Published in final edited form as:

Crim Justice Behav. 2014 March ; 41(3): 337–344. doi:10.1177/0093854813508764.

Reactive and proactive aggression and suicide attempts among criminal offenders

Marc T. Swogger¹, Zach Walsh², Stephen A. Maisto³, and Kenneth R. Conner^{1,4}

¹University of Rochester Medical Center

²University of British Columbia

³Syracuse University

⁴Canandaigua VA Center of Excellence

Abstract

Outwardly-directed aggression is associated with suicide attempts, but aggression is a heterogeneous construct. Increased specificity in our understanding of the link between aggression and suicide attempts can be attained by examining subtypes of aggression. We studied the relationships of reactive and proactive aggression to history of a suicide attempt among 96 criminal offenders in a pretrial supervision program. Consistent with prior findings in non-offender samples, reactive aggression was associated with a history of suicide attempt after controlling for gender and depression. Proactive aggression was unrelated to suicide attempts. Results indicate that suicide risk assessments in forensic settings may be informed by the measurement of reactive aggression.

Individuals involved with the criminal justice system are at substantially increased risk for suicide attempts (Cook & Davis, 2012) and suicide (Pratt, Appleby, Piper, Web, & Shaw, 2010), making the identification of factors associated with suicidal behavior (e.g., ideation, planning, attempts) a priority. Outwardly-directed aggression is associated with suicide attempts among criminal offenders and in other high-risk populations (Angst & Clayton, 1986; Swogger, You, Cashman-Brown, & Conner, 2011). However, aggression is a heterogeneous construct and investigations of aggressive behavior benefit from the increased specificity afforded by the incorporation of aggression subtypes. Aggressive acts can be meaningfully divided into instances of reactive and proactive aggression. Whereas reactive aggression occurs in response to a perceived threat or provocation and involves affective arousal and rash responding, proactive aggression is premeditated and is used as a means to obtain a subsidiary goal (Berkowitz, 1993). Reactive aggression and proactive aggression can be reliably distinguished (Cornell, Warren, Hawk, Stafford, Oram, & Pine, 1996; Stanford, Houston, Mathias, Villemarette-Pittman, Helfritz, & Conklin, 2003), and it has been proposed that the use of the reactive-proactive typology may be important for assessing treatment prognosis (Eaves, Douglas, Webster, Ogloff, & Hart, 2000) and for the prediction of violence (Dodge & Coie, 1987).

A longstanding hypothesis is that individuals with high levels of reactive aggression are at risk for suicidal behavior, and that this link has implications for suicide risk appraisal and suicide prevention (Conner, Duberstein, Conwell, & Caine, 2003; Turecki, 2005). Moreover, reactive aggression may be a particularly important construct among individuals involved in the criminal justice system whose stressful life experiences (e.g., incarceration) may combine with tendencies toward reactive aggression to further increase risk of suicide (Conner et al., 2003). Much of the evidence for the reactive aggression-suicidal behavior hypothesis comes from studies that find imbalances in the serotonergic system among individuals with reactive aggression and suicidal behavior (Bortolato et al., 2013). These imbalances may underlie problems at the psychological level - for example, negative biases in the interpretation of social cues and deficits in social recognition (Bortolato et al., 2013) - that mediate a connection between reactive aggression and suicidal behavior. This line of research provides evidence for the importance of studies that concurrently consider self and other-directed violence. In one such study, Conner, Swogger, & Houston (2009) found a relationship between reactive aggression and suicide attempts in a large, gender-mixed sample of individuals in residential treatment for substance use disorders.

Although outwardly-directed aggression and self-directed aggression are sometimes conceptualized as arising from the same diathesis toward impulsivity (Mann, 2003), it is possible that proactive aggression, a non-impulsive form, also confers risk for suicidal behavior. The Conner et al. (2009) study found a relationship between proactive aggression and suicide attempts among substance dependent males. This study provided the first evidence that proactive aggression, in addition to reactive aggression, may be an important marker for suicidal behavior among individuals with drug and alcohol use disorders. However, the extent to which research from clinical samples of individuals who attempt suicide can be validly extrapolated to criminal offenders is not clear.

