Examining the role of genetic risk and longitudinal transmission processes underlying maternal parenting and psychopathology and children's ADHD symptoms and aggression: utilizing the advantages of a prospective adoption design

Ruth Sellers, Gordon T Harold, Anita Thapar, Jenae M Neiderhiser, Jody M Ganiban, David Reiss, Daniel S Shaw, Misaki N Natsuaki, Leslie D Leve

Publication date
04-07-2020

Document Version
Accepted version

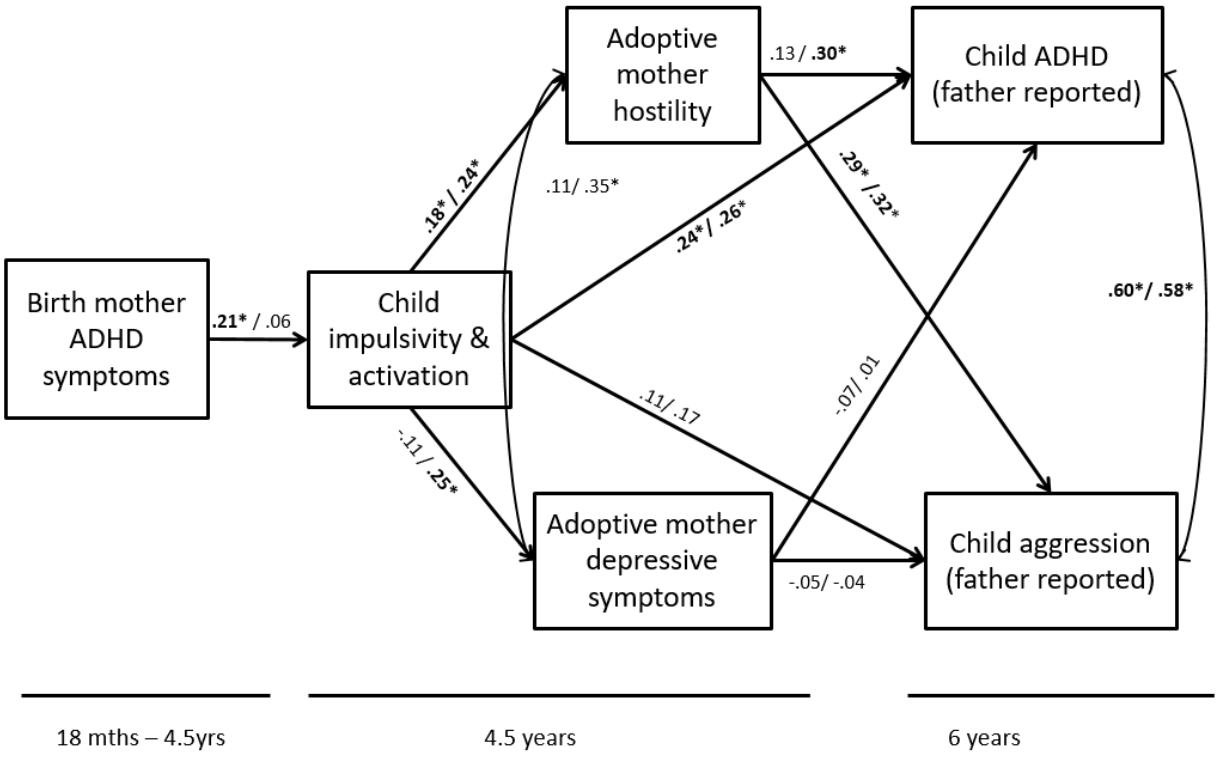
Citation for this work (American Psychological Association 7th edition)
Sellers, R., Harold, G. T., Thapar, A., Neiderhiser, J. M., Ganiban, J. M., Reiss, D., Shaw, D. S., Natsuaki, M. N., & Leve, L. D. (2020). *Examining the role of genetic risk and longitudinal transmission processes underlying maternal parenting and psychopathology and children's ADHD symptoms and aggression: utilizing the advantages of a prospective adoption design* (Version 1). University of Sussex. https://hdl.handle.net/10779/uos.23307884.v1

Published in
Behavior Genetics

Link to external publisher version
https://doi.org/10.1007/s10519-020-10006-y

Supplementary Material

Supplement 1: Complete Case Analyses



Supplementary Figure 1: Model examining the relationship between birth mother ADHD symptoms, child impulsivity/activation, adoptive mother depressive symptoms and hostility, child ADHD and conduct disorder symptoms using complete case analyses.

Cohort I before the slash, followed by results from Cohort II. *p < .05

Model fit statistics Cohort I: χ^2 (4) = 4.94, p= .293, RMSEA = .04 (.00, .14), CFI = .99, SRMR = .037. N = 132.

