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The relationship between family violence and self-control in adolescence: a multi-level meta-analysis

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Abstract

Theoretical studies propose an association between family violence and low self-control in adolescence, yet empirical findings of this association are inconclusive. The aim of the present research was to systematically summarize available findings on the relation between family violence and self-control across adolescence. We included 27 studies with 143 effect sizes, representing more than 25,000 participants of eight countries from early to late adolescence. Applying a multi-level meta-analysis, taking dependency between effect sizes into account while retaining statistical power, we examined the magnitude and direction of the overall effect size. Additionally, we investigated whether theoretical moderators (e.g., age, gender, country), and methodological moderators (cross-sectional/longitudinal, informant) influenced the magnitude of the association between family violence and self-control. Our results revealed that family violence and self-control have a small to moderate significant negative association ($r = -.191$). This association did not vary across gender, country, and informants. The strength of the association, however, decreased with age and in longitudinal studies. This finding provides evidence that researchers and clinicians may expect low self-control in the wake of family violence, especially in early adolescence. Recommendations for future research in the area are discussed.

Keywords: family violence, self-control, meta-analysis, adolescence

Introduction

Family violence – relational escalations in which one or more family members engage in verbal or physical aggression – is common and brings tremendous costs to individuals, communities and society. Individuals exposed to family violence show increased vulnerability to decrements in physical, mental, and social wellbeing across the lifespan [3]–[5]. It is a particularly harmful risk factor during adolescence, as family violence may jeopardize not only adolescents' current wellbeing, but also their wellbeing as adults, and even the wellbeing of their future children [1], [2]. Importantly, experiencing family violence predicts adolescents' use of violence themselves, generating a vicious circle of conflict from one generation to the next [6], [7]. Although there is a consistent link between family violence and adverse outcomes for adolescents, development of effective prevention and intervention strategies would benefit from more knowledge on the specific processes underlying this link.

Recent theoretical studies propose that self-control plays a key role in the family violence – adverse outcome link because of its foundational function in regulating behavior, emotions, and cognition [8], [9]. Family violence may decrease adolescents' self-control, and this decrease, in turn, is likely to carry over to cause adverse outcomes in other domains such as school, with peers, and in romantic relationships. Moreover, lowered self-control as a result of repeated exposure to family violence could make adolescents more likely lose self-control in stressful situations [10], thereby exacerbating violence within their family. Empirical evidence of these two theoretical core propositions, however, has produced mixed results. To illustrate, some studies do not find a significant association [11], while others show support for a cross-sectional and a longitudinal link between family violence and low adolescent self-control [12], and again other studies find a cross-sectional but not a longitudinal association [13], [14], or find an effect

from low self-control to family violence but no evidence for the reverse relation [15], [16]. To shed light on the relation between family violence and self-control, this paper aims to summarize and quantify the association between family violence and self-control across adolescence through applying a multi-level meta-analysis.

Conceptualization of Self-Control

Self-control involves the ability to initiate desirable actions and behavior (e.g., finish homework, concentrate in class, achieve goals), and the capacity to inhibit undesirable impulses (e.g., suppress procrastination, overcome temper tantrums, avoid rule breaking; [17], [18]). Self-control is an important concept within diverse research traditions, with criminologists and social psychologists embracing the term self-control, developmental psychologists using the terms effortful control, and clinical psychologists preferring the term self-regulation [18]. Empirical research shows that these terms collectively tap into the capacity to alter unwanted impulses and behavior and bring them into agreement with standards [19]–[23].

The capacity to perform self-control is of specific importance to adolescents. The teenage years are marked by a range of normative biological and social challenges [24], including increases in risk-taking behavior [25], and social reward seeking [26]. Low self-control hinders adolescents' capacity to deal with these challenges. For example, adolescents with low self-control are less happy, have more negative social interactions, perform worse in school, and are more likely to get involved in oppositional behaviors and substance use than adolescents with high self-control [27]–[30]. Together, these findings highlight the importance of self-control during adolescence for healthy development across the lifespan.

The Relationship Between Family Violence and Self-Control

Family violence is defined as destructive conflict that is violent, frequent, and harmful,

putting adolescents at elevated risk for poor psychological health and wellbeing. That is, family violence comprises of conflict that is a threat for adolescents because it is frequent, involves verbal and/or physical overt aggression, and is rancorous or hostile in form and content [31], [32]. There are different pathways by which family violence may affect self-control. Family violence induces emotional stress in adolescents, resulting in behavioral, physiological, and cognitive dysregulation and lower self-control [33]–[35]. Additionally, studies show that family violence is a strong predictor of sleep problems, which, in turn, predicts self-control problems [35]–[37]. Also, rumination as a result of violent interaction is also likely to reduce self-control [38].

Moreover, studies suggest that family violence decreases self-control indirectly through processes associated with the family or the household. For example, family violence is predictive of more harsh discipline and less parental warmth and acceptance, limiting adolescents' opportunities to learn through social observation how to manage their impulses and emotions [32], [39]. Similarly, in families with family violence studies report lower parent-child relationship quality and lower sibling relationship quality which, in turn, undermines adolescents' ability to develop self-controlled behavior [40]–[42]. These findings are consistent with the suggestion that family violence is negatively related to adolescents' self-control at the within person level (stress, sleep, rumination) and through processes associated with the family and living conditions (parenting, family relationships).