The first aim of our study was to examine the link between reactive aggression and lifetime history of a suicide attempt in criminal offenders. Based on the reactive aggression-suicidal behavior hypothesis (Conner et al., 2003) and supporting data in non-forensic samples, we hypothesized that reactive aggression is associated with suicide attempts. The second aim of this study was to conduct a novel and exploratory examination of the proactive aggression-suicide attempt relationship in a sample of criminal offenders. Following Conner et al. (2009), who found that gender moderated the relationship between proactive aggression and suicide attempts, and because men and women differ in their propensities for aggression and suicidal behavior (Stack & Wasserman, 2011), we conducted additional analyses to determine whether gender moderated observed relationships between aggression and suicide attempts. In regression analyses we controlled for major depressive disorder due to the relationship of this disorder to suicidal behavior (Moscicki, 2001).

Method

Participants

Participants were 73 male and 23 female ($n = 96$) criminal offenders, ages 18–62 ($M = 34.9$; $SD = 11.1$) participating in an urban pretrial supervision program in the Northeastern United States subsequent to receiving criminal charges. The sample was 52.1% African American

($n = 50$), 29.2 % White ($n = 28$), 18.8 % Other ($n = 18$). Mean education level (i.e., highest grade completed) was 11.7 ($SD = 2.2$). 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) was 3.5 ($SD = 5.0$).

Procedures

Following a brief announcement about the study made by study personnel in the Day Room of the supervision program, individuals who volunteered to participate and provided consent during a brief individual session completed a number of self-report measures. Participants were compensated for their time with \$20 gift cards. Among those targeted by the announcement, 73.8% participated. A random subset of the initial sample was asked to participate in a second session consisting of a psychosocial interview and completion of a number of self-report questionnaires, including those analyzed in the present study. All individuals ($n = 100$) provided the opportunity for a second session agreed to participate and were compensated with \$25 gift cards. Four participants were dropped because they reported no history of aggression (i.e., verbal or physical acts of destructive or punitive behavior towards other persons or objects; Spielberger, 1983) as measured by the Lifetime History of Aggression Questionnaire (Coccaro, Berman, Kavoussi, 1997) and had no history of violent charges, leaving a sample of 96 for analysis. This study was approved by the university Institutional Review Board and a Federal Certificate of Confidentiality was obtained. Data were analyzed using SPSS 19.0 (IBM, 2010).

Measures

Reactive and Proactive Aggression—The Impulsive-Premeditated Aggression Scales (IPAS; Stanford et al., 2003) were developed to yield measures of impulsive (akin to reactive) and premeditated (akin to proactive) aggression. The IPAS consists 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 a principal components analysis yielded a PA factor and a RA factor (Stanford et al., 2003). These two factors were subsequently validated using the IPAS in forensic patients (Kockler, Stanford, Nelson, Meloy, Stanford, 2006), conduct disordered adolescents (Mathias, Stanford, Marsh, Frick, Moeller, Swann, & Dougherty, 2007) college students (Haden, Scarpa, & Stanford, 2008), and substance dependent individuals (Conner, Swogger, & Houston, 2009). We used the 12-item RA and 13-item PA scales derived from forensic patients (Kockler et al., 2006). In the present study the internal consistency for the RA ($\alpha = .86$) and PA ($\alpha = .82$) scales was good (Kline, 1999). Our examination of continuous measures of both types of aggression enabled us to concurrently study the two in each participant. This method avoids the loss of precision and potential biases associated with categorization (Beauchaine, 2003; MacCallum, Zhang, Preacher, & Rucker, 2002).

Suicide Attempts—Participants responded to the question “Have you ever tried to kill yourself or attempted suicide?” This item is a modification of a question from the National Comorbidity Survey (Kessler, Borges, & Walters, 1999) and shows good test-retest

reliability (91.8%, $K=.82$; Conner et al., 2007). In the current sample, 19 (19.8%) reported a lifetime suicide attempt. Presence versus absence (binary) of a lifetime suicide attempt was the criterion variable.

Depression—We administered the Psychiatric Diagnostic Screening Questionnaire (PDSQ; Zimmerman & Mattia, 2001a) Major Depressive Disorder subscale for use as a covariate due to depression's association with suicidal behavior. The PDSQ consists of yes/no questions designed to assess current and recent symptoms and incorporates cutoff scores. It has been validated in large-scale studies using structured clinical interviews (Zimmerman & Chelminski, 2006; Zimmerman & Mattia, 2001b). Internal consistency for the depression subscale in the present study was $\alpha = .85$. Thirty-two (33.3%) participants were at or above the cutoff for Major Depressive Disorder.

