A Multilevel Meta‑Analysis of Dynamic Risk Factors for Emerging Adults who Abuse their Parents

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Abstract

Purpose Even though five to 11% of child-to-parent abuse (CPA) perpetrators are emerging adults (age 18–23 years), relevant risk factors underlying CPA in this group are understudied.

Method A multilevel meta-analysis was performed on nine studies (450 effect sizes, N = 1,043), comprising eight static (e.g., age and gender of perpetrator) and dynamic (e.g., substance abuse, financial problems) risk factors.

Results Emerging adults who fell victim of domestic violence, or had antisocial cognitions, authority problems, or empathy problems displayed CPA more often. Moderator analyses revealed that the relation between gender of perpetrator and CPA was moderated by gender of victim (p = .033) and CPA type (p = .021). Gender of victim (p < .001) also moderated the relationship between single-parent household and CPA. Finally, the relation between witness to DV and CPA was moderated by age (p = .007).

Conclusions This was the first multilevel meta-analysis focusing exclusively on CPA displayed by emerging adults. The results can be used as a basis for further research into relevant risk factors for CPA in this group and hopefully contribute to the development of health care interventions to reduce chances of CPA occurring.

Keywords Child-to-parent abuse · CPA · Risk factors · Emerging adults · Meta-analysis
As this cycle can have far-reaching consequences, relevant CPA risk factors need to be identified (Ibabe, 2020; Simmons et al., 2019). Knowledge about which static and dynamic risk factors are predictive of CPA is key in developing targeted interventions. Static risk factors mostly consist of historic, fixed elements like age and gender, whereas dynamic risk factors are generally characteristics that can be influenced, such as antisocial cognitions and communication problems (Eisenberg et al., 2019). Another way of categorizing risk factors is to divide them in individual factors (e.g., substance abuse, empathy problems) and contextual factors (e.g., household formation, parenting style, family socioeconomic status) (Ibabe, 2020; Simmons et al., 2018). In the present multilevel meta-analysis we distinguish between individual and contextual static risk factors, and individual and contextual dynamic risk factors as risk factors for CPA.

**Static Risk Factors**

Research on individual static risk factors for CPA in adolescent and emerging adult samples, such as the review of Simmons et al. (2018), demonstrated that relevant factors such as being male, young, with a history of antisocial behavior, and low academic achievement, can enhance the risk of CPA. Although findings are ambiguous, overall, a larger proportion of male perpetrators was found (Ibabe, 2020; McManus et al., 2017; Raji et al., 2019; Simmons et al., 2018; Vink et al., 2014). In comparing type of CPA across gender subgroups, sons were more likely to act physically aggressive towards fathers (Loinaz & Sousa, 2019; Simmons et al., 2020; Suárez-Relinque et al., 2019), while daughters were mainly verbally and psychologically aggressive towards their mothers (e.g., Björkqvist, 2017; Ilabaca Baeza & Gaete Fiscella, 2021; Lyons et al., 2015; Rico et al., 2017).

With regard to the contextual static risk factors, living in a single-parent household increased the risk of falling victim of CPA. In particular mothers, as single parents, were confronted with financial and psychological CPA (Browne & Hamilton, 1998; Cancino-Padilla et al., 2020; Ilabaca Baeza & Gaete Fiscella, 2021; Lyons et al., 2015; Vink et al., 2014). Financial CPA was found to be more prevalent in antisocial adolescents with a low family socioeconomic status (SES) (Sousa et al., 2011). Since most emerging adults who commit CPA still live at home, it is reasonable to assume that they have not yet reached financial independence, which might increase the risk of financial CPA (Rico et al., 2017). Another relevant contextual static risk factor stems from domestic violence studies; being a witness to and/or victim of domestic violence increased the risk of committing CPA (Cancino-Padilla et al., 2020; Simmons et al., 2018). Moreover, verbal and physical aggression by caregivers were found to be related to verbal, psychological, and financial CPA (Bartle-Haring et al., 2015; Cancino-Padilla et al., 2020; Cortina & Martín, 2020).