Adolescents, nonetheless, are not passive recipients of their environment and some recent research suggests that adolescents with low self-control may evoke or maintain violence within the family. Adolescents with low self-control are more likely to undermine parental rules, which spurs parents to show over-controlling or hostile parenting strategies, exacerbating violence

within the family [43]. This is in line with the behavior genetic literature, indicating that genetically influenced traits such as low self-control evoke harsh parenting responses, emphasizing the importance of taking child-driven effects into account [44], [45]. Additionally, adolescents with low self-control are considered as less trustworthy by their family members and are less successful in de-escalating conflict [46], [47]. Also, individuals with low self-control are more likely to show aggressive behaviour in close relationships [48], [49]. As such, the association between family violence and self-control can be understood as a transactional or reciprocal process, where contextual factors (family violence) affect the development of adolescents (self-control) and adolescents' behavior evokes or maintains the context in which they develop.

In sum, in order to better understand the association between family violence and self-control, it is important to investigate the magnitude and the directional effect from family context to adolescent *and* from adolescent to family context [8], [50], [51]. A meta-analysis including longitudinal studies allows researchers to pit these effects against each other. Longitudinal studies include (a) an effect size where family violence is measured at one time point and self-control is measured at a succeeding time point and/or, (b) an effect size where self-control is measured at one time point and family violence at a succeeding time point, c) or both. Including these effect sizes a meta-analysis examines the average effect size of family violence to self-control and vice versa.

Moderators of the Link Between Family Violence and Self-Control

An additional key strength of a meta-analysis is that it allows researchers to examine potential boundary conditions under which the relation between family violence and self-control may vary in magnitude. The association may vary as a function of theoretical moderators, such

as age, gender, or country, and as a function of methodological moderators, such as whether the correlation pertains to cross-sectional assessments or longitudinal assessments or to the type of informant.

Theoretical Moderators

Age. Research shows that youth of all ages are adversely affected by family violence, yet the magnitude of the effect may vary across adolescence [32]. Throughout adolescence, teenagers increasingly claim more autonomy. As a result, some researchers argue that the association between family violence and low self-control is stronger during early adolescence, when teenagers are on the verge of gaining independence but still rely on parental support, than in later adolescence, when other social contexts and socializing agents become increasingly important (e.g., peers, school, neighborhood, [52]). Other evidence, however, suggests the association to increase over the course of adolescence because older children are likely to have been exposed to violence for a longer period of time [31], [53]. Accordingly, in this meta-analysis we will explore whether the association between family violence and self-control changes as adolescents become older.

Adolescent gender. Evidence suggests that the effects of family violence are equally harmful for boys and girls [32]. Differences between boys and girls do become apparent in the way they perceive family violence; boys are more likely to perceive violence as a personal threat while girls are more likely to perceive it as a threat to the harmony of the family system [54]. As a result, some research suggests gender differences in the developmental trajectories of the association between family violence and self-control. Specifically, research found that for girls the association was stronger during adolescence while for boys it was stronger in early childhood [54]. This study will explore whether the association between family violence and self-control is

moderated by child gender.

Parent gender. Some studies state that family violence differently affects adolescents when family violence involves mothers or fathers. For instance, because mothers are more likely to separate their role as partner and parent than fathers, the effects of family violence are more likely to spill over in father-child relationships than mother-child relationships [32]. However, other studies suggest that mothers are more likely to compensate for conflicts in the family by becoming more controlling and intrusive with their children than fathers [55]. This meta-analysis will explore whether parent gender moderates the association between family violence and self-control.

Country. Prior research on general parenting shows cultural differences in the use of harsh parenting. For instance, Chinese parents are thought to use a harsher parenting than Western parents [56]. However, scholars argue that parenting is closely dependent on cultural contexts and therefore any type of parenting, no matter whether it is positive or negative, should be effective in socializing children in a given culture [57]. To date, numerous studies investigated the association between family-related variables and self-control across countries. Research including data from countries including the United States, China, Italy, the Netherlands, and Japan shows similarities in the magnitude of the association between parenting and self-control across cultures and ethnicities, although some studies report differences in the strength of the association across countries [58], [59]. The present study will also assess whether the magnitude of the association between family violence and self-control is similar across countries.

Methodological Moderators

Study design. Studies investigating the association between family violence and self-

control have applied concurrent and/or prospective study designs: some assessed the cross-sectional association between family violence and self-control whereas others examined a longitudinal association. The differences in the magnitude of cross-sectional versus longitudinal studies are, however, not well quantified. Earlier meta-analyses on the link between attachment and self-control across the lifespan found larger effect sizes for smaller time differences and larger effect sizes for cross-sectional studies as compared to longitudinal studies [60]. In the same vein, this meta-analysis will explore whether the magnitude of the association between family violence and self-control differs for cross-sectional and longitudinal studies.

