

Genetic Markers and Parenting Intervention Outcomes: A comprehensive review of the literature

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INTRODUCTION

BACKGROUND:

➤ Parenting-focused interventions effectively reduce offspring internalizing and externalizing problems (Moretti, Obsuth, Craig, & Bartolo, 2015; Stattin, Enebrink, Özdemir, & Giannotta, 2015; Woolfenden, Williams, & Peat, 2002).

➤ Considerable research has explored psychological and social pathways of these treatment effects. However, less is known about the biological mechanisms underlying treatment outcomes.

➤ One candidate mechanism that has garnered much attention in the past decade are genetic factors. Genes are a promising but controversial pathway to understanding the both the pathogenesis of psychopathology and treatment outcomes. Furthermore, randomized control trial gene x environmental (intervention) studies are one way to overcome some of the caveats in typical G X E studies such as gene by environment correlation, measurement error etc. (Bakermans-Kranenburg, & van IJzendoorn, 2015).

GOAL: Perform a comprehensive review of the literature of the key candidate genetic factors' impact, specifically in terms of mental health outcomes, of parenting-based interventions.

RESEARCH QUESTION:

➤ What is the state of the literature on genetic markers and parenting intervention outcomes, in relation to three main themes:

1. Age at time of intervention
2. Type of intervention
3. Candidate gene(s) examined, and the case of multi-gene analysis

➤ What is the nature of the interactions observed and do they fit into a simple moderation model, or provide evidence for a differential susceptibility (DS) relationship (Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2007).

METHODS

DESIGN: Comprehensive, narrative literature review

SEARCH TERMS:

TOPIC	SEARCH TERMS
GENE	Gene, genetic, G X E interaction, candidate gene, polymorphism, genotype
INTERVENTION	Parent, caregiver AND intervention, therapy or psychotherapy OR parent training, family therapy, attachment-based intervention

DATABASES EXAMINED: PsycInfo, Google Scholar, Medline, manual search reviews and previously published articles