**Dynamic Risk Factors**

The extent to which individual dynamic risk factors are related to CPA might change as children transfer from adolescence into emerging adulthood (Ibabe, 2020; Herrenkohl et al., 2022; Simmons et al., 2018, 2019). On the one hand, risk factors may have a bigger impact over time, for instance due to a prolonged period of normalization of coercive interaction styles, development of antisocial cognitions, and substance abuse augmenting at an older age (Herrenkohl et al., 2022). On the other hand, risk factors may exert less influence because of the emerging adults’ increased autonomy, legal disposition, and reduced parental dependency (Goodman et al., 2015; Koeke & Dennis, 2012). Nevertheless, comparable results were found for both adolescents and emerging adults with regard to the relation between attention deficits and psychological and financial CPA, and between motor impulsivity and physical CPA (Rico et al., 2017). When attention deficits and motor impulsivity occur alongside negative attitudes towards authority, an increase in use of intimidation as a form of psychological CPA was found (Cortina & Martín, 2020). In both age ranges, substance abuse was associated with physical (Cortina & Martín, 2020) and verbal CPA (Beckmann et al., 2021), with alcohol abuse significantly more present in emerging adults (McManus et al., 2017). A higher prevalence rate of mental health problems (e.g., depressive symptoms, suicidal ideation, distress) was also found in a range of CPA-perpetrator samples (Beckmann et al., 2021; Cortina & Martín, 2020; Simmons et al., 2018), with distress being linked to financial CPA.

In terms of contextual dynamic risk factors, adolescent literature shows that non-authoritative parenting (authoritarian/coercive, neglectful, indulgent/permissive), especially an authoritarian or neglectful parenting style, was positively associated with CPA (Suárez-Relinque et al., 2019). Although the relation between parental factors (such as parenting styles) and CPA has not been established yet (Herrenkohl et al., 2022; Suárez-Relinque et al., 2019), it seems plausible to assume that the consequences of non-authoritative parenting styles are still visible in emerging adults, resulting in different types of CPA. More specifically, verbal abusive behavior can rise from problematic family interactions (Jiménez et al., 2019), which can have a negative impact on levels of perceived stress in all family members.
Central Aim of the Study

The central aim of this multilevel meta-analysis was to identify static and dynamic risk factors for CPA in emerging adults (age 18–23 years). As it stands, this is the first multilevel meta-analysis performed in this group. Based on previous research (e.g., Simmons et al., 2018; Vink et al., 2014), our hypothesis is that the same static (e.g., antisocial personality, male, young) and dynamic (e.g., substance abuse, impulse control deficits) risk factors in adolescent CPA perpetrators would also be found in emerging adults. To fully understand the relations between risk factors and CPA in emerging adults, it is important to assess potential moderators. The included moderators were age and gender of perpetrator, gender of victim, and type of CPA. It was expected that gender of victim (mother vs. father) moderated the relation between single-parent household and CPA. More specific, we hypothesized that single-parent household was a stronger predictor for CPA towards mothers as compared to fathers. Regarding gender of perpetrator, our hypothesis was that physical CPA would more often be exerted by sons, and verbal CPA more often by. Financial CPA was expected to be associated with the presence of low (family) SES and substance abuse problems.

Method

Search Procedure

A systematic search was conducted using the following databases: PsychINFO, PubMed, Medline, Google Scholar, Web of Science, ERIC, the Campbell library, the Cochrane library, ResearchGate, and the Journal citation reports. Search strings in titles consisted of child variables (child, adolescent, youth, teenage, adult) combined with parent and/or family variables (parent*, family, parent-directed, domestic) and outcome variables (abuse, violence, coercion, battered, maltreatment, aggression, exploiting). Regarding child variables, the terms ‘adolescent’ and ‘teenage’ were included, since some studies included 18-year-olds. To ensure the search incorporated all types of abuse, a variety of descriptions was used, amongst which some less explicit types of CPA, such as ‘coercion’.

To identify relevant articles, we used a combination of search terms pertaining to 1) any form of CPA (see introduction) by a child (preferably living at home); 2) age of perpetrator (18–23 years; emerging adults); 3) risk or predictive factors (or a similar description), including studies in which perpetrators suffering from mental illness committed CPA. In addition, the reference lists of the recent review studies from Simmons et al. (2018), Gallego et al. (2019), and Ibabe (2020) were screened for additional relevant studies that may not have been indexed in the databases.

Eligibility Criteria

Empirical studies describing the association between risk factors and CPA were considered for inclusion if: 1) the sample included at least 10 emerging adults; 2) bivariate analyses were performed; and 3) the sample included a comparison group. Studies were excluded when they met the following criteria: 1) written in a language other than English or Dutch; 2) the included samples consisted solely of children aged under 18 or over 23; and 3) studies published before 2000, due to the elapsed time since publication and the larger chances of data no longer being retrievable.

