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Impulsive versus Premeditated Aggression in the Prediction of Violent Criminal Recidivism

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Abstract

Past aggression is a potent predictor of future aggression and informs the prediction of violent criminal recidivism. However, aggression is a heterogeneous construct and different types of aggression may confer different levels of risk for future violence. In this prospective study of 91 adults in a pretrial diversion program, we examined a) premeditated versus impulsive aggression in the prediction of violent recidivism during a one-year follow-up period, and b) whether either type of aggression would have incremental validity in the prediction of violent recidivism after taking into account frequency of past general aggression. Findings indicate that premeditated, but not impulsive, aggression predicts violent recidivism. Moreover, premeditated aggression remained a predictor of recidivism even with general aggression frequency in the model. Results provide preliminary evidence that the assessment of premeditated aggression provides relevant information for the management of violent offenders.

Interpersonal aggression is a multifaceted social and public health problem (Kazdin, 2011), and identifying factors that predict aggression is an international research priority (WHO, 2002). Rates of aggression are high among individuals with histories of criminal behavior (Swogger, Walsh, Houston, Cashman-Brown, & Conner, 2010), and reducing criminal recidivism that involves physically aggressive acts (hereafter referred to as violent recidivism)¹ is of particular concern given potential harm to the victim, the offending individual, and the community. Identifying factors that lead to violent recidivism may lead to improved management and treatment of individuals involved in the criminal justice system.

Actuarial risk assessment measures, which combine variables associated with aggressive behavior to calculate an individual's risk for future violence, are more accurate than most

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¹We have operationalized violence and aggression according to prior studies, with aggression being the broader of these overlapping constructs. Aggression, as assessed using the Life History of Aggression Questionnaire (Coccaro, 1997), includes behavior (e.g., yelling, tantrums) that may be less likely to result in arrest than violence, as operationalized by Walsh, Swogger, & Kosson (2004).

structured clinical measures and unstructured clinical judgment (see Yang, Wong, & Coid, 2010, for a review). These measures have been criticized for producing false-positives on one hand and a failure to identify cases on the other (Large & Nielssen, 2011; Mossman, 2009), leaving room for improvement through the identification of new individual-level variables that predict violent recidivism. Of previously identified variables, prior aggression is among the strongest predictors of future acts of aggression (Blomhoff, Seim, & Friis, 1990; Fazel, Buxrud, Ruchkin, & Grann, 2010). Aggression is a heterogeneous construct; different types of aggression may confer different levels of risk for violent recidivism. Moreover, fine-grained assessments of aggression enable a better understanding of the motivations of violent offenders.

One fundamental distinction in the classification of aggressive behavior is between impulsive and premeditated aggression. Impulsive aggression (akin to “reactive” aggression)² occurs in response to a perceived threat or provocation (Berkowitz, 1993). This type of aggression involves affective arousal and resulting disinhibition, leading to a rapid and poorly considered behavioral response. Premeditated aggression (akin to “proactive” aggression), in contrast, is often premeditated and is behavior that is useful to obtaining some subsidiary goal (Berkowitz, 1993). The impulsive/premeditated aggression distinction can inform assessments of treatment prognosis and violence risk management (Eaves, Douglas, Webster, Ogloff, & Hart, 2000). The distinction may also increase specificity in our understanding of the link between past and future violence. However, we are unable to identify prior studies that have examined the distinct utility of impulsive versus premeditated aggression for predicting violent recidivism.

