Treatment, prediction, and assessment of childhood aggression
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2019

document version
Publisher's PDF, also known as Version of record

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Chapter 7

Summary and Discussion
The aim of this dissertation was to further our understanding of risk factors associated with childhood aggression and the assessment of childhood aggression. To this end, Chapter 2 comprised an overview of meta analyses and systematic reviews on treatment effectiveness and its moderators for childhood aggression. In addition, Chapter 3 to 5 examined macro-level and micro-level predictors of childhood and adolescent aggression and moderation on the contribution of genetic and environmental factors to individual differences in childhood aggression. Finally, Chapter 6 tested the agreement between different instruments commonly used to assess aggressive behavior. Table 1 briefly describes the aims and highlights of each chapter. The next paragraphs provide a more elaborate summary of each chapter.

The goal of Chapter 2 was to enhance our understanding of treatment effectiveness for childhood aggression. Therefore, Chapter 2 presented a literature synthesis of 72 meta analyses and systematic reviews that examined effectiveness of treatments for childhood aggression. The study reviewed the characteristics of the meta analyses and systematic reviews, effect sizes across types of treatments, and effects of various moderators (i.e., participant variables, treatment variables, and methodological variables). Treatments included psychosocial (non-pharmacological) universal prevention, selective prevention, indicated prevention, and intervention. The conclusion was that for universal and selective prevention, effects were mostly absent or small; for indicated prevention and intervention, effects were mostly small to medium. Furthermore, most moderators of treatment effectiveness had no effect in the majority of studies (i.e., child age, child gender, implementation to individuals or groups, person implementing the treatment, different treatment programs, and session related factors or treatment intensity) or mixed effects (i.e., socioeconomic status, type of treatment, informant, research quality). The only two significant moderators comprised of pre-treatment levels of aggression and parental involvement. Treatment effectiveness was higher for children with higher levels of aggression before treatment and when parents were involved in the treatment.

The discussion elaborated on two patterns that emerged within the results and on the implications of those patterns for research and clinical practice. First, the results identified similarities between universal and selective prevention compared to indicated prevention and intervention, respectively. Second, results revealed that based on existing research it is not yet possible to distinguish subgroups of children that would benefit more from treatment for aggression than others. The positive moderating effect of parental involvement on treatment effectiveness for childhood aggression suggests that an opportunity for future research may be to focus more on parental influences as possible moderators of treatment effectiveness. In addition, more systematic research attention for the association between individual factors and treatment effectiveness for childhood aggression would be promising.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Research aim</th>
<th>Highlights</th>
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<tr>
<td>2</td>
<td>Create an overview of overall treatment effectiveness and its moderators for childhood aggression.</td>
<td>Effect sizes for treatments for childhood aggression were mostly small. Promising distinction between treating aggression vs. treating associated factors. Treatment might benefit from a stronger emphasis on individual differences.</td>
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<td>3</td>
<td>Examine the association between national-level policies for child and adolescent mental health (CAMH) and adolescent mental health.</td>
<td>The association between policies for CAMH and adolescent aggressive behaviors was negative; aggressive behaviors were higher in countries with less policies. This association held when controlling for other national-level variables. There was no association between policies for CAMH and adolescent life satisfaction or psychosomatic symptoms.</td>
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<td>4</td>
<td>Predict childhood aggression based on a large sample with a broad set of predictor variables.</td>
<td>Regression coefficients were in line with previous research; yet weaker, probably due to similar levels of intervention and initial presentation. Most important predictors were externalizing, non-aggressive behaviors such as arguing, being easily distracted, and hyperactivity. These behaviors may function as salient targets for early detection and prevention of childhood aggression.</td>
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<td>5</td>
<td>Investigate the moderating effect of socioeconomic status (SES) on the genetic architecture of childhood aggressive behavior.</td>
<td>SES moderated the contribution of genetic and environmental factors to childhood aggressive behavior. Heritability was higher; the contribution of the shared environment was lower; and the contribution of the nonshared environment was higher for children from high SES families compared to children from low or medium SES families. This pattern was similar in the Netherlands and the United Kingdom.</td>
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<td>6</td>
<td>Assess the agreement between different measures of childhood aggressive behavior.</td>
<td>Concordance in item content was low. Concordance between diagnoses was low. Correlations between measures were moderate to high. Genetic overlap was moderate to high. The extent to which different measures of childhood aggressive behavior converge depends on the type (i.e., item content, clinical concordance, correlation, genetic overlap) of agreement considered.</td>
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To examine the extent to which national-level variables explain variance in aggression, Chapter 3 assessed the association between national-level policies for child and adolescent mental health (CAMH) and individual-level adolescent mental health. Data were from 172,829 adolescents aged eleven to fifteen years, from 30 European countries in the 2013/14 Health Behaviour in School-aged Children (HBSC) study. Adolescent mental health indicators comprised aggressive behavior, life satisfaction, and psychosomatic symptoms. Information on national-level policies for CAMH was gathered from renowned statistical institutes and included availability of epidemiological data, the number of CAMH facilities, investment in family benefits, and investment in education. In addition, to ascertain that the association between
Implications for Treatment, Prediction, and Assessment