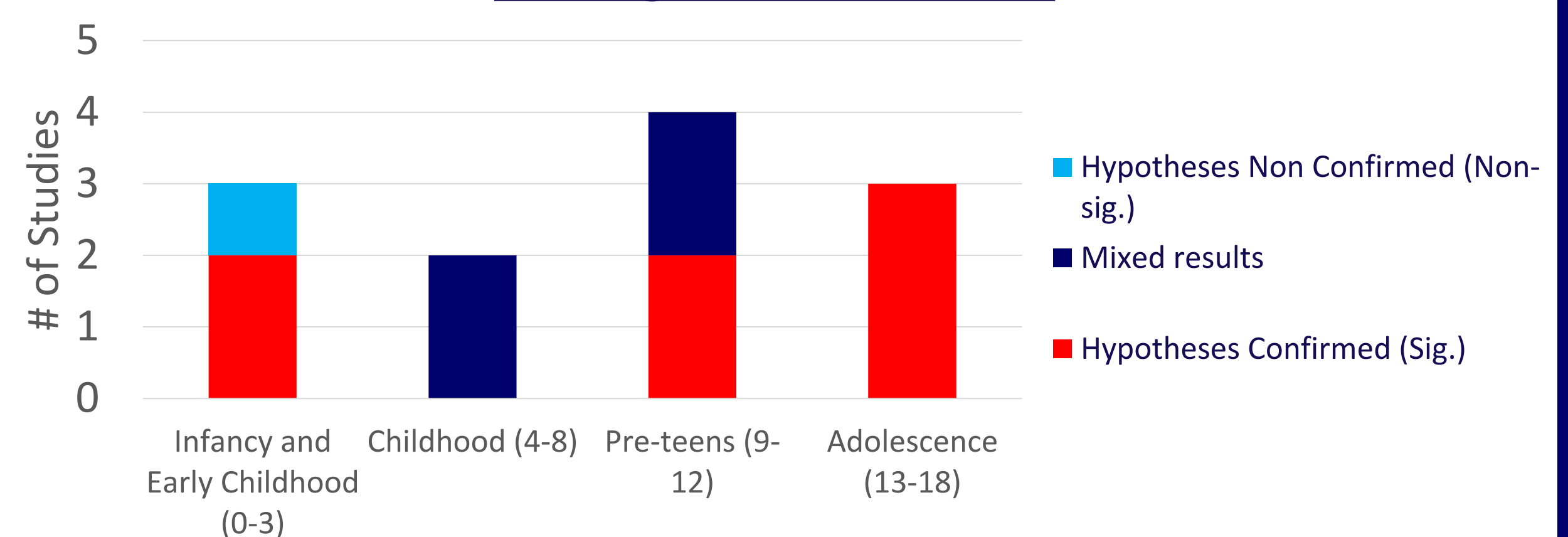
NUMBER OF STUDIES RETRIEVED: N=12

REFERENCE: Available upon request



RESULTS

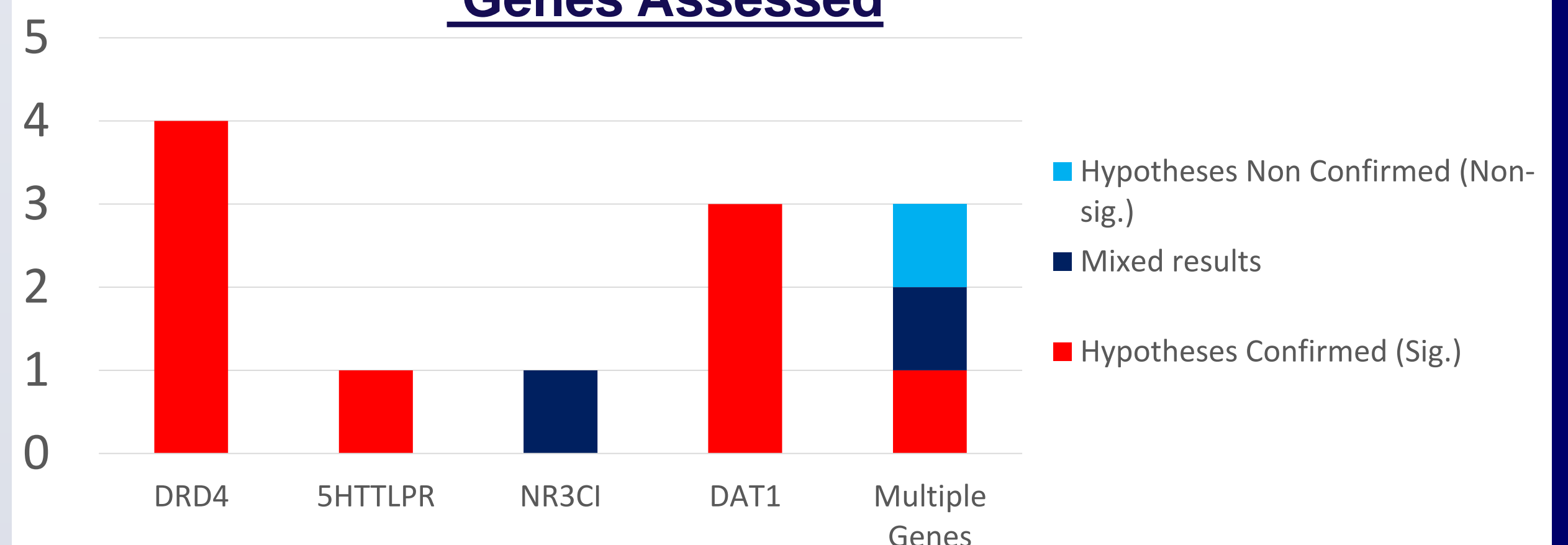
DISTRIBUTION OF RESULTS: Timing of Intervention



DISTRIBUTION OF RESULTS: Intervention Type

- A slight majority of studies are based on prevention interventions (57%). No systematic differences between interventions that assess prevention of psychopathology versus reduction of symptoms were observed.
- 64% of studies assess the effects of interventions that specifically target parenting, or specific parenting behaviour (sensitivity, youth monitoring). Other interventions studies are more broadly disseminated including school environment, nutrition, peers etc. The majority of targeted studies found a significant G X I, where the majority (66%) of broad-based studies found mixed or inconclusive results.

DISTRIBUTION OF RESULTS: Genes Assessed



MODELS ASSESSED: Differential Susceptibility

The results from these studies suggest there is some evidence of a DS model, but the evidence is equivocal. Most studies find in the presences of a susceptibility gene (such as the S allele of 5-HTTLPR) do not find outcomes different "for better AND for worse", just one or the other. For example, susceptible individuals exposed to the prevention do not engage in substance use, however there was no evidence of poorer outcomes in youth with no intervention.

DISCUSSION

SUMMARY:

- The genetic moderation of intervention outcomes is a developing field, yielding interesting results in intervention studies.
- Results suggest that the DRD4 gene is a promising candidate gene, especially in the context of prevention interventions, with adolescents.



LIMITATIONS:

- The set of studies includes heterogeneous set of samples and intervention types; drawing conclusions from these results may be hasty, at this time.
- There is significant research performed by the Brody group and the SAAF(-T) program. This research is performed specifically in African American youth, living in rural U.S.A. Further, the research focuses on prevention. Therefore, the generalization of results may be limited.

FUTURE DIRECTIONS:

- Expanding the studies examined, exploring epigenetic effects and the intersection between biological and psychological mechanisms of treatment effects.