Impulsive aggression is broadly associated with negative affect and related psychopathology in both correctional and non-correctional samples (Miller & Lynam, 2006; Swogger, et al., 2010; Tweed & Dutton, 1998). Studies have linked impulsive aggression to high levels of guilt, hostility, neuroticism, and trait anger (Chase, O’Leary, & Heyman, 2001; Gauthier, Furr, Mathias, Marsh-Richard, & Dougherty, 2009; Miller & Lynam, 2006; Shoham, Askenasy, Rahav, Chard, & Addi, 1989). Similarly, impulsive aggression has been linked to anxiety-related disorders, depression, borderline personality, antisociality, and alcohol and drug problems (Stanford, Houston, & Baldrige, 2008; Swogger et al., 2010). The frustration-aggression hypothesis (Berkowitz, 1989) provides a model for understanding the link between psychopathology and impulsive aggression. In this model, negative affective states that occur in response to frustration or social stress may turn to anger and increase the propensity for impulsive aggression. Indeed, experimental studies designed to induce negative affective states have demonstrated a link between negative emotionality and aggressive tendencies (Netter, Hennig, Rohrmann, Wyhlidal, & Hain-Hermann, 1998; Verona, Patrick, & Lang, 2002).

Premeditated aggression can be viewed through the lens of social-cognitive learning theory (Bandura, 1986). In this theory, aggression is behavior that has been acquired and reinforced

²Whereas impulsive and premeditated aggression as measured in the present study are similar to reactive and proactive aggression as measured using the Reactive-Proactive Aggression Questionnaire (Raine et al., 2006), the measures are not equivalent (see Teten Tharp et al., 2011).

through acquisition of rewards that follow it. Premeditated aggression is less common and less closely tied to general psychopathology than impulsive aggression, but is associated with psychopathic personality traits (Walsh, Swogger, & Kosson, 2009; Woodworth & Porter, 2002). Psychopathy, a personality disorder characterized by lack of empathy and remorse, superficial charm, pathological lying, and marked antisocial behavior, involves deficient emotionality that may contribute to the capacity for premeditated aggression. In an early study, Cornell et al. (1996) found that criminal offenders who had committed one or more premeditated violent acts had higher psychopathy scores, as measured by the Psychopathy Checklist Revised (PCL-R; Hare, 2003) than offenders whose aggression histories consisted of impulsive aggression only. Subsequently, the link between psychopathy and premeditated aggression has been demonstrated in youth and adults across a number of measures of premeditated aggression (Flight & Forth, 2007; Swogger et al., 2010; Vitacco, Neumann, Caldwell, Leistico, Van Rybroek, 2006, & Walsh et al., 2009). Notably, psychopathy is closely tied to violent recidivism (Leistico, Salekin, DeCoster, & Rogers, 2008), with PCL-R scores yielding moderate to large effect sizes in the prediction of violent recidivism that generalize well across offender age, country, setting, and race and ethnicity (Hare, Clark, Grann, & Thornton, 2000; Leistico et al., 2008).

Although there is considerable evidence for the reliability and validity of the impulsive/premeditated aggression distinction (Cornell et al., 1996; Poulin & Boivin, 2000; Walsh et al., 2009), most prior studies of these subtypes of aggression classify criminal offenders or aggressive acts into distinct categories of either impulsive or premeditated aggression (e.g., Helfritz & Stanford, 2006; Walsh et al., 2009; Woodworth & Porter, 2002). However, because many aggressive individuals engage in both impulsive and premeditated aggressive acts, such use of categorical rather than continuous variables can produce misleading results (Beauchaine, 2003) and obscure the relative propensity for each type of aggression at the level of the individual violent actor. Studies of aggression that concurrently examine continuous measures of both impulsive and premeditated aggression provide a more comprehensive assessment by allowing for the examination of the extent to which specific outcomes are associated with both impulsive and premeditated aggression.

This prospective study is the first to examine tendencies toward impulsive and premeditated aggression at baseline as predictors of violent recidivism, and has two complementary aims: First, we aimed to examine whether tendencies toward impulsive and premeditated aggression were distinctly predictive of violent recidivism. We predicted that premeditated aggression, representing the rarer and potentially more severe form of violence (Reidy, Shelley-Tramblay, & Lilienfeld, 2011), and by virtue of its relationship to psychopathy, would confer risk for violent recidivism. We also examined whether impulsive aggression conferred such risk. Our second aim was to examine whether the assessment of tendencies toward impulsive or premeditated aggression would achieve incremental validity by adding uniquely to the prediction of violent recidivism after we accounted for frequency of general aggression.