Study Selection

Two researchers were involved in the selection of appropriate publications via two rounds. The first author did the initial selection of studies based on title, which resulted in the inclusion of 315 publications for abstract screening. The abstracts were then screened independently by the first and second author to determine eligibility, resulting in a total of 105 publications for further processing. The average intra-class correlation (ICC) for the abstract round was 0.67, which can be classified as substantial (Landis & Koch, 1977). In the next round, the remaining full text publications were screened, resulting in the final inclusion of 36 publications. The average ICC for the full text round was 0.80, which can be classified as substantial as well. Figure 1 shows the PRISMA diagram of the identification, screening, and inclusion of the publications.

Retrieving Data

During the full text selection, it became apparent that 36 out of 105 studies met the inclusion criteria. However, it was not possible to exclusively select information on the subgroup of CPA perpetrators between the ages of 18 and 23. Samples were either of a broader (from 12 to 25 years) or of a partially (lower or upper) overlapping age range. Therefore, we reached out to the researchers of those 36 studies to obtain the emerging adults’ data. However, due to the COVID-19 pandemic a substantial part of the researchers...
reported being unable to extract the required data due to facilities being closed. Even after the lock down, a repeated follow-up inquiry yielded little to no additional response to our request. As a result, data were not usable due to non-response (n = 11), data had gone missing or researchers had restricted access to the data (n = 7), or the data included an insufficient number of participants in the preferred age range (n = 10). Finally, the quest for data resulted in seven eligible studies, with an additional two unpublished studies, offered by authors receiving our request. Analyses were performed on nine independent samples, highlighted by an asterisk (*) in the reference list. From these studies, a total of 450 effect sizes were extracted.

Coding
The included studies were coded based on characteristics of study, sample, and risk factors (see Appendix A for the final coding form). Factors were distilled and coded from the selected full texts by the first author and independently coded by the second author. During the process of coding, minor adjustments were made when relevant. The third author specifically checked for usability of data per factor in a meta-analytic approach. Initially, all reported risk factors related to CPA were extracted from the eligible studies. To maintain enough power to perform the meta-analysis, each risk factor was assigned to
an overarching category that measured the same construct. Agreement on the assignment of a risk factor to a specific category was reached in a consensus meeting with all three authors. Factors that were measured in a positive sense, were reversely coded. For instance, the factor ‘authority problems’ included: inversion of hierarchy, dominance, and positive attitudes towards authority, of which the latter was inversely coded. After coding, 16 risk categories were identified. In Appendix B a description of each risk category is presented, as well as a description of how the variables used in each study were operationalized. Risk factors measured in one single study were excluded. These were: low (family) SES, (history of) antisocial behavior, attachment, parental warmth, problematic parental relationship, low frustration tolerance, impulsivity, sexism, anger management issues, and ethnicity (Caucasian). The first and third author independently calculated all effect sizes, and any inconsistencies were discussed and agreed upon.

**Statistical Analyses**

To quantify the association between a (potential) risk factor and CPA, Pearson correlation coefficients ($r$) were computed using formulas from Lipsey and Wilson (2001). A positive correlation coefficient indicated that the risk factor was more present in emerging adults with CPA compared to emerging adults without CPA, whereas a negative correlation coefficient indicated that the risk factor was less present in emerging adults with CPA compared to emerging adults without CPA. Next, Pearson correlation coefficients were transformed into Fisher z-values to account for non-normality (Lipsey & Wilson, 2001). After the analyses were performed, the Fisher z-values were transformed back into correlation coefficients to facilitate interpretability. To prevent extreme effect sizes from disproportionately influencing the estimated parameters in the analyses, we checked for outliers by identifying effect sizes with z-values larger than $3.29$ or smaller than $-3.29$ (Tabachnick & Fidell, 2013). In total, four effect sizes were identified with a z-value $<-3.29$ ($n = 2$) or $>3.29$ ($n = 2$). These effect sizes were substituted by an effect size that equaled the highest or lowest possible value within the normal range.