Informants. The magnitude of the association between family violence and self-control is also likely to vary depending on methodological specifications, such as the way violence and self-control are assessed (e.g., parent report or adolescent self-report), and whether they are assessed by the same informant (e.g., both self-report or both parent report, [19]). Correlations between self-reports are on average stronger than correlations between self-reports and other reports [61]. As such, we explore whether the association between family violence and self-control is stronger when both are assessed by the same person.

The Present Study

While there is evidence for the link between family violence and self-control, empirical evidence regarding the magnitude and the direction of the effect remains inconclusive. The aim of the present study is to ‘take stock’ of the published literature so far by applying a multi-level meta-analysis. A meta-analysis is ideal to summarize the published literature, because it allows for aggregating diverse individual study results to identify the overall mean effect and investigate the role of possible moderators on the magnitude of this effect. Doing so allows us to 1) quantify the relationship between family violence and self-control across adolescence, 2) examine the

influence of theoretical and methodological moderators, and 3) elucidate gaps and questions that require attention in future research.

Method

Literature Search

We collected data through systematic database search of ERIC, PsycInfo, Pubmed, and Web of Science until September 2018 following the PRISMA checklist. Search terms included family variables (*parent** or *mother** or *father** or *parental* or *maternal** or *attachment** or *family** or *bond**), self-control variables (*self-control* or *self control* or *self-regulation* or *self regulation* or *self-discipline* or *self discipline* or *effortful-control* or *effortful control*), and adolescent variables (*adolescent** or *adolescence* or *teen** or *youth** or *child** or *student** or *undergraduate* or *emerging adult** or *young adult**). We chose the adolescent age span from age 10 to 22 years to capture the broad developmental range of teenage development [24].

In order to ensure extensive search outcomes, we applied search terms capturing broad family variables. First, when reporting on family violence, it is common to mention a family related keyword in the title or abstract (e.g., parent, adolescent, the whole family). In our search, we included all studies that mentioned family related key words in the title or abstract for full text screening (e.g., parent, mother, father, parental, family, bond, adolescent, child). Second, in some studies family violence is not the key focus but included for exploratory analyses. By applying these broad terms, we were able to include studies that specifically focus on the family – self-control association and capture studies that have a different research question but include violence as an explorative variable or covariate. Third, some studies do not explicitly mention family violence in their abstract but apply measures assessing family violence (for example as a dimension of harsh parenting). Our extensive search allowed us to include a large number of

studies and inspecting parenting measures thoroughly to detect studies including effect sizes on family violence and self-control.

Studies were included if 1) the study included a correlation between parenting and self-control, 2) the study assessed a non-clinical sample, 3) the study was published in English, in a peer-reviewed journal, 4) the age of the participating adolescents was between 10 and 22 years. This wide age range was selected to explore the association from the start of puberty into solidification of adulthood [62], 5) the parenting measure tapped into family violence as defined in the present study. That is, it included measures of severe punishment, slapping / hitting, physical coercion, severe verbal fights within the family, heatedly shouting and criticizing within the family, expressive anger and frequency of violence [32].

Selection of Studies

Our search yielded 7781 hits, which after removing duplicates of the multiple search engines and applying inclusion criteria to the title and abstract resulted in 853 potentially relevant articles for full text screening. Of the 853 articles, 27 studies met the abovementioned inclusion criteria and were included in the present meta-analysis (see Figure 1 for the flowchart).

We collected relevant information of the studies and organized them according to a detailed coding scheme [63]. This coding scheme included study descriptors (e.g., author names, title, year of publication, data collection details, sample size), moderator variables (e.g. study design, age, country, informant), and the correlation between family violence and self-control (retrieved from correlation tables or provided by contacted authors).

Inter-Rater Agreement

To calculate inter-rater reliability, the first two authors coded 20% of all the articles. This resulted in a good inter-rater reliability, reflected in the high intra-class correlations for

continuous variables (ranging between 0.78 for age to 0.99 for sample size) and high Cohen's Kappa for the categorical variables (ranging between 0.86 for informant, and 1.00 for country of the study, and study design). In case of disagreement, in-depth discussions were held to reach agreement on the specific content of the article. The remaining 80% was divided equally among both authors.

Theoretical Moderators

Age. We coded age at assessment continuously. For studies not reporting age but school grade, the average age of students in that school year was coded. For example, when the study mentioned adolescents were in sixth grade in the USA, we coded mean age as 11.5 years.

Adolescent gender. Proportion of boys and girls participating in the study was categorically coded with 1 = *overall balanced* (the percentage of boys or girls of the sample ranging between 40% and 60%), 2 = *greater proportion of boys* (>60% boys), 3 = *greater proportion of girls* (>60% girls). This allowed us to explore whether gender of the adolescents moderates the association between family violence and self-control.

Parent gender. In order to explore the influence of the gender of the parent, studies were coded whether the effect size reflected mother-child interaction, father-child interaction, or parent-child interaction. Notably, many studies assessed 'violence in the family' without referring specifically to father or mother. As a result, studies were coded according to the following categories: 1 = *greater proportion of mother-child interaction* (> 60% of the sample), 2 = *greater proportion of father-child interaction* (> 60% of the sample), 3 = *both parents, no clear proportion*.