Method

Participants

Participants were 91 adults participating in a pretrial supervision day reporting program subsequent to being charged with a crime. Table 1 describes the sample. The mean number of lifetime violent charges (including robbery, assault, murder, weapons charges, kidnapping, arson, criminal damage to property, and sex crimes; Walsh, Swogger, & Kosson, 2004) for the sample was 3.5 (SD = 5.1).

Procedures

Following an announcement about the study in a common area of the day reporting program, consenting individuals ($n = 267$; 73.8% of those approached) completed group-administered, self-report measures and were compensated. A subset of these individuals ($n = 100$) were then randomly selected to complete a semi-structured interview that assessed education, relationships, family life, and criminal and work history. Measures of premeditated and impulsive aggression were completed after this interview. All invited individuals agreed to participate in the second session and were compensated for their time. Following the interview, participants' institutional files and a statewide criminal database were reviewed to further assess criminal history. Nine participants were dropped from the analysis due to missing data on aggression measures, leaving a final sample of 91. The study was approved by the University of Rochester Research Subjects Review Board and a Federal certificate of confidentiality was obtained.

Measures

Race and Education—Participants reported race during baseline assessments. Because Black individuals and individuals of other non-White race/ethnicity had the same re-arrest rates (40%), these groups were aggregated into a dichotomous White/Other variable to increase power. Participants also reported education (in years completed).

Impulsive and Premeditated Aggression—The Impulsive-Premeditated Aggression Scales (IPAS; Stanford et al., 2003) consist of statements pertaining to subjects' general perceptions about acts of aggression that they have perpetrated over their lifetimes on a 5-point Likert scale. A complete listing of items is available in Stanford et al. (2003). In the original study of the IPAS, a community sample of men with anger/aggression problems were administered the 30-item IPAS and principal components analysis yielded impulsive and premeditated factors (Stanford et al., 2003). These two factors were subsequently validated using the IPAS in forensic patients (Kockler, Stanford, Nelson, Meloy, & Sanford, 2006), conduct disordered adolescents (Mathias et al., 2007), college students (Haden, Scarpa, & Stanford, 2008), and substance dependent individuals (Conner, Swogger, & Houston, 2009). We used the 12-item impulsive aggression and 13-item premeditated aggression scales derived from forensic patients (Kockler et al., 2006). In the present study, internal consistency for impulsive ($\alpha = .86$) and premeditated aggression ($\alpha = .82$) were good (Kline, 1999).

General Aggression—Frequency of general aggression since age 13 was assessed at baseline using the 5-item aggression subscale of the Life History of Aggression Questionnaire (LHAQ), a reliable and valid measure of overt verbal and physical aggression that yields a continuous score (Coccaro, Berman, & Kavoussi, 1997). The LHAQ uses 0–4 scales to assess the frequency of different types of aggression from “none” to “more events than can be counted”. In the present sample, internal consistency for the aggression subscale was good ($\alpha=.89$).

Violent Recidivism—Violent recidivism during the one-year follow-up period was assessed using state criminal history files, and supplemented with criminal history files from the jail diversion program to create a binary variable indicating the presence versus absence of a new violent charge during the follow-up period. Nineteen individuals (20.9%) were charged with a new violent crime in the year following their baseline research assessment.

Data Analytic Plan

Bivariate analyses were point-biserial correlations that examined predictors’ associations with a binary outcome variable – violent recidivism versus no violent recidivism - during the one year follow-up period. The multivariate analysis was a hierarchical logistic regression with violent recidivism as the criterion variable. On Step One, we planned to include variables that exhibited significant or trend-level bivariate relationships to violent recidivism in order to determine (on Step Two) whether aggression type contributes to the prediction of violent recidivism after controlling for relevant covariates.