Most studies reported on more than one association between a risk factor and different types of CPA, resulting in multiple effect sizes per study. To account for the dependency between effect sizes, a three-level random effects model was applied (Assink & Wibbelink, 2016; Cheung, 2014; Raudenbush & Bryk, 2002; Van den Noortgate et al., 2013). A three-level random effects model accounts for three sources of variance: sampling variance (level 1), variance between effect sizes extracted from the same study (level 2), and variance between studies (level 3). This model was used to estimate an overall effect of each risk factor. Cohen’s (1992) guidelines were used to interpret the size of the overall effects. For risk factors with effect sizes extracted from at least three studies, two one-tailed log-likelihood-ratio-tests were performed to determine whether significant variation was present between effect sizes from the same study (level 2) and/or between studies (level 3). If there was evidence for heterogeneity in effect sizes, moderator analyses were conducted by extending the model with the potential moderators (i.e., age of perpetrator, gender of perpetrator, gender of victim, and CPA type). Prior to testing variables as potential moderators, categorical variables were converted to dummy variables and the continuous variable was centered around its mean.

The analyses were performed in the R environment (version 4.0.5; R Core Team, 2015), using the “rma.mv” function of the “metafor” package (Viechtbauer, 2010) and based on guidelines formulated by Assink and Wibbelink (2016). To estimate the model parameters, the restricted maximum likelihood procedure was used. In addition, the Knapp and Hartung adjustment (2003) was applied to control for Type I error rates. Finally, a $p$-value of $<0.05$ was considered statistically significant.

**Publication Bias**

A common problem in conducting a meta-analysis is publication bias (Borenstein et al., 2009) or file drawer bias (Rosenthal, 1995), which implies that studies may not have been published due to non-significant or unfavorable results. Consequently, the estimated effect size may be biased. To test for publication bias, the trim-and-fill procedure of Duval and Tweedie (2000a, b) was performed. In the trim-and-fill analysis, the symmetry of the funnel plots is tested, which is a scatter plot of the distribution of each effect size on the horizontal axis against the standard error. An asymmetric funnel plot indicates possible publication bias. Where an asymmetric funnel plot was found, “missing” effect sizes were imputed to restore the symmetry. For each risk factor with an asymmetric funnel plot, an adjusted overall effect size was estimated.

**Results**

**Descriptives**

The present meta-analysis reports on nine independent studies (published between 2000 and 2020) on risk factors for CPA in a sample of emerging adults (18–23 years old). The studies and their characteristics are presented in Tables 1 and 2.
| Author                      | Sample type       | Country       | N               | Sample                                                                 | Research design                                      | Measure CPA                                         |
|-----------------------------|-------------------|---------------|-----------------|-------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|
| Cancino-Padilla et al. (2020) | Community        | Mexico        | 229 (out of 256; F:155, M:74) | university students, 18–30 years, (M = 21, SD = 1.84)                     | non-experimental, cross-sectional and ex post facto design | The Adolescent Child-to-Parent Aggression Questionnaire (CPA-Q) validated for Mexican population (Calvete & Veytia, 2018) |
| Contreras and Cano-Lozano (2016) | Community/ Judicial | Spain | 11 (out of 90; F:7, M:4) | CPV-off.; Mage = 16.3, SD = 1.34, Non-CPV off.; Mage = 17.07, SD = 1.57, Non-off. insec. school (Mage = 16.27, SD = 1.36) | MANOVA, eta squared statistics, Bonferroni correction & logistic regression | Judicial file analysis                                     |
| Suárez-Relinque et al. (2019) | Community        | Spain         | 42 (out of 2112; F:18, M:24) | students of secondary schools, 12–18 years (M = 14.72, SD = 1.55)       | multivariate factorial design (MANOVA, 4 × 2 × 3)                | Conflict Tactics Scales (CTS2)—child-to-parent version |
| Loinaz and Sousa (2019)      | 61% clinical 33% judicial | Spain | 30 (out of 91; F:7, M:23) | 13–28 years in care or program (Mage = 17.07, SD = 2.4), clinical: Mage = 17.50, SD = 2.76, judicial: Mage = 16.23, SD = 1.07 | chi-square tests and odds ratios, t-tests, binary logistic regression analyses | Child-to-Parent Violence Risk assessment tool (CPVR; RVFP originally, 2.1 version)—in validation (Loinaz et al., 2017) |
| Jiménez et al. (2019)        | Community        | Spain         | 105 (out of 2399; F:50, M:55) | students of compulsory secondary education, 11–20 years, (M = 14.66, SD = 1.812) | a structural equation model, covariance matrix, a combination of adjustment indices, bootstrap method | Conflict Tactics Scales (CTS-2; verbal items), adapted to Spanish by Gámez-Guadix and Calvete (2012) |
| Raji (2018, unpublished)     | Community        | Nigeria        | 400 (F:119, M:281) | In 2018, carried out in Ilorin metropolis of Kwara State, Nigeria | multiple Regression Analysis CPV questionnaire—similar to the one adopted by Contreras et al. (2019) |                                      |
| Del Moral et al. (2019)      | Community        | Spain         | 135 (out of 2101; F:62, M:73) | students from Andalusian schools, 13–18 years (M = 15.07, SD = 1.54) | multivariate factorial design (MANOVA, 3 × 3) | Conflict Tactics Scales (CTS-2) answered for father and mother separately |
| Cortina and Martín (2020)    | Community        | Spain         | 26 (out of 225; F:13, M:13) | high school students, 14–20 years old (M = 16.02; SD = 1.23) | non-experimental design involving cross-sectional comparison | Nine self-reported CPV behaviors (referring to behaviors aimed at controlling and/or causing physical, psychological, emotional or economic harm to parents)—Hernández (2016) |
Table 2 Variables in selected studies