Countries. The influence of country was assessed according to two dimensions. First, countries were coded according to Hofstede's individualism score, power distance score and

femininity-masculinity score (see <https://geert-hofstede.com/countries.html>). These are frequently applied measure to score societies according to i) the value of individualism (identity based on self-orientation and emphasis on individual achievement and initiative) or collectivism (identity based on group orientation with emphasis on social system and belonging); ii) power distance expresses the attitude of the country towards unequal distribution of power; iii) a high score on masculinity postulates a society driven by competition, and achievement while low score postulates the emphasis on quality of life and doing what you like best such as life/work balance.

Second, proportion of different ethnicities participating in the study was coded. This was coded categorically, with 1 = *balanced* (i.e., no ethnicity exceeded 60% of the sample), 2 = *more than 60% identified themselves as Caucasian*, 3 = *more than 60% identified themselves as African/African-American*, 4 = *more than 60% identified themselves as Asian/Asian-America*, 5 = *more than 60% identified themselves as South-American/Hispanic*, 6 = *other*.

Methodological Moderators

Study design. For every study, we coded the time lag between the assessment of family violence and the assessment of self-control continuously in years (starting with a code of 0 for cross-sectional studies).

Informants. For every effect size, we coded whether family violence was assessed by adolescents themselves (1 = *self-report*), by someone else such as one of the parents (2 = *other-report*), or whether the measure was a composite of different informants (3 = *composite*).

Similarly, informant of the self-control measure was coded according to the reporting informant (1 = *self-report*, 2 = *other-report, such as parent report*, 3 = *composite of measures, for example combination between self- and parent-report*).

Furthermore, studies were coded with 1 = *consistent* when family violence and self-control were assessed by the same informant (e.g., both by adolescents themselves) and coded with 2 = *inconsistent* when family violence and self-control were assessed by different informants (e.g., family violence by parents and self-control by adolescents themselves). Important to note is that when both consisted of composite measures, specific attention was paid to check whether these composite scores comprised of the same informants. For example, a code of 1 was given when parenting was measured with a composite score consisting of self-report and mother report and self-control was also measured with a composite score consisting of self-report and mother report. However, when parenting was measured with a composite score of self-report and parent report and self-control with a composite score of self-report and teacher-report a score of 2 was given.

Effect Sizes

We obtained Pearson correlation coefficients to examine the strength of the association between parenting and adolescent self-control. The correlations were either derived from the studies or retrieved upon request if they were not present in the published paper. For consistency, effect sizes in which self-control was assessed as 'lack of self-control' or 'low self-control' were recoded. For normalization and standardization, correlations were transformed into Fisher's z scores ES_Z [63]. The ES_Z were the input for the analyses; after the analyses they were transformed back to r for interpretation¹. Categorical moderator variables were dummy-coded with $k-1$ dummy variables [64].

¹ The Fisher's transformation of r was done using the following formula: $ES_Z = \frac{1}{2} \log_e \left[\frac{1+r}{1-r} \right]$. Any ES_Z can be transformed back into standard correlation form using the inverse of the ES_Z transformation using the following formula: $r = \frac{e^{2ES_Z} - 1}{e^{2ES_Z} + 1}$ (see Field, 2001; Lipsey & Wilson, 2001).

Publication Bias

To take the possibility of publication bias into account, we created a funnel plot and performed an Egger's test on the effect sizes. The funnel plot allowed us to inspect the distribution of the effect sizes by displaying each individual effect size in a figure with the effect sizes on the horizontal axis and study precision as a function of standard errors on the vertical axis [65]. Publication bias would occur if the funnel plot displayed an asymmetrical distribution [65]. In order to formally test whether there was an asymmetrical distribution of effect sizes, we conducted an Egger's regression test [66].

Data Analyses

We performed all our analyses in R version 3.4.2, using the Metafor package [67]. Because most studies reported multiple effect sizes, there was a likely dependency between effect sizes derived from the same studies (e.g., these effect sizes are not independent as they are part of the same sampling process, study group, and study population). To take this dependency into account, we applied a three-level meta-analysis, an approach that allows us to use all available information (i.e., multiple effect sizes) and thus optimizes the statistical power [64], [68], [69].

The three-level model specifies the following levels of variance: 1) sampling variance of the effect sizes, 2) variance between effect sizes within studies using the same dataset, and 3) variance between studies [69]. Studies using the same dataset are treated as if they all come from the same study. In this approach, studies with multiple effect sizes will not necessarily be assigned more weight because the dependency between effect sizes is taken into account. Furthermore, it enables to optimally use the available information, while simultaneously correcting for dependency, leading to more precise estimates [68]–[70]. To take into account

possible dependency between studies using the same dataset, we used the number of independent studies (i.e., data sets) as the mode of analysis [64].

