Callous-Unemotional Traits as a Moderator Between Verbal Ability and Aggression in School-age Children  
Shari R. Reiter, Rebecca A. Lindsey, & Tammy D. Barry  
Washington State University

ABSTRACT

Research suggests that conduct disordered youth with normative callous-unemotional (CU) traits exhibit cognitive and verbal deficits that may impair their emotion regulation and executive control of behavior. However, studies examining the interrelations among CU traits, verbal ability, and conduct problems have produced mixed findings and further research is needed. The present study evaluated childhood CU traits as a moderator between: language ability and reactive aggression, and language ability and proactive aggression. Participants were 59 children ages 8 to 13. Data were collected from children, caregivers, and teachers. Caregiver report showed that when language ability was high, aggression was generally low, regardless of CU traits. However, when language ability was low, aggression was higher when CU traits were higher. There was a reactive aggression interaction between language ability and teacher-reported CU traits. These results have implications for early identification of at-risk youth and highlight possible points of intervention.

INTRODUCTION

Language impairment in children is associated with higher levels of internalizing symptoms such as anxiety and depression, as well as externalizing behavior including aggression (e.g., Maggio et al., 2013; Peterson et al., 2013; van Oza, Verhoeven, & van Balkom, 2007). Antisocial behavior during childhood may evolve to become more serious delinquent behavior in adolescence. Research suggests that both neuropsychological, including verbal ability, and environmental factors play a role in the development and maintenance of antisocial behavior in adolescence (Moffitt, 1993). Therefore, determining potential moderators between language ability and early childhood aggression can help identify at-risk youth and inform intervention. Callous-unemotional (CU) traits seem to delineate a subset of children and adolescents with particularly severe and persistent conduct problems (Frick, Thornton, & Kauh, 2014) and are associated with both proactive and reactive physical and relational aggression (e.g., Barry et al., 2007). Research suggests that conduct disordered youth with normative CU exhibit cognitive and verbal deficits that may impair their emotion regulation and executive control of behavior (Frick, 2014). However, studies examining the interrelations between CU traits, verbal ability, and conduct problems have produced mixed findings and further research is needed (e.g., DeLisi et al., 2011). The present study sought to evaluate childhood CU traits as a moderator between: (1) language ability and caregiver-reported reactive aggression; (2) language ability and caregiver-reported proactive aggression; (3) language ability and teacher-reported reactive aggression; and (4) language ability and teacher-reported proactive aggression.

METHOD

Participants

Participants were 59 children (25 females, 34 males), ages 8 to 13 years (M = 10.53; SD = 1.22). The majority of children were identified as European American (67.8%) and African American (30.2%).

Measures

Caregivers completed a battery of assessments including:  
- Parent Report of Proactive-Reactive Behaviors (Dodge & Coie, 1987). This 6-item measure assesses proactive and reactive aggression. Caregivers responded using a 5-point Likert scale: 1 (never) to 5 (almost always).
- Antisocial Process Screeni ng Device (APSD); Frick & Hare, 2002). This 20-item measure assesses callous and unemotional traits, poor impulse control, and antisocial behavior in children. The Callous and Unemotional Traits Factor was the variable of interest. Children completed several assessments including:  
- Neuropsychological Assessment of Children (NEPSY; The Psychological Corporation, 1997). The NEPSY assesses five domains of neuropsychological functioning in children aged 3 to 12 years. The language domain (e.g., phonological processing and receptive language comprehension, verbal fluency) was the variable of interest.

Children completed multiple assessments on each child including:  
- Teacher Report of Proactive-Reactive Behaviors (Dodge & Coie, 1987). This 6-item measure assesses proactive and reactive aggression. Teachers responded using a 5-point Likert scale: 1 (never) to 5 (almost always).
- Antisocial Process Screening Device – Teacher Version (APSD-T; Frick & Hare, 2002). This 20-item measure assesses callous and unemotional traits, poor impulse control, and antisocial behavior in children. The Callous and Unemotional Traits Factor was the variable of interest.

Procedures

This project was approved and conducted in compliance with the Institutional Review Board. Participants were part of a larger study investigating attention-deficit/hyperactivity disorder (ADHD) symptomatology and aggression.