The section discusses implications and considerations related to treatment, prediction, and assessment in the context of aggression and other behaviors. It highlights the importance of understanding the underlying factors and the role of environmental and genetic influences in the development of aggressive behavior. The section emphasizes the need for multidisciplinary approaches to address the complexity of these issues.

In addition, the section addresses the importance of early intervention and the role of psychological and educational interventions in reducing aggression. It underscores the need for collaborative efforts between educators, parents, and mental health professionals to create effective strategies for preventing and managing aggressive behaviors.

The implications for practice and policy are discussed, emphasizing the need for evidence-based approaches and the importance of ongoing research to refine our understanding of aggression and its treatment. The section also highlights the need for continued support and resources for families and communities affected by aggression, advocating for inclusive policies and practices that promote positive outcomes for all individuals.

The importance of behavioral syndromes for the prediction of child and adolescent aggression is well-documented in the literature. However, only a few studies have examined the association between child and adolescent aggression and individual behavioral syndromes. For example, Drabek et al. (2017) found that the association between child and adolescent aggression and individual behavioral syndromes is mediated by the interaction between child and adolescent aggression and individual behavioral syndromes. This finding suggests that the association between child and adolescent aggression and individual behavioral syndromes is not a direct relationship, but rather a complex interaction between child and adolescent aggression and individual behavioral syndromes.

In addition, research has shown that individual behavioral syndromes are associated with different forms of aggression. For example, the association between child and adolescent aggression and individual behavioral syndromes is stronger for children who exhibit externalizing behaviors (e.g., attention-deficit/hyperactivity disorder, oppositional defiant disorder) than for children who exhibit internalizing behaviors (e.g., depression, anxiety). This finding suggests that individual behavioral syndromes can contribute to different forms of aggression in children.

Overall, the results from Chapter 5 indicate that the shared environment contributes more to overall aggression than to individual forms of aggression in children. Therefore, policies and investments in white family functioning and interventions that target the shared environment are likely to have a greater impact on overall aggression in children than on individual forms of aggression.
influence disappears in adolescence (Asendorpf et al., 2016; Westerberg et al., 2017). It would be useful to examine at what age children’s aggressive behavior is best predicted by which risk factors, to optimally detect children most likely to become aggressive early enough to prevent worse outcomes from maltreatment and treatment (e.g., Campbell, Lindström, Långström, & Långström, 2018).

**GENERAL CONCLUSION**

The research in this dissertation, especially in Chapters 3, 4, 5, and 6, focused on the more overt and physical types of aggression. Nonetheless, childhood aggression may take other forms, such as indirect or relational aggression. These different types of aggression do not occur in isolation, and the complex interplay of behaviors and experiences, such as maltreatment or social exclusion, can contribute to the development of different types of aggression. The results from Chapters 3 to Chapter 6 need to be interpreted as cross-sectional. The conclusions are not meant to predict the future development of children, as many factors, including environmental and genetic influences, play a role in the development of aggression.

Within the broader context of the examination of new research questions, the studies in this dissertation highlight the complexity of childhood aggression. Childhood aggression is found to be associated with a broad range of factors, from country-level policies such as more prominent cultural and environmental factors as the family environment, and individual factors such as behavior and genetics, which may not influence treatment. As children who score above the clinical cut-off for measures of aggressive behavior only to a small extent on which children show clinical levels of aggression, which may be excluded from treatment from which they would benefit as those who score below the clinical cut-off. Moreover, the different results for the different types of aggression may not be caused by the different measures but could be related to different underlying mechanisms.

Although the influence of the broad range of factors discussed in this dissertation, including the importance of genetics and the role of the family environment, it also provides opportunities to improve prevention and intervention strategies for childhood aggression. For example, the identification of patterns of aggressive behavior, which suggests different needs, can be beneficial. The results of this dissertation also provide guidance for future research, such as the investigation of the genetic and environmental factors that influence the development of childhood aggression.