| Static factors | Dynamic factors |
|----------------|-----------------|
| **Individual** | **Contextual** | **Individual** | **Contextual** |
| Age | Gen | hCB | AcF | SPh | SES | wDV | vDV | ViG | Psy | Sub | EmP | ACo | APr | Nar | SEp | PaS | Com |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cancino-Padilla et al. (2020) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Contreras and Cano-Lozano (2016) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Suárez-Relinque et al. (2019) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Loinaz and Sousa (2019) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Jiménez et al. (2019) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Raji (2018, unpublished) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| De Moral et al. (2019) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Cortina and Martín (2020) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Romero-Méndez et al. (2020) | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |

**Age**: age of perpetrator, **Gen**: gender of perpetrator, **hCB**: history of criminal behavior, **AcF**: academic failure, **SPh**: single-parent household, **SES**: low (family)SES, **wDV**: witness to DV, **vDV**: victim to DV, **ViG**: gender of victim, **Psy**: psychopathology, **Sub**: substance (ab)use, **EmP**: emotional problems, **ACo**: antisocial cognitions, **APr**: authority problems, **Nar**: narcissism, **SEp**: self-esteem problems, **PaS**: parenting style, **Com**: communication problems
A total sample size of \( N = 1,043 \) was reached, of which 54.5% were male. Since none of the studies reported on emerging adults (18- to 23-year-olds) as a subgroup, these data were collected either as summary statistics or as subsets of the original data file via the first author. Due to a limited number of studies that included emerging adults, it proved challenging to reach a sufficient number (at least three or more studies) per factor as a required minimum for a meta-analysis. For risk factors not meeting this criterium (i.e., effect sizes extracted from only two studies), a description of the mean and variance of effect sizes of these risk factors was included.

**Risk Factors in Child-to-Parent Violence**

A total of 450 effect sizes were calculated (see Table 3) and revealed a small but significant, positive association of CPA with victim of DV \( (r = 0.170) \), antisocial cognitions \( (r = 0.090) \) and authority problems \( (r = 0.114) \). This indicates that CPA is more often found in emerging adults who have fallen victim of DV, suffered from antisocial cognitions and/or had authority problems. No significant association with CPA was found for age and gender of perpetrator, witness to DV, single-parent household, academic failure, and psychopathology. Between-study heterogeneity (level 3) was significant for age and gender of perpetrator, single-parent household, academic failure, witness to DV, and psychopathology, indicating that moderator analyses were necessary as there was significant variation in effect sizes between studies regarding these variables.

Table 4 presents the results of risk factors reported in two studies. The only risk factor significantly related to CPA was empathy problems, although the effect size was small \( (r = 0.081) \). Table 4 also shows that negligent parenting style was the only risk factor demonstrating significant variance at level 2 (i.e., variance between effect sizes extracted from the same study). At level 3 (indicating heterogeneity of effect sizes between studies) significant effects were found for substance abuse and self-esteem problems. Despite the significant variations in effect sizes at level 2 and level 3, no moderator analyses were conducted due to insufficient sample sizes.