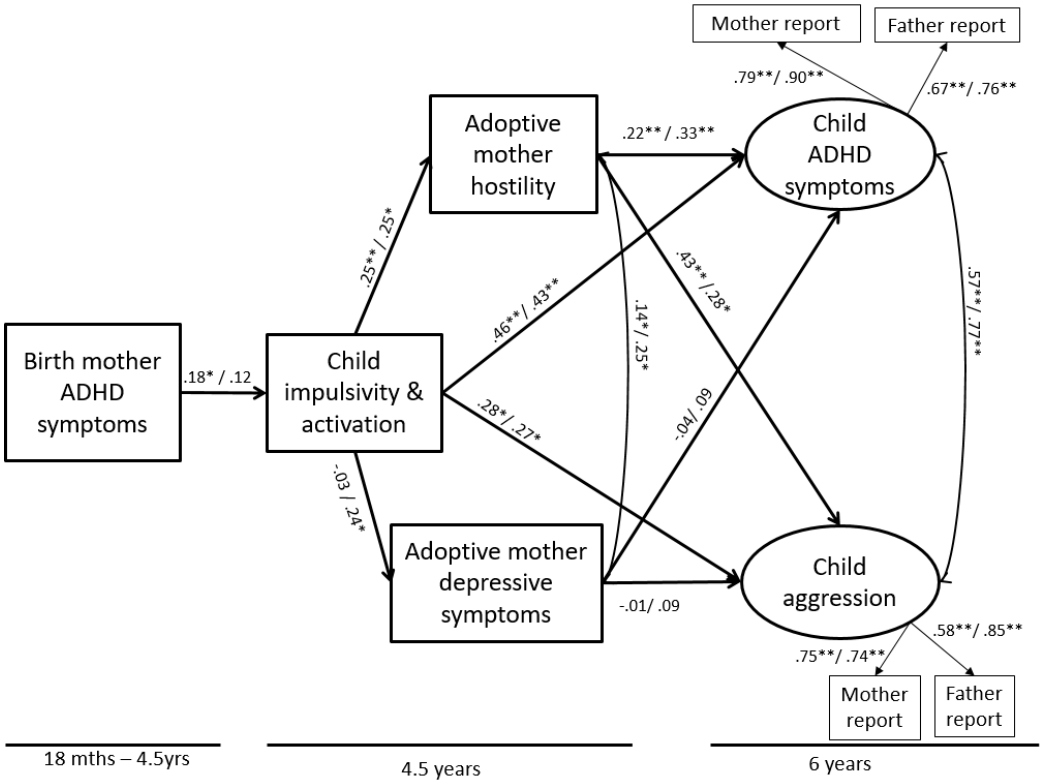
Model fit statistics cohort II: χ^2 (4) = 2.80, p = .592, RMSEA = .00 (.00, .15), CFI = 1.00, SRMR = .034. N = 72.

Supplement 2: Examining Validity of Father Reports of Symptomatology

It is important to consider that although mother and father agreement is often high, mothers tend to report more behavior problems than fathers (Duhig et al, 2000; Sollie et al., 2013; Mayfield et al., 2018; Caye et al., 2017; van der Veen-Mulders et al., 2017). This suggests that the father-reported estimates of child ADHD and aggression in the current study are likely to be conservative. Supplementary analyses therefore examined the validity of father reports of child symptomatology.

Both adoptive mother and father reports were available in EGDS. We therefore examined the level of agreement between mother and father reports of symptomatology at child age 6 years. There were high levels of agreement between adoptive mother and father reports of child outcomes in Cohort I (ADHD symptoms r = .55**; aggression r = .60**) and Cohort II (ADHD symptoms r = .70**; aggression r = .60**). These levels of agreement are in-line with previous studies examining agreement between mother and father reports of child symptoms of ADHD and externalising problems (e.g., see Duhig et al., 2000 meta-analysis).

Additional analyses using both adoptive mother and adoptive father reports of child outcomes (ADHD symptoms, aggression), using a latent variable approach demonstrated the same pattern of findings are core results (see Figure S2).



Supplementary Figure 2: Model examining the relationship between birth mother ADHD symptoms, child impulsivity/activation, adoptive mother depressive symptoms and hostility, child ADHD symptoms and child aggression, employing a latent variable approach to assess child symptomatology at age 6 years.
Cohort I before the slash, followed by results from Cohort II. *$p < .05$

To further examine the validity of father reports, we examined whether father reports of symptomatology (aggression; ADHD symptoms) predicted later diagnosis (conduct disorder; ADHD) in the adopted child. ADHD symptoms and aggression were assessed using the CBCL at age 6 years (as in the current study). Adopted child diagnosis was assessed at age 7 years using Preschool Age Psychiatric Assessment (PAPA; Egger & Angold, 2006; Egger et al., 2006). Across both Cohorts 7.6% of the children had diagnosis of ADHD, and 6.7% had a diagnosis of Conduct Disorder at age 7 years.

In univariate logistic regression, father reports of child ADHD symptoms at age 6 years predicted child ADHD diagnosis at age 7 years (OR = 1.17, 95% CIs 1.08, 1.27, $p<.001$). For comparison, we also examined the relationship between maternal reports of

child ADHD symptoms at age 6 years predicting child ADHD diagnosis at age 7 years (OR = 1.20, 95% CIs 1.12, 1.28, $p<.001$).

Father reports of child aggression at age 6 years predicted child conduct disorder at age 7 years (OR = 1.39, 95% CIs 1.03, 1.91, $p=.035$). For comparison, we also examined the relationship between maternal reports of child aggression at age 6 years predicting child conduct disorder at age 7 years (OR = 1.88, 95% CIs 1.32, 2.68, $p<.001$). This suggests that in the current sample both mothers and fathers can provide valid reports of child psychopathology. It is important to note that the diagnosis data were derived from a clinical interview with only one parent - usually the mother. The slightly higher concordance rates for maternal reports (vs. paternal) are therefore likely influenced by reporting bias.

REFERENCES

Duhig, A. M., Renk, K., Epstein, M. K., & Phares, V. (2000). Interparental agreement on internalizing, externalizing, and total behavior problems: A meta-analysis. *Clinical Psychology: Science and Practice*, *7*(4), 435-453

Egger, H. L. & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: presentation, nosology, and Epidemiology. *Journal of Child Psychology and Psychiatry*, 47 (3/4), 313–337.

Egger, H. L., Erkanli, A, , Keeler, G., Potts, E., Walter, B.K., & Angold, A. (2006). Test-Retest Reliability of the Preschool Age Psychiatric Assessment (PAPA). *Journal of American. Academy of Child Adolescent Psychiatry*, 45(5), 538-549.