2014; Cooper & Smith, 2011). Given the relatively small number of non-Caucasian men in the present study, it was not feasible to address questions of differential functioning among racially and ethnically diverse populations.

In relation to limitations of assessment, self-report measures may not accurately reflect the nature of real-world criminal behaviors and their prevalence. Despite the anonymity of the current data collection process, some men may have underreported their violent behavior, psychopathy levels, or both (but see Watts et al., 2016, for evidence that social desirability response biases do not appear to attenuate the validity of SRPs). Likewise, retrospective report of lifetime behavior may reflect biased or otherwise inaccurate recall of behavior. Future studies using longitudinal designs would reduce the limitations of retrospective reports of antisocial acts. Finally, the present study used a single well-validated measure of psychopathy, which creates the risk of mono-operation bias (bias arising from the reliance on a single operationalization of a construct, resulting in underrepresentation of its content). Future research may bolster the present findings by using multiple measures and methods of assessing the emotional deficits associated with psychopathy.

Conclusion

Psychopathy and its associated risk for violence pose significant public health challenges (Reidy et al., 2015). A growing body of evidence indicates that of the psychopathy facets, the ASB facet is the best predictor of violence in forensic populations (Leistico et al., 2008; Skeem & Cooke, 2010a). This is to be expected due to the criterion contamination between the ASB facet and criterion violence (see Nicholls, Licht, & Pearl, 1982, for a broader discussion of this issue). However, these findings do not negate the association of the other psychopathy facets to violence or their role in the development of

violence, nor do they offer practical utility to the public health system, where the paramount goal is the primary prevention of violence. The ability of the ASB facet to better subsume the variance of criterion violence in a statistical model than other facets of psychopathy does not nullify the potential role of these other factors in the development of such violence or the ability to identify potentially violent individuals who have escaped detection by the criminal justice system. The present data implicate CA as a correlate of severe violence among community men, a finding congruent with data from adolescent and early childhood populations that implicate early emotional deficits in later aggressive behavior (Blair, 2013; Frick & White, 2008; Reidy et al., 2015; Willoughby et al., 2014). Thus, the CA component of psychopathy may be uniquely important in the early identification of at-risk individuals and ultimately the primary prevention of violence.

Authors' Note

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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Notes

1. We present analysis with all respondents given that this is the most conservative approach. However, we did test the influence of seven outlier respondents who were more than 3 standard deviations from the mean completion time by running analyses without them. We found no change in the pattern of results.
2. As we restricted the age range of our sample to be 18 to 50 years old, we would expect our sample to be younger than the overall general population.
3. These numbers are updated to 2015 dollars from 2010 dollars using the Consumer Price Index.

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