Results

Data Screening and Bivariate Analyses

There were no bivariate outliers (defined as ± 3 SD from the mean; Gulbay & Kahraman, 2005), the continuous variables showed no significant skewness or kurtosis, and correlations among predictors/covariates ($r = .60$; Table 1) indicated an absence of pronounced multicollinearity (Tabachnick & Fidell, 2007). Female gender ($rpb = .27, p < .01$) and depression ($rpb = .20, p < .05$) were significantly associated with a history of suicide attempt in bivariate tests and were retained in the primary analyses as covariates. Self-reported race/ethnicity was not associated with a suicide attempt history, $F(2, 93) = .23, p = .80$. In bivariate tests, reactive aggression ($rpb = .29, p < .01$), but not proactive aggression ($rpb = .10, p = .34$), was related to suicide attempts.

Primary Analysis

In a logistic regression, after controlling for gender and depression, reactive aggression remained associated with suicide attempts (1.09, 1.02–1.17, $p < .05$, Nagelkerke $R^2 = .11$). Details of this analysis are shown in Table 2.

Moderation Analyses

Next, we examined gender X aggression interactions for both reactive and proactive aggression. The results for the gender X reactive aggression (.96, .82–1.13, $p = .63$) and gender X proactive aggression (.98, .82–1.19, $p = .87$) interaction terms were nonsignificant, indicating that the relationship between reactive aggression and suicide attempt history did not differ between males and females.¹

Discussion

This study is, to our knowledge, the first to examine the relationships of reactive and proactive aggression to lifetime history of a suicide attempt among criminal offenders. Our

¹We also examined symptoms of substance use disorder, using PDSQ scales for alcohol and drug use disorders, in relation to the aggression-suicide attempt relationships. Neither symptoms of alcohol nor drug use disorder moderated the relationships between RA/PA and suicide attempts and the pattern of significant results remained the same when controlling for substance use disorders.

first hypothesis – that reactive aggression would be associated with lifetime history of a suicide attempt – was corroborated. By contrast, we did not observe a relationship between proactive aggression and suicide attempts as previously reported in a drug treatment sample (Conner et al., 2009).

The relationship between reactive aggression and suicide attempts was expected based on prior theory (Conner et al., 2003; Mann, 2003) and research (Conner et al., 2009) and indicates that offenders who respond to perceived provocations impulsively with aggression are at risk for suicide attempts. Reactive aggression is consistently linked to negative affect (Tellegan, 1982; Swogger et al., 2010), which may partially account for the relationship between reactive aggression and suicide attempts, especially under stressful conditions. Criminal offenders experience high levels of stress (Mezey, 2007) that might further affect their ability to control aggressive impulses. Notably, our findings were observed after adjusting for variance accounted for by gender and depression, indicating that reactive aggression accounts for substantial variance in suicide attempts (approximately 11%) even after taking these variables into account.

One potential link between reactive aggression and suicide attempts is impulsivity. A number of researchers (e.g., Mann, 2003; Plutchik, Van Praag, & Conte, 1989) have proposed models of suicidal behavior in which impulsive individuals who demonstrate aggressive behaviors are more likely to act on suicidal thoughts because they are prone to rapidly transitioning from suicidal thoughts to action. However, recent research (Swogger, Van Orden, & Conner, *in press*; Witte et al., 2008) indicates that impulsivity may be linked to *planned* suicide attempts, possibly by exposing individuals to situations (e.g., violent altercations) that increase their capability for self-harm through habituation to pain, as proposed by the Interpersonal Theory of Suicide (Joiner, 2005).

We did not find a relationship between proactive aggression and suicide attempts. This is only the second study to examine the relationship of proactive aggression and suicide attempts and more research is necessary. However, our results suggest that the reactive aggression - suicide attempt relationship is more reliable across samples than the relationship between proactive aggression and suicide attempts. Our test of gender as a moderator did not replicate Conner et al. (2009) who found a relationship between proactive aggression and suicide attempts that was evident only among men in a drug dependent sample. One potential reason for the failure to replicate Conner et al.'s findings regarding proactive aggression is that our sample of criminal offenders may have contained a higher number of individuals with psychopathic traits than what might be found in a drug treatment sample. While antisocial individuals are at risk for suicide attempts (Douglas et al., 2008; Swogger, Conner, Meldrum, & Caine, 2009), there is preliminary evidence that individuals with high levels of interpersonal features of psychopathy (e.g., superficial charm, deceitful and manipulative behavior) are less likely to engage in *both* self and other-directed violence compared to those with lower levels of these traits (Swogger, Walsh, Homaifar, Caine, & Conner, 2012). Rather, these individuals are more likely to engage in other-directed violence only. Future studies may want to examine the potential moderating effects of psychopathic traits on the relationship between different types of aggression and suicidal behavior.