### Table 3: CPA Risk factors in emerging adults

| Risk factor                  | \( k \) | \# ES | Fisher’s Z (SE) | 95% CI          | p-value | Mean \( r \) | \% variance level 1 | \( \sigma^2 \) level 2 | \% variance level 2 | \( \sigma^2 \) level 3 | \% variance level 3 |
|-----------------------------|--------|------|----------------|----------------|---------|-------------|---------------------|-------------------|-------------------|-------------------|-------------------|
| Age perpetrator             | 7      | 72   | 0.063 (0.074)  | -0.085; 0.210  | 0.400   | 0.063       | 30.73               | 0.000             | 0.000             | 0.030***          | 69.27             |
| Gender perpetrator           | 7      | 49   | 0.028 (0.083)  | -0.139; 0.194  | -0.740  | 0.028       | 24.12               | 0.002             | 2.87              | 0.041***          | 73.01             |
| Single-parent household      | 4      | 45   | -0.055 (0.082) | -0.220; 0.110  | 0.505   | -0.055      | 64.78               | 0.007             | 10.26             | 0.017*            | 24.96             |
| Academic failure             | 4      | 45   | -0.045 (0.069) | -0.184; 0.094  | 0.520   | -0.045      | 72.13               | 0.000             | 0.000             | 0.015*            | 27.87             |
| Victim of DV                 | 4      | 66   | 0.172 (0.068)  | 0.037; 0.307   | 0.014*  | 0.170       | 59.24               | 0.000             | 0.000             | 0.103             | 40.73             |
| Witness to DV                | 3      | 42   | 0.332 (0.223)  | -0.118; 0.782  | 0.144   | 0.330       | 32.95               | 0.000             | 0.000             | 0.121***          | 67.05             |
| Antisocial cognitions        | 3      | 43   | 0.090 (0.042)  | 0.005; 0.174   | 0.039*  | 0.090       | 97.65               | 0.000             | 0.000             | 0.036             | 2.35              |
| Authority problems           | 3      | 43   | 0.114 (0.035)  | 0.044; 0.184   | 0.002** | 0.114       | 100.00              | 0.000             | 0.000             | 0.000             | 0.00              |
| Psychopathology              | 3      | 45   | 0.055 (0.101)  | -0.148; 0.259  | 0.588   | 0.055       | 65.63               | 0.000             | 0.000             | 0.027**           | 34.37             |

\( k \) number of studies containing this factor

### Table 4: Risk factors from two studies

| Risk factor                  | \( k \) | \# ES | Fisher’s Z (SE) | 95% CI          | p-value | Mean \( r \) | \% variance level 1 | \( \sigma^2 \) level 2 | \% variance level 2 | \( \sigma^2 \) level 3 | \% variance level 3 |
|-----------------------------|--------|------|----------------|----------------|---------|-------------|---------------------|-------------------|-------------------|-------------------|-------------------|
| Communication problems       | 2      | 45   | 0.130 (0.090)  | -0.052; 0.312  | .157    | 0.129       | 81.03               | 0.000             | 0.000             | 0.013             | 18.97             |
| Substance abuse              | 2      | 41   | 0.176 (0.140)  | -0.108; 0.459  | .218    | 0.174       | 61.98               | 0.000             | 0.000             | 0.036**           | 38.02             |
| Empathy problems             | 2      | 41   | 0.081 (0.038)  | 0.004; 0.157   | .093*   | 0.081       | 100.00              | 0.000             | 0.000             | 0.000             | 0.00              |
| Narcissism                   | 2      | 41   | -0.053 (0.038) | -0.129; 0.023  | .169    | -0.053      | 100.00              | 0.000             | 0.000             | 0.000             | 0.00              |
| Self-esteem problems         | 2      | 41   | 0.017 (0.153)  | -0.293; 0.327  | .912     | 0.017       | 57.41               | 0.000             | 0.000             | 0.044**           | 42.59             |
| Hist. of criminal behavior   | 2      | 39   | 0.082 (0.072)  | -0.064; 0.228  | .262     | 0.082       | 80.05               | 0.099             | 12.21             | 0.079             | 7.74              |
| Parenting style: negligent   | 2      | 54   | 0.120 (0.087)  | -0.053; 0.294  | .170    | 0.119       | 54.76               | 0.026*            | 30.88             | 0.012             | 14.35             |

\( k \) number of studies containing this factor

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Moderator Analyses on Risk Factors and CPA

Table 5 shows the results of the moderator analyses with age and gender of perpetrator, gender of victim, and type of CPA as moderator variables for six risk factors (age, gender of perpetrator, single-parent household, academic failure, witness to DV, and psychopathy).