To examine the association between family violence and adolescent self-control and moderator effects, we performed the following analyses. First, we estimated the overall mean effect size of the association. Second, we assessed between-study and within-study variance using a likelihood ratio test, and partitioned the total variance into percentages for the sampling variance, variance within studies, and variance between studies, applying earlier proposed methods [68]–[70]. Third, based on whether there was evidence for heterogeneity among effect sizes, we performed univariate-moderator analyses. Fourth, we conducted multivariate moderator analyses to assessing significance of each moderator while taking into account other significant moderators to avoid multicollinearity problems in the analyses. The analyses were performed in line with earlier described procedures [64], estimating parameters using restricted maximum likelihood.

Results

Descriptives

The present meta-analysis included 27 studies reporting on the association between family violence and self-control (see Supplemental Table 1). Of the 27 studies, 22 reported on independent studies, including 143 effect sizes and a total sample size of $N = 26,333$. Studies were published in a wide range of journals for example in the *Journal of Family Studies*, *Journal of Youth and Adolescence* and *Journal of Crime and Delinquency*, and were published between 1990 and 2017. Most studies were conducted in the USA, followed by studies conducted in Asia and Europe. Age of the participating adolescents ranged between 10.00 and 21.70 years, with a

mean age of 13.41 years (See Table 2 for more details). Most studies reported cross-sectional associations (24 studies, 104 effect sizes), with 5 studies (39 effect sizes) reporting longitudinal associations from family violence to self-control.

Studies focusing on the effect from self-control to family violence were scarce. Of the 27 included studies, we only identified two studies reporting longitudinal associations where self-control was measured first and family violence at a subsequent time point. While some argue two studies are enough to meta-analyze an effect, parameter estimates are poor when the number of studies is below five [71]. As a result, we could not meta-analyze the magnitude of the effect from self-control to family violence nor could we address the question regarding reverse causality, namely whether the magnitude of the directional effects differed. The results therefore only present cross-sectional effect sizes and longitudinal effect size from family violence to self-control.

Publication Bias

As shown in Figure 3, the distribution of the effect sizes in the funnel plot appeared to be symmetrical. In addition, the Egger's test was nonsignificant $z = -0.994$, $p = 0.329$. This suggested that there was no publication bias in the present meta-analysis.

Overall Effect Size

We found a negative small to medium significant overall effect size for the association between family violence and adolescent self-control ($ES_Z = -0.194$, S.E. = 0.015, $t = -12.982$, $p < .001$, 95% CI = [-0.223, -0.164], $r = -.191$). This indicated that more family violence is significantly associated with lower adolescent self-control.

Variance of the Overall Effect Size

There was significant variance within studies (estimate = .006, $p < .001$) and between studies (estimate = .003, $p < .001$). Partitioning the variance into percentages for the three levels revealed that the variance at the sampling level was 13.62%, variance within studies using the same dataset was 61.20%, and variance between studies using different datasets was 25.18%. These results, in addition to the significant residual heterogeneity of the overall effect size ($Q_E(141) = 1017.972, p < .001$), indicated appropriateness for further moderator analyses.

Univariate Moderator Analyses

We performed univariate moderator analyses; Table 3 displays the statistics for the results. Significant moderators were age ($Q_E(136) = 901.684, p < .001$; Omnibus test: $F(1, 140) = 8.913, p = .003$) and study design ($Q_E(140) = 836.663, p < .001$; Omnibus test: $F(1, 140) = 8.367, p = .004$). We explored the possibility that age as a moderator would show a non-linear pattern. Comparing models with age with a linear pattern versus age with a non-linear pattern indicated the linear pattern to fit the data best (cf. lower AIC values). The other moderators were not significant, including adolescent gender, parent gender, Hofstede's individualism, ethnicity, informant family violence, informant self-control, and consistency in informants.

Significant Moderators

Based on the significant moderators found in the previous analyses (age and study design), we conducted a follow-up comparison as summarized in Table 4. Regarding age, centered for age 10, we found a significant mean effect size ($ES_Z = -0.249, S.E. = 0.024, t = -10.288, p < .001, 95\% CI = [-0.297, -0.202], r = -0.243$), and a significant positive slope ($ES_Z = 0.015, S.E. = 0.005, t = 2.985, p < .001, 95\% CI = [0.005, 0.025]$). This indicates a decrease in the magnitude of the association as adolescents get older (the constant is negative, and the

positive slope will thus mitigate the starting value).

Regarding study design, we found a significant effect ($ES_Z = -0.201$, $S.E. = 0.015$, $t = -13.505$, $p < .001$, 95% CI = [-0.230, -0.171], $r = -0.198$), and a significant slope ($ES_Z = 0.036$, $S.E. = 0.012$, $t = 2.893$, $p = 0.004$, 95% CI = [0.011, 0.061]). This indicated that the longer the time in-between measurements, the smaller the effect size.

Multiple Moderator Model

We conducted a multiple moderator model including both significant moderators from the univariate moderator analyses to assess their unique contribution in a multivariate model (i.e., study design and age). The results of this model are summarized in Table 5. The significant omnibus test ($F(2, 139) = 8.459$, $p < .001$) suggested that at least one of the parameter estimates of the moderators significantly deviated from zero. Subsequent comparison indicated that study design and age had unique moderating effects on the relationship between family violence and self-control.