Results of the present study raise the possibility that interventions designed to enhance impulse-control among reactively aggressive offenders may also reduce suicide risk. One psychotherapeutic intervention - dialectical behavior therapy - is already being used in forensic settings to treat self-destructive behaviors associated with poor impulse control (van den Bosch, Hysaj, & Jacobs, 2012). Our results also imply that forensic assessments that distinguish between prior reactive and proactive aggression, rather than simply assessing aggression in aggregate, may have particular utility in helping to determine suicide risk, with reactive aggression pointing to a greater need for risk management through intervention.

Several limitations of this study are noteworthy. First, the cross-sectional design prohibits causal inferences. Moreover, our measure of depression used current and recent symptoms, making it difficult to evaluate the temporal relationships between these symptoms and aggression and suicide attempts that have occurred over the lifetime. Our sample size was relatively small (contributing to wide confidence intervals) and was comprised largely of African American men. Future studies of different samples are necessary to indicate how well current findings generalize to other offender populations. We had no corroborating data on suicide attempts, which were self-reported. Finally, we did not measure whether suicide attempts were planned or impulsive, data that would help to clarify the overlap between reactive aggression and suicide. These weaknesses are balanced by methodological strengths, including the concurrent examination of continuous measures of reactive and proactive aggression and the use of well-validated assessments.

Acknowledgments

This publication was supported in part by NIDA grant K23 DA027720 to Marc T. Swogger. This publication was also supported by Grant Number UL1 RR024160 from the National Center for Research Resources (NCRR), a component of the National Institutes of Health (NIH), and the NIH Roadmap for Medical Research. Its contents are solely the responsibility of the authors and do not necessarily represent the official view of NCRR or NIH. Information on NCRR is available at <http://www.ncrr.nih.gov/>. We thank Craig McNair for research support and Melissa Parkhurst, Laurel Prothero, and Patrick Walsh for data collection.

References

- Angst J, Clayton P. Premorbid personality of depressive, bipolar and schizophrenic patients with special reference to suicidal issues. *Comprehensive Psychiatry*. 1986; 27:511–532. [PubMed: 3780193]
- Beauchaine TP. Taxometrics and developmental psychopathology. *Developmental Psychopathology*. 2003; 15:501–527.
- Berkowitz, L. *Aggression: It's Causes, Consequences, and Control*. New York: NY: McGraw-Hill; 1993.
- Coccaro EF, Berman ME, Kavoussi RJ. Assessment of life-history of aggression: development and psychometric characteristics. *Psychiatry Research*. 1997; 73:147–157. [PubMed: 9481806]
- Cook TB, Davis MS. Assessing legal strains and risk of suicide using archived court data. *Suicide and Life Threatening Behavior*. 2012; 42:495–506. [PubMed: 22906021]
- Conner KR, Duberstein PR, Conwell Y, Caine ED. Reactive aggression and suicide: Theory and evidence. *Aggression and Violent Behavior*. 2003; 8:413–432.
- Conner KR, Hesselbrock VM, Meldrum SC, Schuckit MA, Buchholz KK, Gamble SA, Wines JD, Kramer K. Transitions to, correlates of, suicidal ideation, plans, and unplanned and planned suicide attempts among 3729 men and women with alcohol dependence. *Journal of Studies on Alcohol and Drugs*. 2007; 68:654–662. [PubMed: 17690798]