Results

There were no bivariate outliers (± 3 SDs from the mean) and a Kolmogorov-Smirnov test (Marsaglia, Tsang, & Wang, 2003) indicated that scores on the IPAS did not exhibit significant skewness or kurtosis. Bivariate results are reported in Table 2. Race was associated with violent recidivism during follow-up such that non-white participants were significantly more likely to be charged with a new crime. Frequency of general aggression marginally predicted violent recidivism at follow-up ($p = .06$). Gender and education level were not associated with recidivism. Premeditated and impulsive aggression were correlated ($r=.57$). In bivariate analyses, premeditated, but not impulsive aggression was associated with violent recidivism.

Multivariate Analyses

In the multivariate model (Table 3), race and frequency of general aggression both predicted violent criminal recidivism on Step One. Premeditated aggression was entered as a predictor on Step Two and remained a significant predictor of violent recidivism after controlling for race and general aggression, representing a 9% increase in hazard for violent recidivism for each point on the scale. Lastly, we ran analyses that determined there were no significant predictor X predictor interactions in relation to violent recidivism ($ps = .17-.74$).³

³We conducted an additional regression that examined the unique variance in violent recidivism accounted for by premeditated aggression, controlling for race and impulsive aggression. This analysis yielded the same pattern of results as our primary analysis, except that premeditated aggression became a trend ($p = .07$).

Discussion

It is well established that frequency of past violent behavior is a strong predictor of future violence (Fazel et al, 2010). The current study aimed to increase specificity in our understanding of this relationship by asking which of two major subtypes of aggression, impulsive and premeditated, is more predictive of future violence. To our knowledge this was the first study to compare impulsive and premeditated aggression as predictors of violent criminal recidivism. Consistent with our hypothesis, a tendency toward premeditated aggression assessed at baseline predicted violent recidivism during a one-year follow-up period. Moreover, this predictive relationship remained significant after adjusting for general propensity for aggression, suggesting that assessing *type* of violence provides important information beyond frequency of violent acts. By contrast, impulsive aggression did not predict violent recidivism at a statistically significant level. Consistent with prior research (e.g., Marsee, Weems, & Taylor, 2008), the two types of aggression were highly correlated, suggesting that many individuals exhibit both premeditated and impulsive aggression.

Premeditated aggression is motivated by an external goal and is not necessarily preceded by a potent affective reaction (Woodworth & Porter, 2002). As such, it is “chosen” in a way that impulsive aggression is not. Indeed, some have proposed that premeditated aggression constitutes an overtly learned behavior (Bandura, 1986), that is motivated by anticipated reward (Tuvblad, Raine, Zheng, & Baker, 2009), and as such reflects a consistent adaptive strategy. Consistent with this proposition are reports that children who use premeditated aggression attach a positive value to aggressive behavior for dealing with conflict (Crick & Dodge, 1996), making it more likely that these tendencies will be maintained. Despite these proposed learning bases for premeditated aggression, other research has shown that much of the construct’s stability is accounted for by genetic factors. (Tuvblad et al., 2009). More research is necessary to disentangle the etiology of premeditated aggression. It is not surprising that considerable evidence has linked premeditated violence with psychopathy, a personality disorder that is characterized by the callous, manipulative use of interpersonal violence (Hare, 2003). Additional studies are necessary to determine whether the predictive value of premeditated aggression remains after taking into account psychopathy’s utility in predicting violent recidivism.

By contrast, impulsive aggression, understood using the frustration-aggression model in which aggression is a hostile reaction to frustration (Berkowitz, 1993), did not predict violent recidivism. This may be, in part, due to the unstable nature of pathology shared among impulsively aggressive offenders. Individuals who engage in impulsive aggression are more likely to exhibit forms of psychopathology (e.g., generalized anxiety disorder, posttraumatic stress disorder) for which there are empirically based therapies (e.g., Cognitive Behavioral Therapy; Butler, Chapman, Forman, & Beck, 2006) that can reduce the mental health burden. These conditions also wax and wane in severity with environmental circumstances, including substance use and stressful life events (Dohrenwend, 2006). Supporting this idea are recent data indicating that environmental factors (e.g., harsh parenting, peer victimization) contribute heavily to impulsive aggression (Tuvblad et al., 2009).

