Proactive and Reactive Aggression in a Child Psychiatric Inpatient Population

Paula J. Fite
Department of Psychology, University of Tennessee

Laura Stoppelbein and **Leilani Greening**
Department of Psychiatry and Human Behavior, University of Mississippi Medical Center

Abstract

The current study examined relations between proactive and reactive aggression and indicators of antisocial behavior (callous/unemotional traits and behavioral consequences) and negative affect (depression and suicidal behavior) in a sample of 105 children admitted to an acute child psychiatric inpatient unit. The majority of the children were male (69%) and ranged from 6 to 12 years of age (M = 9.61; SD = 1.83). Multiple regression analyses revealed that proactive aggression was a unique predictor of antisocial behavior but was not significantly related to negative affect. In contrast, reactive aggression was uniquely positively related to negative affect but unrelated to indicators of antisocial behavior. Findings support unique correlates for proactive and reactive aggression.

Keywords

proactive/reactive aggression; suicide; depression; callous/unemotional traits

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Child aggression researchers distinguish between proactive and reactive aggression, with proactive aggression representing planful and goal-oriented aggression motivated by external reward and reactive aggression representing aggressive responses to others' behavior that is perceived as threatening or intentional (e.g., Dodge, 1991). Although some question the utility of distinguishing between these subtypes of aggression (e.g., Bushman & Anderson, 2001), there is growing evidence to suggest that proactive and reactive aggression represent distinct functions of aggression that differentially relate to a host of behavioral outcomes (for a meta-analysis see Card & Little, 2006). However, further understanding of the relations between proactive and reactive aggression and severe psychopathology may aid in the refinement of prevention and intervention efforts. Accordingly, the current study examined relations between proactive and reactive aggression and indicators of antisocial behavior (i.e., callous/unemotional traits and behavioral consequences) and negative affect (i.e., depressive symptoms and suicidal behavior) in a child psychiatric inpatient population.

Although proactive and reactive aggression are statistically related (e.g., Dodge & Coie, 1987), there appear to be unique correlates for these two subtypes of aggression. For example, reactive aggression appears to be linked to negative affect. There is evidence to suggest that reactive, not proactive, aggression is associated with elevated levels of sadness and unhappiness (e.g., Card & Little, 2006; Day, Bream, & Pal, 1992; Miller & Lynam, 2006; Raine et al., 2006). Moreover, reactive aggression may be a risk factor for suicidal ideation and behavior (e.g., Conner, Duberstein, Conwell, & Caine, 2003). Reactive aggression is characterized by impulsive and reflexive aggressive behavior that occurs in response to a perceived interpersonal threat. Research suggests that both aggressive behavior and impulsivity place children and adolescents at risk for suicidal behavior (e.g., Eisenberg et al., 2001; Greening et al., 2008; Hinshaw & Anderson, 1996; Valiente et al., 2003). In fact, recent

research suggests that it may be the presence of impulsivity and aggression in combination that places a child at greater risk for suicide (Brent et al., 2003; 2004). Only one study has specifically examined reactive aggression as a risk factor for suicide, and this study found that among adult males, high levels of reactive aggression during late adolescence was associated with completed suicide by the age of 36 (Angst & Clayton, 1998). However, these findings should be replicated before firm conclusions about these relations can be drawn. Additionally, it would be useful to examine whether or not the association between reactive aggression and suicide is evident in childhood. Accordingly, the current study examined associations between proactive and reactive aggression and depressive symptoms and suicidal behavior.

In contrast, the majority of research examining behavioral correlates of these two types of aggression suggests that proactive, not reactive, aggression is associated with psychopathy in adolescence (Murrie, Cornell, Kaplan, McConville, & Levy-Elkon, 2004: Vitacco, Neumann, Caldwell, Leistico, & Van Rybroek, 2006) and adulthood (e.g., Cornell et al., 1996). However, it should be noted that one study found associations between psychopathy and both proactive and reactive aggression (Stafford & Cornell, 2003). In particular, proactive aggression may be associated with callous/unemotional traits, or a lack of guilt and remorse for wrong doing accompanied by a lack of empathy for others. Callous/unemotional traits have been found to be associated with proactive, not reactive, aggression in a community recruited sample of children (Frick, Cornell, Barry, Bodin, & Dane, 2003) and in a sample of detained adolescent girls (Marsee & Frick, 2007). However, in a sample of aggressive youth, callous/unemotional traits were not related to parent reports of either proactive or reactive aggression (Barry, Thompson, Barry, Lochman, Adler, & Hill, 2007). Thus, the relation between proactive aggression and callous/unemotional traits is not clear.