- Conner KR, Swogger MT, Houston RJ. A test of the reactive aggression-suicidal behavior hypothesis: Is there a case for proactive aggression? *Journal of Abnormal Psychology*. 2009; 118:235–240. [PubMed: 19222330]
- Cornell DG, Warren J, Hawk G, Stafford E, Oram G, Pine D. Psychopathy in instrumental and reactive violent offenders. *Journal of Consulting and Clinical Psychology*. 1996; 64:783–790. [PubMed: 8803369]
- Dodge KA, Coie JD. Social information processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology*. 1987; 53:1146–1158. [PubMed: 3694454]
- Douglas KS, Lilienfeld SO, Skeem JL, Poythress NG, Edens JF, Patrick CJ. Relation of antisocial and psychopathic traits to suicide-related behavior among offenders. *Law and Human Behavior*. 2008; 32:511–525. [PubMed: 18080733]
- Eaves, D.; Douglas, KS.; Webster, CD.; Ogloff, JRP.; Hart, SD. *Dangerous and Long-Term Offenders: An Assessment Guide*. Burnaby, B.C., Canada: Mental Health Law & Policy Institute, Simon Fraser Institute; 2000.
- Gulbay, M.; Kahraman. *Intelligent Data Mining: Techniques and Applications*. In: Ruan, D.; Chen, G.; Kerre, EE.; Wets G, G., editors. *Studies in Computational Intelligence*. Vol. 5. NY: Springer; 2005.
- Haden SC, Scarpa A, Stanford MS. Validation of the Impulsive/Premeditated Aggression Scale in college students. *Journal of Aggression, Maltreatment, and Trauma*. 2008; 17:352–373.
- IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp;
- Joiner, TE. *Why people die by suicide*. Cambridge, MA, US: Harvard University Press; 2005.
- Kessler RC, Borges G, Walters EE. Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of General Psychiatry*. 1999; 56:617–625. [PubMed: 10401507]
- Kline, P. *The Handbook of Psychological Testing*. 2nd Ed. London: Routledge; 1999.
- Kockler TR, Stanford MS, Nelson CE, Meloy JR, Stanford K. Characterizing aggressive behavior in a forensic population. *American Journal of Orthopsychiatry*. 2006; 76:80–85. [PubMed: 16569130]
- MacCallum RC, Zhang S, Preacher KJ, Rucker DD. On the practice of dichotomization of quantitative variables. *Psychological Methods*. 2002; 7:19–40. [PubMed: 11928888]
- Mann JJ. Neurobiology of suicidal behavior. *Nature Reviews Neuroscience*. 2003; 4:819–828.
- Mathias CW, Stanford MS, Marsh DM, Frick PJ, Moeller G, Swann AC, Dougherty DM. Characterizing aggressive behavior with the impulsive/premeditated aggression scale among adolescents with conduct disorder. *Psychiatry Research*. 2007; 151:231–242. [PubMed: 17383014]
- Mezey G. Improving the mental health of offenders in primary care. *British Medical Journal*. 2007; 334:267–268. [PubMed: 17289686]
- Moscicki EK. Epidemiology of completed and attempted suicide: toward a framework for prevention. *Clinical Neuroscience Research*. 2001; 1:1310–1323.
- Plutchik R, van Praag HM, Conte HR. Correlates of suicide and violence risk. III. A two-stage model of countervailing forces. *Psychiatry Research*. 1989; 28:215–225. [PubMed: 2748772]
- Pratt D, Appleby L, Piper M, Webb R, Shaw J. Suicide in recently released prisoners: A case-control study. *Psychological Medicine*. 2010; 40:827–835. [PubMed: 19719900]
- Spielberger, CD.; Jacobs, G.; Rusell, SF.; Crane, RS. Assessment of anger: The State-Trait Anger Scale. In: Butcher, JN.; Spielberger, CD., editors. *Advances in Personality Assessment*. Vol. 2. Hillsdale, NJ: LEA; 1983.
- Stanford MS, Houston RJ, Mathias CW, Villemarette-Pittman NR, Helfritz LE, Conklin SM. Characterizing aggressive behavior. *Assessment*. 2003; 10:183–190. [PubMed: 12801190]
- Swogger MT, Conner KR, Meldrum SC, Caine ED. Dimensions of psychopathy in relation to suicidal and self-injurious behavior. *Journal of Personality Disorders*. 2009; 23:201–210. [PubMed: 19379096]
- Swogger MT, Walsh Z, Homaifar BY, Caine ED, Conner KR. Predicting self-and other-directed violence among discharged psychiatric patients: The roles of anger and psychopathic traits. *Psychological Medicine*. 2012; 42:371–379. [PubMed: 21767443]