The finding that a tendency toward premeditated aggression has incremental validity over a measure of general aggression in predicting violent recidivism is intriguing and suggests that the assessment of premeditated aggression may be important for determining risk of violent offending. Tendencies toward premeditated aggression can be readily assessed and our finding of prognostic value for premeditated aggression suggests that it may play a role in the complex and important clinical task of assessing risk for violence.

Non-White race was associated with violent recidivism after we controlled for baseline frequency of general violence. Structural approaches to understanding racial differences in violent crime involve the view that race is best understood as a marker for sociodemographic differences (Sampson, Morenoff & Raudenbush, 2005). Non-White inmates have poorer employment rates upon release, greater economic difficulties, and lower longitudinal wage earning than Whites (Needels, 1996). Whereas these problems lead to greater risk for violent reoffending among non-Whites, this may also reflect the well-documented ethnic disparity in the US criminal justice system's treatment of White and Non-White individuals (Bales & Piquero, 2012; Meehan & Ponder, 2002; Tonry, 1995).

There were limitations of the study. First, our index of recidivism was based on acts leading to police involvement; violent acts that were not recorded by law enforcement were not included in our outcome. Second, we examined offenders, with unclear generalizability to other populations. Third, our modest sample size restricted statistical power and ruled out examining potential mechanisms of the observed relationships. There were also noteworthy strengths of the study including the use of well-validated measures, the concurrent examination of premeditated and impulsive aggression, and the longitudinal study design. We recommend that future studies of impulsive and premeditated aggression include multiple measures of violence and aggression (e.g., self-report, collateral information) as outcomes, in order to increase sensitivity. Moreover, additional research is necessary to determine whether the assessment of premeditated aggression is useful for improving actuarial measure-based estimates of violence risk.

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Table 1

Sample descriptive statistics and means on aggression measures.

Demographic Variables	Total (N=91)		
	Mean	N	%
Age	35.4 (11.1)		
Gender			
Men		67	73.6
Women		24	26.4
Race			
White		28	30.8
Black		56	61.5
Other Race		7	7.7
Education			
Education < 12 years		54	59.3
Education ≥ 12 years		37	40.7
Employment			
Unemployed		44	48.4
On disability		12	13.2
General Aggression	12.3 (7.1)		
Premeditated Aggression	35.6 (9)		
Impulsive Aggression	35.8 (9.4)		
Lifetime Violent Charges	3.5 (5.1)		

Table 2

Intercorrelations among study variables.

	1	2	3	4	5	6	7
1. Female gender	-	-.13	.19	-.17	.19	.09	.12
2. White race	-	-	.10	.12	.09	-.13	-.29**
3. Impulsive aggression	-	-	-	.57**	.54**	-.08	.14
4. Premeditated aggression	-	-	-	-	.30**	-.13	.21*
5. Frequency of general aggression	-	-	-	-	-	-.04	.20
6. Education level	-	-	-	-	-	-	-.15
7. Violent recidivism	-	-	-	-	-	-	-

Note. Pearson's r was used for continuous variables (impulsive and premeditated aggression, frequency of general aggression) and point-biserial correlations were used for dichotomous variables (gender, race, violent recidivism)

* $p = .05$,

** $<.01$

Table 3

Logistic regression model predicting violent recidivism during one-year follow-up.

	OR	95% C.I.	<i>p</i>
<u>Step One</u>			
Non-White race	12.90	(1.59–105.01)	.017
Frequency of general aggression	1.09	(1.01–1.18)	.034
<u>Step Two</u>			
Non-White race	17.91	(2.04–157.35)	.009
Frequency of general aggression	1.08	(.99–1.17)	.075
Premeditated Aggression	1.09	(1.00–1.18)	.048