Sources of Continuity and Change in Callous-Unemotional Traits in Early Childhood
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Introduction

- Callous-unemotional traits (CU; e.g., lack of guilt, empathy and affect) can be predictive of later psychopathy and other detrimental outcomes (Viding & McCrory, 2012).
- Research on the etiology of CU in children and youth demonstrates moderate to strong heritability (40-78%) with the remaining variance explained by nonshared environmental influences (Viding & McCrory, 2012).
- Longitudinal studies find that stability in CU is due to genetic effects while change is due to both genetic and nonshared environmental factors (Blonigen et al., 2006; Fontaine et al., 2010).
- Nothing is known about the etiology and stability of CU in early childhood. This is surprising given that characteristics critical to the development of CU, such as empathy, are coming online at this age.

Goals of current study were to explore the:
- Stability of CU across ages 2 and 3.
- Genetic and environmental influence on CU at both ages.
- Sources of continuity and change in CU across ages 2 and 3.

Results

Descriptive Statistics

Table 1. CU means by age and gender

<table>
<thead>
<tr>
<th>Age</th>
<th>Male (M)</th>
<th>SD</th>
<th>Female (M)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 2</td>
<td>1.62</td>
<td>1.51</td>
<td>1.45</td>
<td>1.44</td>
</tr>
<tr>
<td>Age 3</td>
<td>1.39</td>
<td>1.41</td>
<td>1.13</td>
<td>1.21</td>
</tr>
</tbody>
</table>

- The range of CU scale scores in our non-clinical sample was 0 – 7.
- As seen in Table 1, CU scores significantly declined across age (F=5.15, df=304, p=.02).
- The gender effect was nonsignificant, but means were in a direction consistent with the literature with males having higher CU scores than females.
- There was no significant interaction between age and gender (F=.74, p=.39).
- CU was moderately stable across age (r=.45, p<.0001).

Twin Correlations

- As seen in Figure 1, for both ages, MZ correlations exceed DZ, suggesting genetic influences.

Conclusions

- The etiology and developmental continuity and change in CU in early childhood mirrors that of older children and adolescents.
- However, this is not to say that the same genetic effects operate across toddlerhood and older childhood, as we find evidence of novel genetic and nonshared environmental effects at age 3.
- To some extent, the genetic influences on CU at age 2 are different from those at age 3. This has implications for molecular genetic research, as the need to consider developmental period is critical.
- Nonshared environment also contributes to change in CU across age. Identifying particularly important nonshared environmental factors could help inform interventions.
- Longitudinal studies across larger age ranges are necessary to better understand developmental change and continuity in CU.

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