

# Genetic and environmental influences on different forms of Bullying Perpetration, Bullying Victimization, and their Co-occurrence

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**Background** – Despite the serious consequences and the high prevalence of bullying, previous genetically-sensitive studies have not distinguished different forms of perpetration, victimization and their co-occurrence.

## Method + Results

**Participants** - Primary-school teachers rated 8,215 twin children on bullying (mean age 9½). 4,561 pairs: 1,669 MZ and 2,289 DZ.

**Measures** – Both the active and passive form of:

- General bullying
- Verbal bullying
- Physical bullying
- Relational bullying

E.g.:

‘How often did this student in the last couple of months... a) bully other students (in general)’

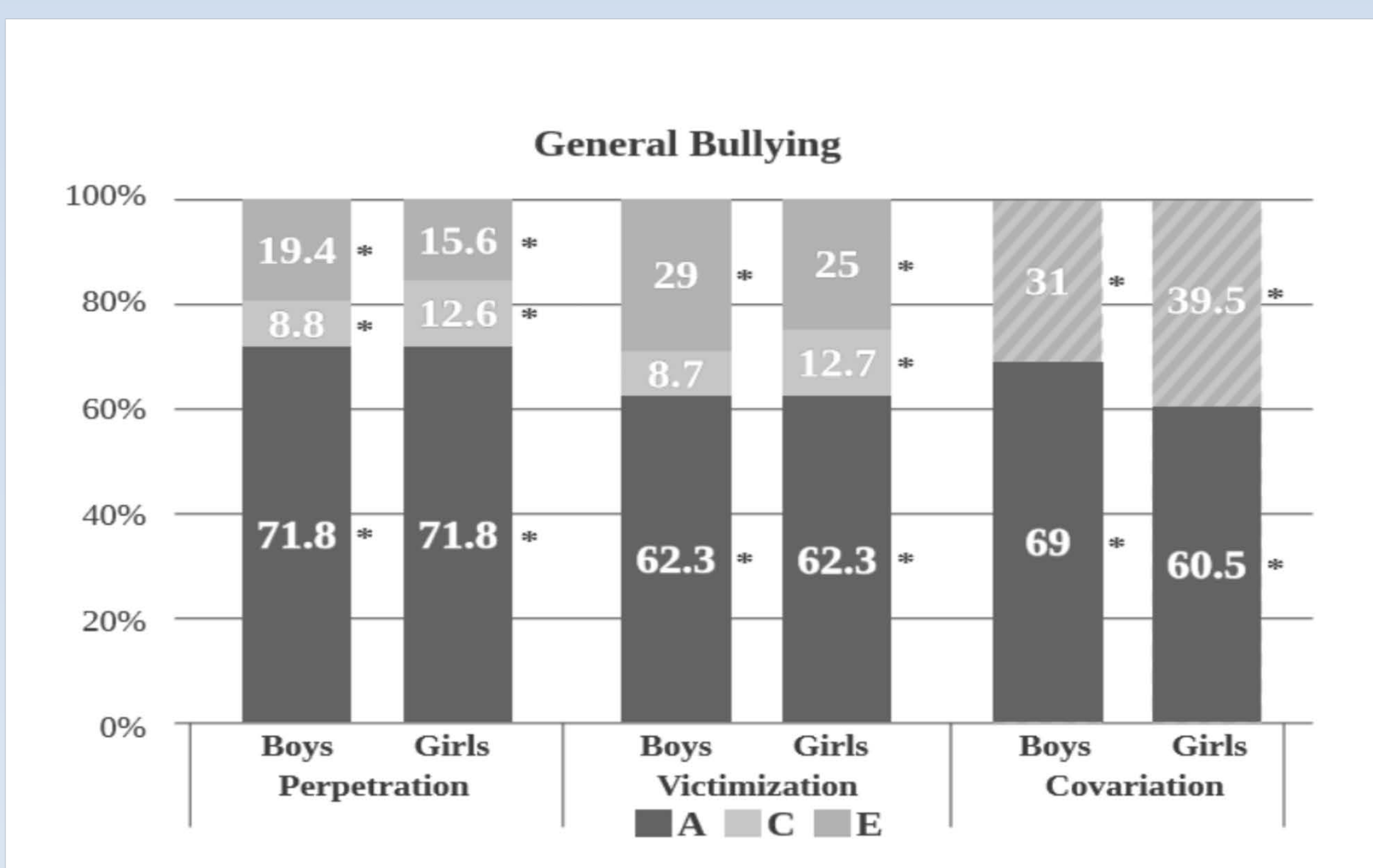
‘How often has this student in the last couple of months... a) been bullied (in general)’

The questions were scored on a five-point scale, ranging from 0 (*never*), 1 (*once or twice*), 2 (*two or three times a month*), 3 (*about once a week*), to 4 (*several times a week*).