No moderating effects were found on the relation of CPA with age of perpetrator, academic failure, and psychopathology. The relation between gender of perpetrator and CPA was found to be moderated by gender of victim ($p = 0.033$) and CPA type ($p = 0.021$). The strength of the association between gender of perpetrator (son vs. daughter) and CPA increased when, compared to mothers, CPA was directed towards fathers ($\beta_1 = 0.128$) and decreased for verbal/psychological CPA compared to physical CPA ($\beta_1 = -0.118$). However, gender of perpetrator was not a significant risk factor, neither for CPA directed at fathers ($\beta_0 = 0.090$) nor for verbal/psychological abuse as a specific type of CPA ($\beta_0 = -0.030$).

Only gender of victim was found to moderate the relation between living in a single-parent household and CPA, suggesting that, compared to mothers, the likelihood of CPA directed towards fathers decreased significantly in a single-parent household ($\beta_1 = -0.447$, $p < 0.001$). Moreover, a single-parent household appeared to be a protective factor for CPA when directed at fathers ($\beta_0 = -0.474$). Finally, a significant negative moderating effect of age was found on the association between witnessing DV and CPA, suggesting that the strength of the association between witness to DV and CPA decreased ($\beta_1 = -0.701$, $p = 0.007$) in older CPA-perpetrators.

Publication Bias

Indications of publication bias were found for several factors (gender of perpetrator, household, academic failure, antisocial cognitions, and authority problems) resulting in left-skewed funnel plots (Supplemental Material, Tables 6 and 7). The right side of the funnel plot showed missing effect sizes for victim of DV, witness to DV, and psychopathology (Supplemental Material, Tables 6 and 7). Only the funnel plot of age was symmetrically distributed.

Apart from single-parent household, none of the effects changed in relative strength after the trim-and-fill analyses. Trim-and-fill analysis for the two-study-risk factors only emphasized that research on these factors is too scarce for drawing solid conclusions.

Discussion

In the present multilevel meta-analysis, static and dynamic risk factors for CPA were examined in emerging adults (i.e., 18- to 23-year-olds) in subsamples from nine studies. These studies were conducted in three different countries over three continents, containing 450 effect sizes, with a total sample size of $N = 1,043$. As expected, the findings revealed a significant, positive association with CPA in emerging adults for victimhood of DV, antisocial (pro-aggressive) cognitions, authority problems, and empathy problems. No significant associations, however, were found between CPA and communication problems, substance abuse, narcissism, self-esteem problems, history of criminal behavior, and non-authoritative parenting style. Moreover, we did not find significant associations between CPA and age, gender, single parent household, academic failure, witness to DV, and psychopathology. The larger degree of variance found in these factors did suggest a possible influence of sample characteristics on the association between these risk factors and CPA. As for moderating effects, none were found on the relation between age, academic failure, psychopathology and CPA. The relation between gender of perpetrator and CPA was found to be moderated by gender of victim and CPA type. In addition, gender of victim moderated the relation between single parent household and CPA, and, finally, a moderating effect of age was found on the association between witnessing DV and CPA.