Discussion

In the present meta-analysis, we synthesized research on the association between family violence and self-control across adolescence. We included 27 studies, conducted in eight countries, containing 143 effect sizes, with a total sample size of $N = 26,333$. The findings from the multi-level meta-analysis revealed that family violence and self-control are significantly, small to moderately, negatively associated ($r = -.191$). This indicates that family violence and low self-control coincide.

Moderators

Moderator analyses revealed that the association between family violence and low self-

control did not differ significantly across country, gender, and informant. We did find a linear moderator effect for age; the magnitude of the association between family violence and self-control decreased over the course of adolescence. This finding suggests that adolescents gradually transform from parent-dependent to self-sustaining independent individuals [52], [72], [73]. As a result, the influence of family factors such as family violence on adolescents may decrease, while the role of other contextual factors may increase. In the context of family violence, this could indicate that the influence of family violence is more encompassing and affects most of adolescents' life domains, such as school and leisure, whereas this dependency and influence decreases when adolescents get older.

We also found a moderator effect for the time between measurement of family violence and self-control, with decreasing effect sizes for studies with a longer time gap between the assessment of family violence and subsequent self-control. This is in line with earlier methodological studies on the link between family factors and self-control, similarly indicating that the association is stronger when measured concurrently as compared to longitudinal assessments [60]. This is likely a result of more intervening processes taking place along the way, waning the direct effects of family violence on adolescent self-control.

Important to note is that we should be cautious in interpreting the direction of the effect. The association between family violence and self-control is likely to reflect a transactional process by which family violence and adolescent self-control mutually affect each other [44], [52], [76]. As such, family violence is likely to decrease self-control, which is in turn likely to evoke or exacerbate family violence [8], [9]. The present meta-analyses revealed that most of the longitudinal studies included an effect from family to adolescent, but failed to examine the reverse effect. While the results of the present meta-analysis provide an interesting starting point

suggesting that self-control may play a role in explaining the link between family violence and myriad psychosocial problems, future research on the links between family violence, self-control, and ideally health and wellbeing in a time sequential design would be promising (for example through random intercept cross-lagged panel models [77]).

Implications

Adolescents exposed to family violence show heightened vulnerability to decrements in physical, mental, and social wellbeing. Although linkages between family violence and various problems are well-established, the specific processes underlying these associations are poorly understood. Recent theoretical work proposes self-control to play an important role in explaining these links. On the one hand low self-control may function as a possible mechanism because it is affected by family violence and contributes to maintaining violence [8], [9]. On the other hand, low self-control is reliably related to poorer physical, mental, and social health and wellbeing [30], [80]. Supporting these theoretical suggestions, we found a significant association between family violence and self-control across adolescence, suggesting that self-control may play an important role in the link between family violence and adverse outcomes. As such, researchers and clinicians can expect low self-control in the presence of family violence, as opposed to treating low self-control and family violence as separate problems. For instance, family based therapies targeting both family violence and self-control may well result in increased adolescent well-being and better family functioning, yet controlled trials are necessary to confirm this suggestion.

Limitations

First, we did not distinguish between interparental, parent-child, sibling-child, and parent-sibling violence, because most studies reported on family violence as a general construct without

specifically specifying the family (sub)relationships involved in the conflict. While both witnessing violence and experiencing violence are considered as detrimental for adolescents [82], further research is recommended to more specifically measure and compare different types of violence and their association with self-control in adolescents [32].

Second, it is important to acknowledge that, when investigating interactions within families, not only environmental but also genetic factors play a role [44]. This is evidenced by studies reporting on the intergenerational transmission and the heritability of family violence [78], [79], and the intergenerational transmission and the heritability of self-control [33], [80]. As a result, it may be that the observed association is partly explained by common genetic factors that simultaneously influence both family violence and self-control [44], [81]. To paint a more complete picture of the association, future studies that integrate genetically sensitive designs investigating both environmental and genetic influences on the association between family violence, self-control and psychosocial problems and wellbeing would be particularly helpful.

Conclusion

Self-control, the capacity to regulate thoughts, emotions, and behavior is a core component of healthy adolescent development. Results from the current meta-analysis indicate that family violence and adolescent self-control are negatively related, especially among younger adolescents. Because low self-control and family violence are reliably related to poorer health and wellbeing across the lifespan, these findings underscore the importance of considering both contextual and individual factors in treatment and policy addressing family violence. Although family violence is clearly linked with adolescent self-control, and is not affected by a broad variety of moderators, we did find that the effects are stronger in studies with a shorter time

delay. The meta-analysis also identified important gaps in our knowledge on the influence of genetic factors and reverse causality thereby providing promising inroads to enhance our understanding of the association between family violence and adolescent self-control.

The following studies are included in the meta-analysis:

- *Agbaria, Q., Hamama, L., Orkibi, H., Gabriel-Fried, B., & Ronen, T. (2016). Multiple mediators for peer-directed aggression and happiness in Arab adolescents exposed to parent–child aggression. *Child Indicators Research*, 9, 785–803.
- *Beckmann, L., Bergmann, M. C., Fischer, F., & Möble, T. (2017). Risk and Protective Factors of Child-to-Parent Violence: A Comparison Between Physical and Verbal Aggression. *Journal of interpersonal violence*.
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Author Contributions

Conceptualization, Yayouk Willems and Jianbin Li; Formal analysis, Yayouk Willems and Jianbin Li; Methodology, Yayouk Willems, Jianbin Li and Anne Hendriks; Resources, Meike Bartels and Catrin Finkenauer; Supervision, Meike Bartels and Catrin Finkenauer; Writing – original draft, Yayouk Willems, Jianbin Li, Anne Hendriks, Meike Bartels and Catrin Finkenauer.