Given the suggested differential relations between proactive and reactive aggression and psychopathy, it is also conceivable that there would be differential behavioral responses to the consequences of aggressive behavior. A behaviorally-based inpatient setting provides a consistent and structured environment in which the consequences for externalizing and aggressive behaviors escalates with the persistence and escalation of the externalizing behaviors, particularly those that are aggressive in nature. If proactive aggression is associated with callous/unemotional traits, then one may expect proactive, but not reactive, aggression to be associated with escalation of aggressive behaviors when a child is enrolled in a behaviorally-oriented inpatient treatment program. Accordingly, the current study examined relations between proactive and reactive aggression and behavioral responses to consequences in a child psychiatric inpatient population.

The Current Study

In sum, the goal of the current study was to examine the unique relations between proactive and reactive aggression and severe psychopathology, specifically indicators of antisocial behavior (i.e., callous/unemotional traits and behavioral consequences for aggressive behavior) and negative affect (i.e., depressive symptoms and suicidal ideation). We examined these relations in a child psychiatric inpatient population, where severe psychopathology is evident. Externalizing behavior was included in each model as a covariate to examine the unique contribution of these functions of aggression when also accounting for externalizing behavior. Whereas proactive aggression was expected to be uniquely positively associated with indicators of antisocial behavior and unrelated to negative affect, reactive aggression was expected to be uniquely positively associated with negative affect and unrelated to indicators of antisocial behavior.

Methods

Participants and Procedures

Data from 105 children (69% male) ranging from 6 to 12 years of age (M = 9.61 years, SD = 1.83) who were admitted to a child psychiatric inpatient facility were included in analyses. The ethnic/racial composition of the sample was 66% African American and 34% Caucasian. The majority of the children (86%) received a primary diagnosis of an externalizing disorder, 7% received a primary diagnosis of an internalizing disorder, and 7% received a primary diagnosis of another disorder (e.g., obesity). Seventy-two percent of the children were enrolled in regular education classes, 26% were enrolled in special education classes, and 2% were in gifted programs. Most caregiver respondents were mothers (73%); of the remaining, 11% were grandparents, 9% other family members, 6% fathers, and 1% both mother and father.

After obtaining approval from the medical center's Institutional Review Board, caregivers and children admitted to an acute psychiatric inpatient service were invited to participate in the study. Caregivers completed a standard battery of paper-and-pencil questionnaires. The parents generally completed the questionnaires independently; however unit staff members were available to answer any questions. Caregivers then provided written consent for the data to be used for research purposes. Less than 3% (n = 2) of the parents refused to provide consent for their child's data to be used. Children completed measures of aggression, depressive symptoms and suicidal behaviors within the first 24 to 36 hours after their admission. The measures were completed by the children with assistance from a unit staff member trained in the administration of standardized assessments.

Measures

Proactive and Reactive Aggression—Proactive and reactive aggression was assessed using child reports of Dodge and Coie's (1987) proactive and reactive aggression measure. The measure consists of 6 items, 3 items assessing proactive aggression (e.g., "I threaten or bully others in order to get my own way") and 3 items assessing reactive aggression (e.g., "When I am teased or threatened, I get angry easily and strike back"). Children responded using a 5-point Likert scale: 1 (never) to 5 (almost always). Construct validity of this scale has been demonstrated by reactive aggression being uniquely associated with impulsivity and endorsement of aggression in response to provocation and proactive aggression being uniquely associated with the belief that positive consequences will occur as a result of aggression (Dodge et al., 1997). Additionally, criterion validity has been established, with reactive aggression being associated with more social problems and classroom disruptions than proactive aggression (Waschbusch et al., 1998). Internal consistencies of the scales were acceptable in the present sample (Cronbach αs = .71 & .80).