Caregivers provided the informed consent letter prior to testing or completion of any measures. Data were collected from children, caregivers, and teachers.

Caregivers received $20, children received $10, and teachers received $20 for their participation in the study.

RESULTS

- Caregiver-reported child CU traits were tested as a moderator of the relation between language ability and caregiver-reported proactive and reactive aggression. These analyses were repeated with teacher-reported CU traits and aggression. Main effects and interactions are reported in Table 1.
- The interactions between CU traits and child language ability predicting proactive aggression and reactive aggression were only significant for caregiver report. Post-hoc plots are presented in Figures 1 and 2. Post-hoc results indicated that when language ability was high, aggressive behavior was generally low, regardless of CU traits. However, when language ability was low, aggressive behavior was higher when CU traits were higher.

Table 1. Main and Indirect Effects of CU Traits and Language Ability Predicting Aggression

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Outcome</th>
<th>R²</th>
<th>Interaction Model</th>
<th>∆R²</th>
<th>Main Effects Model R²</th>
<th>Predicting Caregiver-reported Proactive Aggression</th>
<th>Language Ability</th>
<th>Language Ability</th>
<th>Language Ability</th>
<th>Language Ability</th>
<th>Language Ability</th>
<th>Language Ability</th>
<th>Language Ability</th>
<th>Language Ability</th>
<th>Language Ability</th>
<th>Language Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregiver-reported CU Traits</td>
<td></td>
<td>.21**</td>
<td></td>
<td></td>
<td>.05 (.02)**</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction Model</td>
<td></td>
<td>.09**</td>
<td></td>
<td></td>
<td>.05 (.02)**</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caregiver-reported Reactive Aggression</td>
<td></td>
<td>.20**</td>
<td></td>
<td></td>
<td>.05 (.02)**</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction Model</td>
<td></td>
<td>.05</td>
<td></td>
<td></td>
<td>.05 (.02)**</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher-reported Proactive Aggression</td>
<td></td>
<td>.39**</td>
<td></td>
<td></td>
<td>.04 (.02)**</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction Model</td>
<td></td>
<td>.001</td>
<td></td>
<td></td>
<td>.00 (.01)**</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher-reported Reactive Aggression</td>
<td></td>
<td>.77**</td>
<td></td>
<td></td>
<td>.00 (.01)**</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Language Ability Predicting Caregiver-reported Proactive Aggression at Different Levels of Caregiver-reported CU Traits

Figure 2. Language Ability Predicting Caregiver-reported Reactive Aggression at Different Levels of Caregiver-reported CU Traits

DISCUSSION

- Results indicate that both caregiver- and teacher-reported CU traits predicted both proactive and reactive aggression. Child language ability was only predictive of caregiver-reported proactive aggression. Language ability did not predict teacher-reported proactive or reactive aggression.
- The interaction between language ability and caregiver-reported CU traits was significant, such that both proactive and reactive aggression were highest among children with low language ability and high CU traits.
- These findings suggest that the combination of language deficits and elevated CU traits may delineate youth who engage in both proactive and reactive aggression during childhood; and language ability may act as a protective factor against aggressive behavior among children with elevated CU traits.
- Overall, results are consistent with the rationale that language ability allows children to effectively regulate and communicate their emotions, and control their behavior, whereas language deficits may lead children to act out aggressively (Frick et al., 2014; Peterson et al., 2013).
- However, these findings were not replicated when teachers acted as informants; the interaction between language ability and teacher-reported CU traits was not significant. Though these divergent findings may be due to responses or inconsistencies in parent- and teacher-reported aggression, there may be true differences in where and with whom children acted out. The latter hypothesis is worth further consideration and may inform interventions tailored to the child’s different environments.
- These results have implications for early identification of at-risk youth and highlight possible points of intervention. For example, researchers have called for interventions targeting language ability (e.g., internalized language and private speech) in children with attention and behavior problems as language ability may affect attention, self-control, and delay of gratification (Peterson et al., 2013). Even among children with elevated CU traits who are at risk for aggressive behavior, language ability seems to mitigate the risk of engaging in proactive and reactive aggression during childhood.
- Future research should include a larger and more diverse sample to increase the generalizability of these findings. Related variables including executive functioning, ADHD symptomatology, and prior history of conduct problems should be accounted for in future research.