- Swogger MT, Walsh Z, Houston RJ, Cashman-Brown S, Conner KR. Psychopathy and Axis I psychiatric disorders: Relationships to impulsive and proactive aggression. *Aggressive Behavior*. 2010; 36:45–53. [PubMed: 19904752]
- Swogger MT, Van Orden KA, Conner KR. The relationship of outwardly-directed aggression to suicidal ideation and suicide attempts across two high-risk samples. *Psychology of Violence*. (in press).
- Swogger MT, You S, Cashman-Brown S, Conner KR. Childhood physical abuse, aggression, and suicide attempts among criminal offenders. *Psychiatry Research*. 2011; 185:363–367. [PubMed: 20724000]
- Stack S, Wasserman I. Gender and suicide risk: The role of wound site. *Suicide and Life Threatening Behavior*. 2009; 39:13–20. [PubMed: 19298146]
- Tabachnick, BG.; Fidell, LS. *Using Multivariate Statistics*. 5th Ed. Boston: Pearson/Allyn and Bacon; 2007.
- Tellegan, A. *Brief manual for the Multidimensional Personality Questionnaire*. University of Minnesota, Minneapolis; 1982.
- Turecki G. Dissecting the suicide phenotype: The role of impulsive-aggressive behaviours. *Journal of Psychiatry and Neuroscience*. 2005; 30:398–408. [PubMed: 16327873]
- van den Bosch LM, Hysaj M, Jacobs P. DBT in an outpatient forensic setting. *International Journal of Law & Psychiatry*. 2012; 35:311–316. [PubMed: 22560672]
- Walsh Z, Swogger MT, Kosson DS. Psychopathy, IQ, violence in European American and African American county jail inmates. *Journal of Consulting and Clinical Psychology*. 2004; 72:1165–1169. [PubMed: 15612862]
- Witte TK, Merrill KA, Stellrecht NE, Bernert RA, Hollar DL, Schatschneider C, Joiner TE. *Journal of Affective Disorders*. 2008; 107:107–116. [PubMed: 17804082]
- Zimmerman M, Chelminski I. A scale to screen for DSM-IV Axis I disorder in psychiatric outpatients. Performance of the Psychiatric Diagnostic Screening Questionnaire. *Psychological Medicine*. 2006; 36:1601–1611. [PubMed: 16834794]
- Zimmerman M, Mattia JJ. The Psychiatric Diagnostic Screening Questionnaire: Development, reliability, and validity. *Comprehensive Psychiatry*. 2001; 42:175–189. [PubMed: 11349235]

Biographies

Marc T. Swogger, PhD, is an assistant professor in the Department of Psychiatry at the University of Rochester Medical Center. His research examines relationships between psychopathy and key public health outcomes, including interpersonal violence, substance abuse, suicidal behavior, and criminal recidivism.

Zach Walsh, PhD, is an assistant professor in the Department of Psychology at the University of British Columbia–Okanagan. His research examines the intersections of personality, violence, and addictions.

Stephen A. Maisto, PhD, is Professor of psychology at Syracuse University and is Executive Director, VA Center for Integrated Healthcare. His research and clinical interests include the assessment and treatment of substance use disorders, HIV prevention and intervention, and the integration of behavioral health in primary care.

Kenneth R. Conner, PsyD, MPH is an Associate Professor in the Department of Psychiatry at the University of Rochester Medical Center and Acting Director of the VA VISN 2 Center of Excellence for Suicide Prevention. He studies suicidal behavior, alcohol, and aggression in Veterans and other groups.

Table 1

Intercorrelations among study variables.

	1	2	3	4	5
1. Female gender	-	.16	-.14	.17	.27**
2. Reactive aggression	-	-	.59**	.14	.29**
3. Proactive aggression	-	-	-	-.10	.10
4. Major Depressive Disorder	-	-	-	-	.20*
5. Suicide Attempt History	-	-	-	-	-

Note. Pearson's *r* was used for continuous variables (reactive and proactive aggression) and point-biserial correlations for dichotomous variables (gender, depression, and suicide attempt history.)

* < .05,
** < .01

Table 2

Logistic regression examining reactive aggression's association with lifetime history of a suicide attempt after controlling for depression.

	B	OR	95% C.I.
<i>Step One</i>			
Female gender	1.27*	3.57*	(1.19–10.67)*
Major Depressive Disorder	.86	2.35	(.81–6.85)
<i>Step Two</i>			
Female gender	1.22*	3.38*	(1.09–10.50)*
Major Depressive Disorder	.94	2.57	(.84–7.84)
Reactive Aggression	.09*	1.09*	(1.02–1.17)*

Note.

*
 $p < .05$