Callous/Unemotional Traits—Callous/unemotional traits were assessed using caregiver reports of the callous/unemotional subscale of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001). The callous/unemotional scale consists of 6 items. Respondents rate on a 3-point scale (*0 = not true at all, 1 = sometimes true, 2 = definitely true*). Items are summed to yield a score ranging from 0 to 12. The APSD has shown moderate to strong correlations with measures of externalizing behavior (Frick & Hare 2001) and an inverse relation with symptoms of anxiety (Frick, O'Brien, Wootten, & McBurnett, 1994). Furthermore, children with conduct problems who score higher on the APSD tend to have higher rates of police contact, tend to have less physiological responsiveness to distress cues, and exhibit a reward-dominant response style (Blair, 1999; Christian, Frick, Hill, Tyler, & Frazer, 1997; O'Brien & Frick. 1996) thus supporting the discriminant validity of the measure. Although internal consistencies of child self-reports of the measure have been found to be low (Poythress et al., 2006), the measure has been found to have adequate internal consistency (Cronbach αs = .70

to .76) when using caregiver reports (Frick & Hare, 2001; Loney et al., 1998). However, the internal consistency was modest in the present study (Cronbach α = .66).

Behavioral Consequences (time-out, time-away, seclusion)—Upon admission to the inpatient unit, all of the children were immediately enrolled in a behavior modification program in which they earned incentives for following unit rules (e.g., follow directions, participate in activity, raise your hand before speaking) and received consequences for engaging in negative behaviors. Time-outs (removal from activity and sitting quietly for 5 minutes) were applied if the child engaged in mildly disruptive, impulsive or rule-breaking behaviors. However, time-away was used if the child became combative or aggressive within or outside of the time-out setting. Time-away required the removal of the child from the group to a seclusion room. The child remained in the room with the door open and a staff member monitoring their behavior from the doorway until the release criteria for a time-out were met. Children received a seclusion (the door is closed and locked and the child is monitored via closed circuit television) if they were administered a time-away and continued to behave in a manner that was dangerous to themselves or others. Seclusions could only be given following a physician's order. The average number of time outs, time-aways, and seclusions administered during the child's admission was used as a dependent measure.

Depressive Symptoms—Child depressive symptoms were assessed using the Children's Depression Inventory (CDI). The CDI is a 27-item self-report measure. Each item includes three possible alternatives describing increasing levels of depressive symptomatology. The children selected one of the three alternatives that best described how they had been feeling during the past 2 weeks. Sum scores are converted to T-scores based on the child's age and gender, with T-score values of 70 or above falling into the clinical range of severity. The CDI is a well-validated measure of depressive symptoms as evidenced by its ability to discriminate between depressed and non-depressed adolescents (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990; Kazdin, Colbus, & Rodgers, 1986). High correlations have also been observed between the CDI and other measures of depressive symptoms suggesting good construct validity (Asarnow & Carlson, 1988; Bartell & Reynolds, 1986). The reliability of the measure has also been demonstrated with internal consistency estimates ranging from .70 to .86 and one month test-retest stability ($r = .82$) was also found to be acceptable (Kovacs, 1992). The internal consistency was high in the present sample (Cronbach α = .82).

Suicide—Risk of suicide was assessed using the Suicide Behavior Questionnaire-Child Version (SBQ-C). The SBQ-C is a downward extension of the SBQ and consists of 4 items assessing suicidal behavior and ideation (Cotton & Range, 1993). Respondents rate on a 6-point scale (*0 = never* to *5 = all of the time*). The SBQ-C has demonstrated good test-retest stability over a 2 to 4 week period ($r = .92$) and high internal consistency (αs = .79 to .83; Cotton & Range, 1993). The measure has also demonstrated good construct validity as evidenced by significant correlations with measures of depression and hopelessness (Payne & Billie, 1996). Internal consistency was high in the present sample (α = .86).