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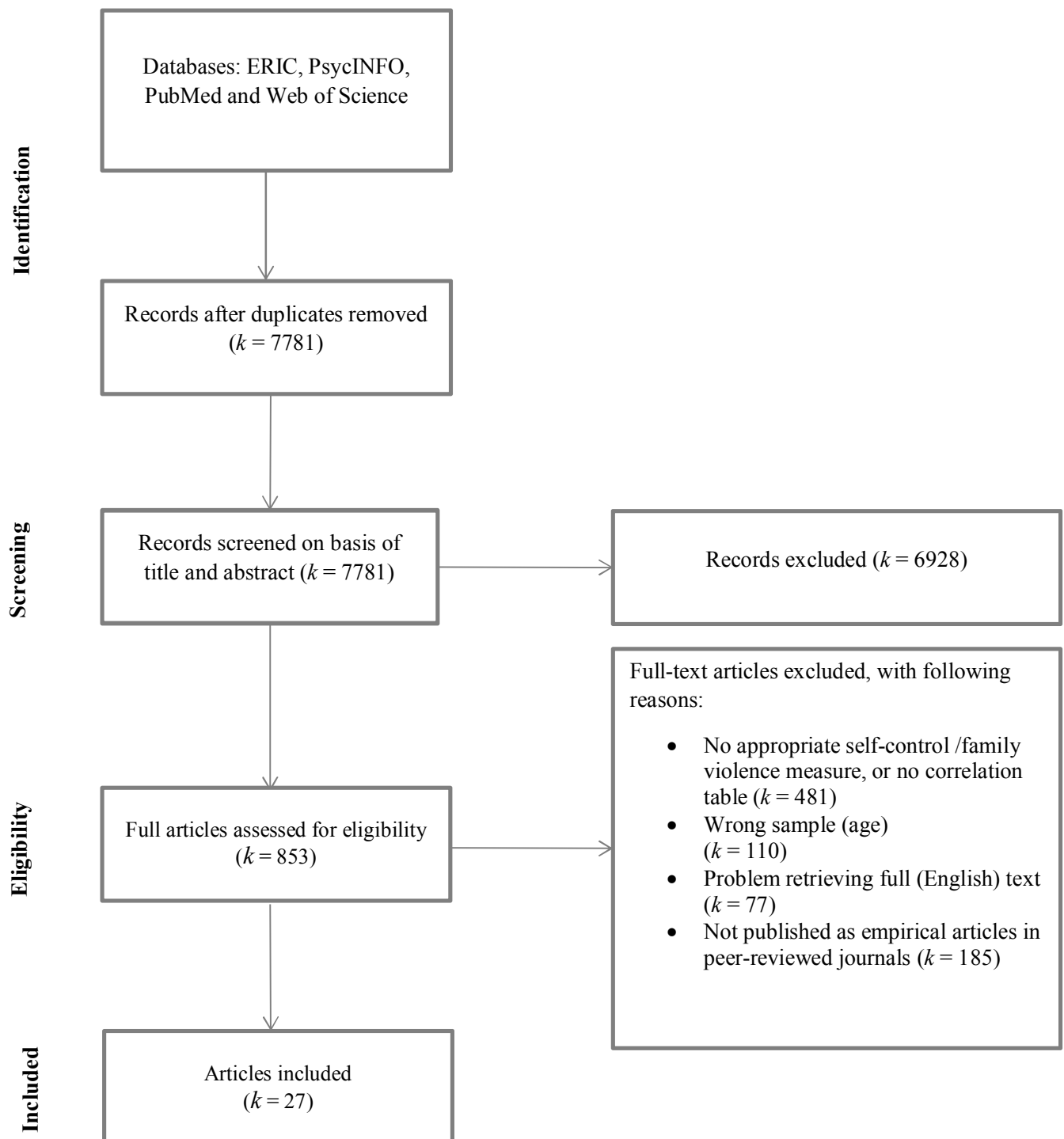


Figure 1. PRISMA flowchart used to identify studies for detailed analysis of family violence and self-control

Table 2.

