

Physical aggressions in adolescence mediate the relationship between child's concentration problems and violence in early adulthood.

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Introduction

We previously showed that children's cognitive functioning and early aggression level were weakly correlated with mother's perceptions (Glowacz, Véronneau, Boët & Born, 2013. "Finding the roots of adolescent aggressive behavior: A test of three developmental pathways" in IJBD, 37(4)). Literature highlighted an association between early aggression and later behavioral problems. Since the prominent works of Arnett (2000) and Tanner & Arnett (2013), many questions remain about the continuity and discontinuity of aggression and violence during the development from adolescence to emerging adulthood and thus need to be tested.

Method

Participants: The present data focused on 194 individuals, from birth to 22 years old (43% of men).

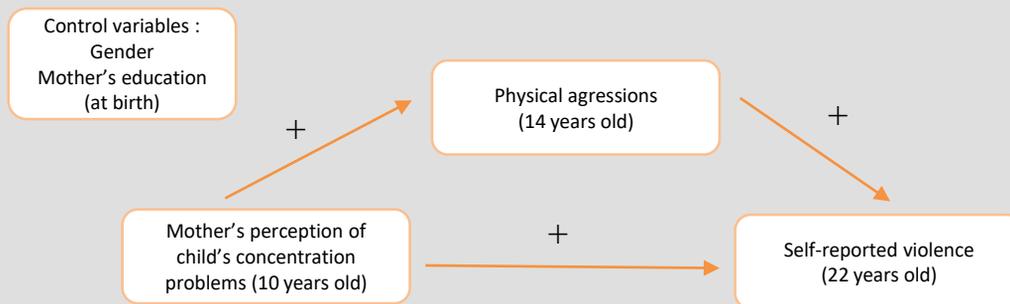
Attrition: The initial sample included 397 children and their families, recruited at random from the registers of birth. 325 of them participated to the study at three times throughout the childhood period (21–22 months old, 5 years old, and 10 years old). 277 of them accepted to participate again at age 14 and 194 of them at age 22 in 2012. **Note** that preliminary analyses showed no significant difference between participants included in the present study and participants lost in attrition concerning gender and mother's education.

Measures:

- ✓ **Mother's education**, as an indicator of the social status of the family.
- ✓ Mother's perception of the **child's concentration problems** (10 years old). Eight questions from the Cognitive Self-Control Scale (Kendal & Wilcox, 1979) were selected to assess the child's cognitive abilities, including attention, evaluation, planning, and problem solving. The total score reflects an aspect of executive functioning close to the concept of "distraction-persistence" proposed by Windle and Lerner (1986). $\alpha = .77$.
- ✓ **Adolescent's physical aggression** (14 years old). Participants were asked to report about how often they engaged in physical aggression, including using force to take somebody else's money or property, fighting with one or several people, or using a weapon. Self-reported measures of physical aggression are commonly used and have proven to be reliable and valid (Huizinga & Elliott, 1984; Junger-Tas et al., 2010; Junger-Tas, Terlouw, & Klein, 1994; Klein, 1989). $\alpha = .75$.
- ✓ **Early adulthood self-reported violence** (22 years old). Four items were administrated to participants, asking them how often they used verbal or physical violence in the last year.

Analyses: To test mediation hypotheses, PROCESS modeling, as outlined by Preacher and Hayes (2004), was applied and a bootstrapping method (10 000 bootstrap samples) was used. This method is a nonparametric approach to effect-size estimation and hypothesis testing that is not based on large-sample theory and, therefore, circumvents the power problem associated with asymmetries (Shrout and Bolger, 2002). When zero is not included in the bootstrap confidence intervals, it is possible to set a significant indirect effect (or mediator effect) at $p < .05$.

Results



		Effect	(boot)SE	t	p	(boot)LLCI	(boot)ULCI
y = Violences (22y) x = Concentration (10y)	Total effect	.0104	.0045	2.27	.0239	.0014	.0193
	Direct effect	.0070	.0046	1.51	.1318	-.0021	.0162
m = Aggressions (14y)	Indirect effect	.0033	.0019			.0003	.0079

Conclusions

Children whose mother perceived concentration problem at age 10 reported more physical aggressions at 14 years old and present more self-reported violence at 22 years old. Physical aggressive behaviors at 14 years old are associated with early adulthood violence (22 years old).

The tested model shows that adolescent physical aggressions completely mediate the relationship between mother's perception of concentration problems and early adulthood violence.

The fact that children with concentration problems are more likely to show violent behavior during adulthood can be completely explained by the occurrence of physical aggressions during adolescence. The fact that mothers perceive their child as having concentration problems does not constitute a determinant indicator per se to predict violence in early adulthood. The continuity in problematic behaviors between childhood, adolescence and early adulthood seems to be essential. It could become a usual reactional process from adolescence to early adulthood.