Externalizing Behavior—Externalizing behavior was assessed using caregiver reports of the externalizing scale of the Achenbach Child Behavior Checklist (CBCL, Achenbach & Rescorla, 2001). The externalizing scale is comporised of 33 items. T-scores were computed for analyses. The CBCL is a well-validated measure of childhood problem behavior as suggested by high correlations with other measures of problem behaviors (*rs = .64 to .88* for externalizing behavior problems) and through discriminant analyses in which high percentages (80%) of children were correctly classified into their appropriate referral status (e.g., referred or nonreferred). Additionally, the reliability of the measure has been demonstrated by stability estimates ranging from .67 to .82 across a 12 month period for the externalizing scales of the

CBCL (Achenbach & Rescorla, 2001). The internal consistency was high in the current sample (α = .89)

Results

Descriptive Statistics

For descriptive purposes, correlations, means, and standard deviations are reported in Table 1. Consistent with previous research, proactive and reactive aggression were significantly correlated with one another (r=.48), and mean levels of reactive aggression were higher than mean levels of proactive aggression ($t = -7.10$, $p < .001$; e.g., Fite & Colder, 2007).

Regression Analyses

A series of simultaneous regression analyses were performed separately for each dependent variable to assess the unique associations for proactive and reactive aggression. Because age and externalizing behavior were associated with outcomes, they were included as covariates in the regression analyses. As seen in Table 2, proactive aggression emerged as a significant unique predictor of the behavioral consequences. Although not statistically significant, high levels of proactive aggression were associated with high levels of callous/unemotional traits. Consistent with our hypothesis, proactive aggression was not a significant unique predictor of depressive symptoms or suicidal behavior. In contrast, reactive aggression was uniquely positively related to depressive symptoms and suicidal behavior and unrelated to behavioral consequences and callous/unemotional traits.

Discussion

The purpose of the current study was to examine unique relations between proactive and reactive aggression and severe psychopathology. Proactive and reactive aggression were differentially related to indicators of antisocial behavior and internalizing symptoms, with proactive aggression emerging as a unique predictor of antisocial behavior and reactive aggression emerging as a unique predictor of negative affect while also considering the variance associated with externalizing behavior. These findings support a growing body of literature suggesting distinct correlates of these functions of aggression.

When examining indicators of antisocial behavior a clear pattern emerged, with the results suggesting unique associations between proactive, not reactive, aggression and antisocial behavior. Specifically, high levels of proactive aggression were associated with high levels of behavioral consequences, an indicator of escalation and persistence of externalizing behavior (particularly aggressive behavior). Proactive aggression was also marginally statistically positively related to callous/unemotional traits. However, caution should be taken when drawing conclusions regarding this relation, as findings were not statistically significant. Nonetheless current findings are in line with the larger literature suggesting that proactive aggression is uniquely associated with psychopathy (e.g., Murrie et al., 2003: Vitacco et al., 2006) and other antisocial behavior (e.g., Fite, Colder, Lochman & Wells, 2008; Miller & Lynum, 2006; Raine et al., 2006).

Previous research with outpatient and community samples suggest that reactive, not proactive, aggression is associated with internalizing symptoms (e.g., Card & Little, 2006; Day, Bream, & Pal, 1992; Raine et al., 2006) and suicide (e.g., Conner, Duberstein, Conwell, & Caine, 2003). The present findings provide further support for this hypothesis among a child inpatient sample. Reactive, not proactive, aggression was uniquely associated with high levels of depressive symptoms and suicidal behavior. Although the specific mechanism linking reactive aggression and depressive symptoms or suicidal behavior is unknown, it is hypothesized that

reactively aggressive individuals are at risk for social isolation (e.g., Dodge & Coie, 1987; Dodge et al.,1997; Day et al, 1992; Prinstein & Cillessen, 2003), which may lead to negative emotions.