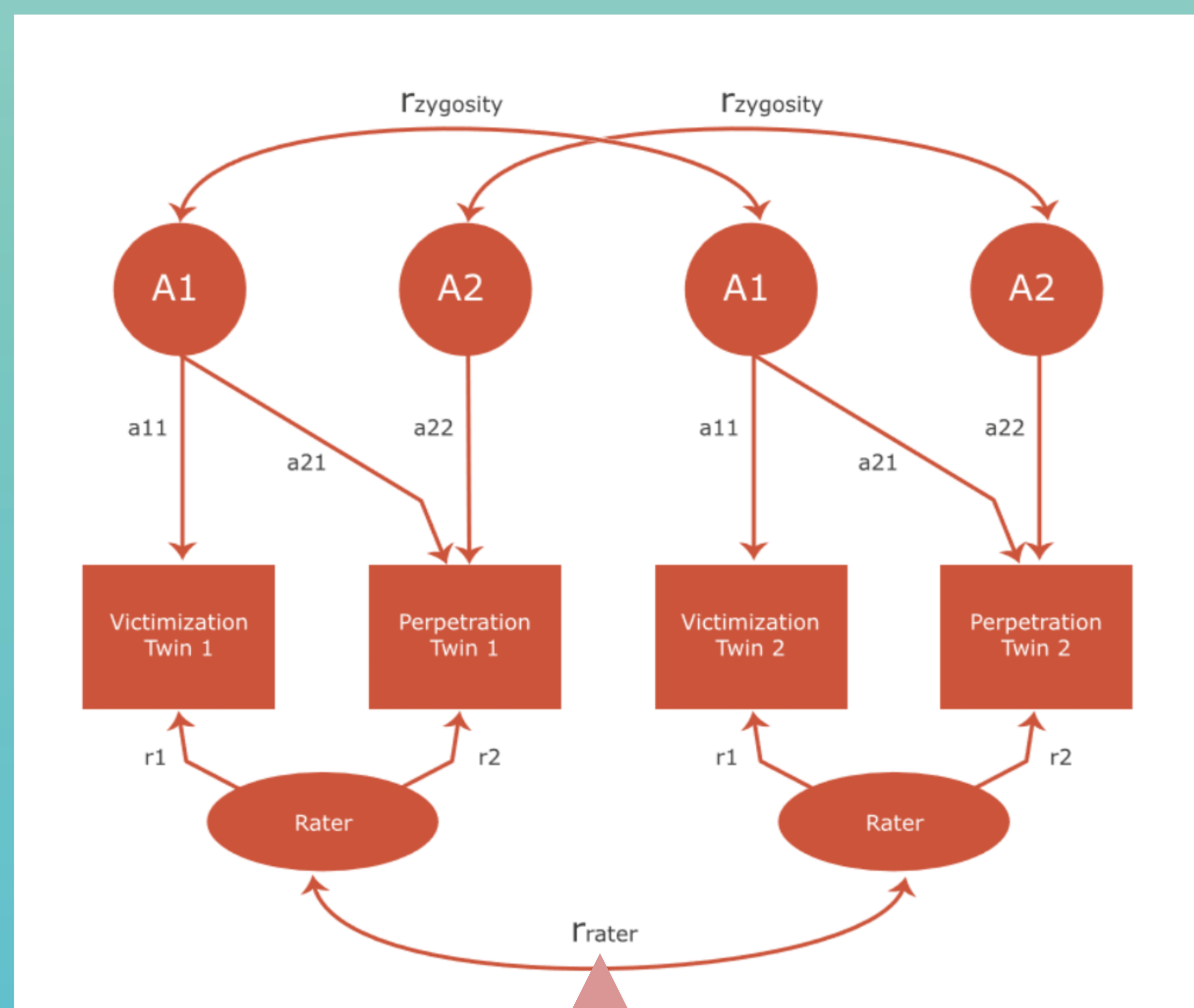
**Statistical Analyses** – Bivariate twin modelling (accounting for rater bias)

**Descriptive Results** - 34% of the children was involved as bully, victim, or both. The correlation between being a bully and being a victim varied from .59 (relational) to .85 (physical).

## Twin-modelling Results



Note that \* indicates significance



*Bivariate Cholesky ACE decomposition (including rater bias). A and C are not depicted to avoid clutter.*

*“r<sub>zygosity</sub>” is 1 for MZ twins and .5 for DZ twins.*

*“r<sub>rater</sub>” is 1 for twins in the same class (rated by the same teacher) and 0 for twins rated in different classes (rated by different teachers).*

## Summarizing Results

- Relational victimization was moderately heritable. All other forms of victimization and perpetration were substantially heritable.
- Heritability was ~70% for all forms of perpetration and ~65% for all forms of victimization.
- Heritabilities did not differ between boys and girls.
- There was a modest shared-environmental effect, which was slightly higher in girls (~8-18% girls and ~2-16% boys).
- The correlation between being a bully and being a victim was explained mostly by genetic factors for verbal (~71%) and especially physical bullying (~77%) and mostly by environmental factors for relational perpetration and victimization (~60%).

## Conclusion

- Genes play a large role in explaining which children are at high risk of being a victim, bully, or both.
- For victimization this suggests an evocative gene-environment correlation: some children are at risk of being exposed to bullying, partly due to genetically influenced traits.
- Substantial genetic influences on bullying do not mean that bullying is not modifiable. Evidenced-based interventions are available that reduce school bullying.