Descriptives

Variable	Characteristic	
Studies included	N studies	27
	N independent studies	22
	N effect sizes	143
Publication year	Range	1990 - 2017
Journals	Range	20 different journals, e.g. Journal of Crime and Delinquency, Journal of Family Psychology, Journal of Youth and Adolescence
Sample Size	Total sample size	26.333
	Min sample size	65 (Feldman et al., 1990), 120 (Brody & Ge, 2001)
	Max sample size	2395 (Unnever et al., 2006), 2871 (Moon et al., 2012), 3797 (Rowe et al., 2016)
Age	Mean	13.41
	Min - Max	10 – 21.7
Countries	Australia	1
	China	1
	Germany	1
	Israel	1
	South Korea	1
	Switzerland	1
	UK	1
	USA	20
Hofstede individualism	Range	18 (South-Korea) - 91 (USA)
Hofstede power distance	Range	13 (Israel) – 68 (Hong Kong)
Hofstede masculinity	Range	39 (South-Korea) – 70 (Switzerland)

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Dataset	Including	Flourishing families project, Healthy Families America (HFA) San Diego study, Longitudinal Study of Australian Children (LSAC), NICHD Study of Early Child Care and Youth Development (SECCYD), the Family and Community Health Study (FACHS)
Ethnicity	Balance	14% of the effect sizes
	Mostly Caucasian	67% of the effect sizes
	Mostly other than Caucasian	19% of the effect sizes
Research design	Cross-sectional	73% of the effect sizes
	Longitudinal effect	27% of the effect sizes
	Average longitudinal delay	1.30 years
Gender parent	More mothers	49 effect sizes
	More fathers	20 effect sizes
	No clear divide	74 effect sizes
Gender adolescent	Overall balanced	87 effect sizes
	More boys	22 effect sizes
	More girls	34 effect sizes
Informant parenting	Self-report	79 effect sizes
	Other report	6 effect sizes
	Composite	54 effect sizes
Informant self-control	Self-report	56 effect sizes
	Other report	59 effect sizes
	Composite	20 effect sizes
Consistency	Consistent	67 effect sizes
	Inconsistent	76 effect sizes

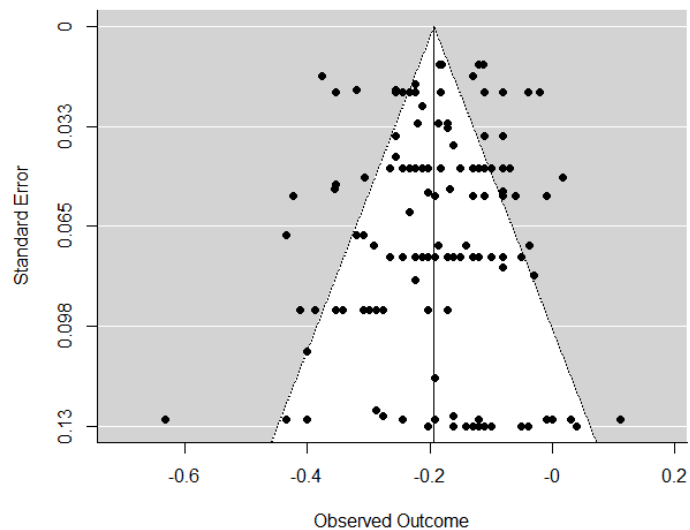


Figure 3. Funnel plot

Table 3.

Assessing moderators: the Q_E statistics illustrating residual heterogeneity, and the Omnibus to test the effect of the moderators on the family conflict-self-control association

Moderator	Q_E (df)	p	Omnibus test	p
Age	901.684 (142)	<.001	F(1, 140) = 8.913 **	.003
Age ²	972.035 (142)	<.001	F(1, 140) = 4.182 *	.043
Adolescent gender	903.318 (140)	<.001	F(2, 140) = 1.079	.343
Parent gender	924.527 (140)	<.001	F(2, 140) = 1.413	.247
Hofstede's individualism	1017.332 (141)	<.001	F(1, 141) = 0.195	.659
Hofstede's power distance	1009.720 (141)	<.001	F(1, 141) = 0.997	.320
Hofstede's masculinity	999.909 (141)	<.001	F(1, 141) = 0.049	.825
Ethnicity	930.031 (140)	<.001	F(4, 132) = 1.304	.272
Study design	836.663 (140)	<.001	F(1, 140) = 8.367 **	.004
Informant family violence	898.725 (136)	<.001	F(2, 136) = .377	.687
Informant self-control	923.373 (132)	<.001	F(2, 132) = .326	.326
Consistency	1016.895 (141)	<.001	F(1, 141) = .214	.857

Note: * indicates $p < .05$, ** indicates $p < .01$

Table 4.

Univariate analyses presenting slopes of the significant moderators

Moderators	#ES	ES_z	SE	t	95% CI	p	r
Age	142	-.249	.024	-10.288	[-.297, -.202]	<.001	-.244
		.015	.005	2.985	[.005, .025]	.003	
Study design	138	-.201	.015	-13.505	[-.230, -.171]	<.001	-.201
		.036	.012	2.893	[.011, .061]	.004	

Table 5.

Results for the multiple moderator model

Moderator variables	ES_z (SE)	95% CI	<i>t</i> -statistic	<i>p</i> -value
Intercept	-.248 (.022) **	[-.291, -.204]	-11.334	<.001
Age	.013 (.005) **	[.004, .022]	2.793	.006
Study design	.033 (.012) **	[.009, .057]	2.725	.007
Omnibus test:	$F(2, 139) = 8.459, p < .001$			
Variance level 2	.005, $p < .001$			
Variance level 3	.002, $p < .001$			
# ES	142			

Note: ** indicates $p < .01$