Limitations

Although the current study provides further support for the differential relation between reactive/proactive aggression and indicators of more severe psychopathology, there are limitations that should be considered when interpreting the findings. First, data are cross-sectional in nature and the causal direction of associations cannot be determined. Longitudinal research examining these relations as children develop is needed to further understand the developmental progression of these behaviors. Second, aggression, depression, and suicidal behavior were assessed using child self-report and children may have attempted to respond in a socially desirable manner (e.g., Kazdin, 1998). However, it is important to note that findings were in the expected direction. Nonetheless it would be beneficial for future research to use multiple types of assessment (e.g., teacher and parent report and behavioral observations). Third, the current study used an inpatient sample and findings may not generalize to other populations. Finally, it is noteworthy that some of the current findings were only marginally statistically significant, which may be a result of the restricted range of behavior in this child psychiatric inpatient population or the modest internal consistencies associated with measure of callous/unemotional traits. Accordingly, findings should be replicated in community recruited and clinical outpatient samples using more internally consistent measures.

Implications of Future Research, Policy, and Practice

Findings from the current study contribute to the growing body of literature indicating unique associations between proactive and reactive aggression and severe psychopathology, which suggests different targets of prevention and intervention. Proactive aggression is associated with indicators of antisocial behavior, and early antisocial behavior is predictive of more chronic and severe antisocial behavior later in life (e.g., Paradise & Cauce, 2003; Stice, Myers, & Brown, 1998). In contrast, reactive aggression appears to be associated with internalizing disorders such as depression and suicidal behavior. Although internalizing problems may not be as evident to the outside observer (e.g., Herjanic & Reich, 1997; Kolko & Kazdin, 1993; Mesman & Koot, 2000), depressive symptoms are linked to a host of negative long-term outcomes, including interpersonal difficulties and substance use (Ialongo et al., 2004; Colder & Chassin, 1993; Pardini, Lochman, & Wells, 2004). Additionally, to further aid in identifying targets for intervention, it will be important for future research to examine potential moderators (i.e., parenting behavior, peer relationships, child temperament) of relations between these subtypes of aggression and problem behavior.

Acknowledgements

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Table 1

Means, Standard Deviations, and Correlations among Main Study Variables.

	1	2	3	4	5	6	7	8	9	10
1. Gender (N=105)	-									
2. Age (N =105)	.03	-								
3. Race (N = 105)	−.16	−.04	-							
4. Externalizing Beh. (N = 105)	−.05	−.20*	−.20*	-						
5. Proactive Aggression (N = 105)	−.14	−.06	.01	.17†	-					
6. Reactive Aggression (N = 105)	−.11	.02	.15	−.02	.48*	-				
7. Callous/Unem. Traits (N =102)	.15	.12	−.20†	.23*	.15	.02	-			
8. Behavioral Conseq. (N = 58)	−.11	−.31*	.23†	.23†	.33*	.07	.07	-		
9. Depressive Symptoms (N = 104)	.08	−.20*	−.10	.20*	.23*	.29*	.09	.17	-	
10. Suicide (N=104)	.00	.06	.06	−.09	.01	.17†	−.05	.13	.38*	-
Mean	-	9.61	-	72.42	1.62	2.42	6.35	1.42	55.88	1.51
SD	-	1.83	-	10.23	1.03	1.23	2.60	2.86	12.67	2.78

Note.

*
$p \leq .05$,

†
$p \leq .10$; gender: 0 = male, 1 = female; race: 1 = Caucasian, 2 = African American.

Table 2

Regression Analyses with Types of Aggression Predicting Measures of Antisocial Behavior and Negative Affect

| | Indicators of Antisocial Behavior | | Negative Affect | |
| | Callous/Unemotional Traits $R^2 = .12, F = 3.14^*$ | Behavioral Consequences $R^2 = .24, F = 4.08^*$ | Depression $R^2 = .16, F = 4.63^*$ | Suicide $R^2 = .05, F = 1.20$ |
	β	β	β	β
Proactive Aggression	$.19^\dagger$	$.44^*$	.08	−.12
Reactive Aggression	−.08	−.22	$.26^*$	$.23^*$

Note. Age and Externalizing behavior were included as covariates in all models.

* $p \leq .05;$

† $p \leq .10$