ACTION

Aggression in Children: Unraveling gene-environment interplay to inform Treatment and InterventiON strategies

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Childhood aggression: Synthesis of reviews and meta-analyses to reveal patterns and opportunities of current prevention and intervention strategies.

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The present study aimed to provide a synthesis of meta-analyses and systematic reviews on treatments for childhood aggression and moderator effects

Highlights

✓ Synthesis of 64 meta-analyses and systematic reviews.
✓ Most effect sizes for treatments for childhood aggression were small.
✓ Positive moderators: pre-treatment levels of aggression, individual implementation, and parental involvement.
✓ Distinction treatments: treating aggression vs. associated factors.
✓ Treatment might benefit from a stronger emphasis on individual differences

Background and definitions

Childhood aggression and associated social impairments inflict a tremendous personal and financial burden on affected children, their relatives, peers and society as a whole. The prevalence of clinical aggression in children ranges from 2-16%, and early onset continues into adolescence and adulthood for many children. Children benefit from treatment administered at a young age. The literature differentiates the following treatment types:

- **Universal prevention** targeting children without any specified risk-factors for developing childhood aggression.
- **Selective prevention** targeting subgroups with an elevated risk of developing childhood aggression, but who have not yet displayed behaviors associated with childhood aggression.
- **Indicated prevention** targeting subgroups with an elevated risk to develop childhood aggression, who show aggressive behaviors but do not meet clinical criteria.
- **Interventions** targeting children diagnosed with clinical levels of childhood aggression.

Method

We performed a PRISMA literature search for systematic reviews and meta-analyses on treatments for childhood aggression. Childhood aggression included conduct disorder, oppositional defiant disorder, externalizing behavior problems, antisocial behavior, and disruptive behavior problems.

Articles were included in the present study if they:

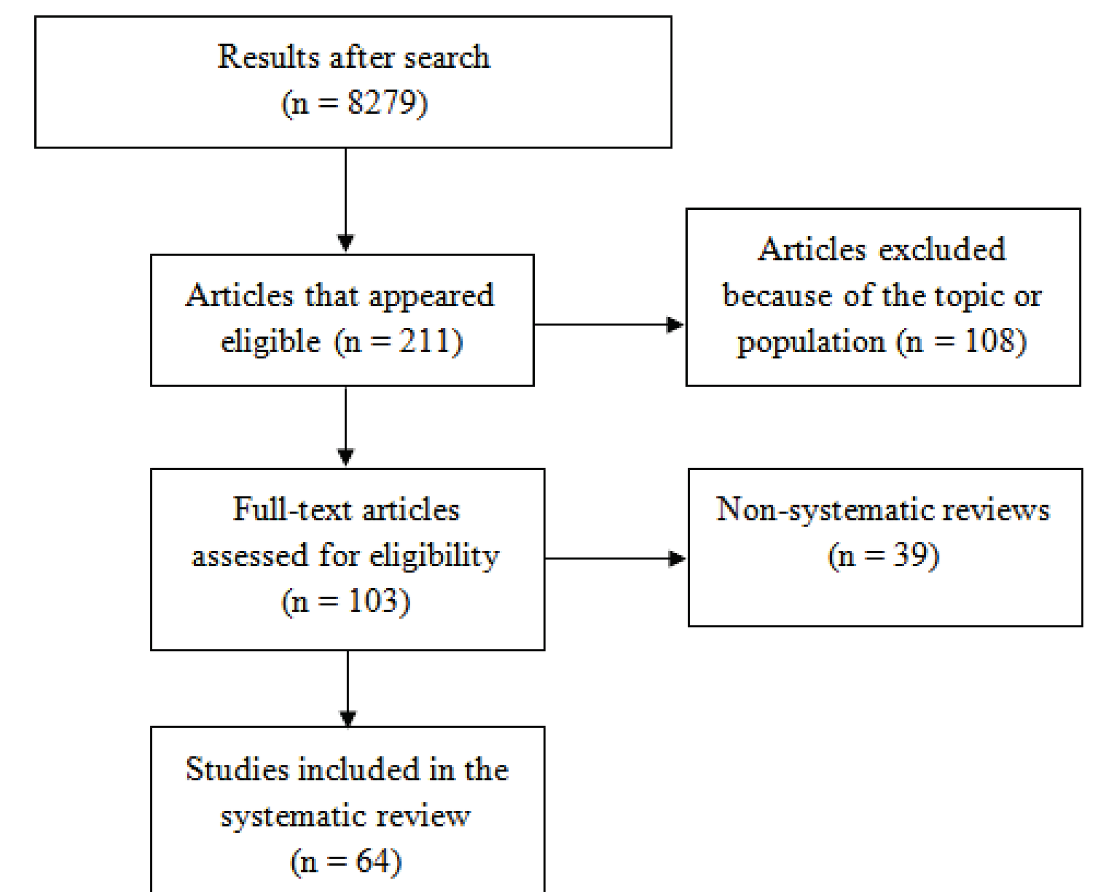
1. were either a meta-analysis or a systematic review examining treatment effectiveness on childhood aggression published between 2000 and March 2016
2. focused mainly on children aged 6 to 12
3. were published in a peer-reviewed journal
4. were published in English

With a coding scheme, we extracted information on the studies regarding the treatment, inclusion and exclusion criteria, moderators, results, and study quality.

With this information, we examined:

- Effect sizes per type of treatment
- Moderator effects on treatment effectiveness

Figure 1. Flow chart of the literature search



Results

We identified 64 studies that included articles published between 1950 and 2015. The sample was heterogeneous, containing a broad range of treatments and varying in study quality. The most prevalent effect size for treatment effectiveness was small (see Table 1). We found no moderator effects for child age, gender, person implementing the treatment, and different treatment programs. For socio-economic status (SES), type of treatment, informant, treatment intensity, and research quality, moderator effects were mixed. We found positive moderator effects for pre-test levels of aggression, individual implementation, and parental involvement.

Table 1. Frequencies and percentages of effect sizes for treatment types.

	Universal prevention	Selective prevention	Indicated prevention	Intervention	Total
No effect	3 (16%)	3 (18%)	1 (4%)	1 (3%)	8 (9%)
Small effect	15 (79%)	13 (76%)	16 (64%)	14 (44%)	58 (62%)
Medium effect	1 (5%)	0 (0%)	5 (20%)	9 (28%)	15 (16%)
Large effect	0 (0%)	1 (6%)	1 (4%)	2 (6%)	4 (4%)
Other	0 (0%)	0 (0%)	2 (8%)	6 (19%)	8 (9%)
Total	19 (20%)	17 (18%)	25 (27%)	32 (34%)	93 (100%)

Discussion

Patterns as a function of effect sizes

Effect sizes were similar for indicated prevention and intervention regarding type of treatment programs and outcomes. Also these two treatments target aggressive behaviors. Also, effect sizes were similar for universal prevention and selective prevention which target factors associated with the risk to develop aggression. Rather than exclusively focusing on treatment types, these findings highlight the usefulness of distinguishing between the focus of the treatments (symptoms of aggression vs. associated factors).

Patterns as a function of moderators

Few moderators yielded consistent effects. Importantly, variables reliably associated with childhood aggression were not included as moderators, including: 1) parental dysfunction and psychopathology, 2) child abuse and domestic violence, 3) adverse life events and family stress, and 4) comorbid mental health problems. Additionally, individual differences in responsiveness to treatment are largely neglected. Research examining how these variables affect treatment effectiveness for childhood aggression would be particularly promising and further our understanding of individual and contextual differences in children's responsiveness to treatment.

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