With regard to the individual static risk factors, our findings showed that CPA perpetration was equally dispersed across gender of perpetrator, matching previous study findings in community samples (e.g., Beckmann et al., 2021; Cancino-Padilla et al., 2020; Cortina & Martín, 2020). Ambiguous results were found for other static risk factors, such as age of perpetrator. Although previous studies demonstrated that the frequency of CPA perpetration declined over age (Simmons et al., 2018), our results did not corroborate these findings. Our results, however, did concur with recent findings in a judicial sample by Cuervo and Palanques (2022), indicating CPA perpetration might be a more continuous phenomenon. Perhaps, after a certain age, the degree of CPA perpetration remains more constant. The absence of a significant relation between CPA and academic failure also deviates from previous findings (Cano-Lozano et al., 2021b; Cortina & Martín, 2020; Howard & Rottem, 2008; Rico et al., 2017). Possibly, the emerging adults’ transference from school into work rendered academic performance out of the equation (Arnett, 2000). Surprisingly, a history of criminal behavior showed no significant relationship with CPA, whereas prior antisocial behavior is known to be an important static risk factor.
| Moderator variables | k | # ES | β0 (95% CI) | β1 (95% CI) | F(df1, df2) | p-value |
|---------------------|---|------|-------------|-------------|------------|---------|
| Age perpetrator     | 7 | 72   |             |             |            |         |
| Gender perpetrator  | 7 | 72   |             |             |            |         |
| Female (RC)         | 5 | 19   | 0.039 (-0.115; 0.193) | 0.039 (-0.039; 0.118) | 0.532 (2, 69) | .590    |
| Male                | 6 | 27   | 0.078 (-0.074; 0.231) |             |            |         |
| Both                | 5 | 26   | 0.062 (-0.089; 0.212) | 0.023 (-0.042; 0.088) |            |         |
| Gender victim       | 7 | 72   |             |             |            |         |
| Mother (RC)         | 2 | 17   | 0.050 (-0.109; 0.210) |             |            |         |
| Father              | 2 | 18   | 0.059 (-0.100; 0.219) | 0.009 (-0.064; 0.082) |            |         |
| Both                | 7 | 37   | 0.065 (-0.083; 0.213) | 0.014 (-0.057; 0.086) |            |         |
| CPA type            | 5 | 72   |             |             |            |         |
| Physical (RC)       | 3 | 20   | 0.094 (-0.068; 0.256) |             |            |         |
| Verbal / psychological | 3 | 20 | 0.060 (-0.101; 0.222) | -0.033 (-0.105; 0.038) |            |         |
| Financial           | 2 | 11   | -0.028 (-0.249; 0.193) | -0.122 (-0.298; 0.054) |            |         |
| Mixed               | 7 | 21   | 0.068 (-0.086; 0.223) | -0.026 (-0.099; 0.047) |            |         |
| Gender perpetrator  | 7 | 49   |             |             |            |         |
| Age perpetrator     | 5 | 49   | 0.036 (-0.151; 0.224) | -0.024 (-0.160; 0.113) | 0.121 (1, 47) | .730    |
| Gender victim       | 7 | 49   |             |             |            |         |
| Mother (RC)         | 4 | 14   | -0.038 (-0.215; 0.140) |             |            |         |
| Father              | 4 | 14   | 0.090 (-0.087; 0.267) | 0.128 (0.040; 0.216)** |            |         |
| Both                | 7 | 21   | 0.028 (-0.140; 0.197) | 0.066 (-0.021; 0.153) |            |         |
| CPA type            | 7 | 49   |             |             |            |         |
| Physical (RC)       | 5 | 13   | 0.088 (-0.090; 0.266) |             |            |         |
| Verbal / psychological | 5 | 17 | -0.030 (-0.207; 0.146) | -0.118 (-0.206; -0.031)** |            |         |
| Financial           | 3 | 7    | 0.099 (-0.122; 0.320) | 0.011 (-0.158; 0.179) |            |         |
| Mixed               | 6 | 12   | 0.015 (-0.159; 0.190) | -0.073 (-0.164; 0.019) |            |         |
| Single-parent household | 4 | 45 |             |             |            |         |
| Age perpetrator     | 4 | 45   | -0.030 (-0.181; 0.120) | -0.063 (-0.167; 0.041) | 1.508 (1, 43) | .226    |
| Gender perpetrator  | 4 | 45   |             |             |            |         |
| Female (RC)         | 3 | 13   | -0.111 (-0.336; 0.115) |             |            |         |
| Male                | 3 | 16   | -0.100 (-0.285; 0.084) | 0.010 (-0.206; 0.227) |            |         |
| Both                | 3 | 16   | 0.020 (-0.167; 0.206) | 0.130 (-0.094; 0.354) |            |         |
| Gender victim       | 4 | 45   |             |             |            |         |
| Mother (RC)         | 1 | 8    | -0.028 (-0.261; 0.205) |             |            |         |
| Father              | 1 | 9    | -0.474 (-0.706; -0.243)** | -0.447 (-0.679; -0.214)** |            |         |
| Both                | 4 | 28   | -0.010 (-0.160; 0.141) | 0.018 (-0.192; 0.229) |            |         |
| CPA type            | 4 | 45   |             |             |            |         |
| Physical (RC)       | 2 | 12   | -0.063 (-0.336; 0.210) |             |            |         |
| Verbal / psychological | 2 | 13 | -0.228 (-0.492; 0.036) | -0.165 (-0.363; 0.033) |            |         |
| Financial           | 2 | 12   | -0.047 (-0.319; 0.226) | 0.016 (-0.188; 0.220) |            |         |
| Mixed               | 4 | 8    | 0.036 (-0.211; 0.284) | 0.099 (-0.145; 0.343) |            |         |
| Academic failure    | 4 | 45   |             |             |            |         |
| Age perpetrator     | 4 | 43   | -0.126 (-0.362; 0.110) | 0.071 (-0.067; 0.210) | 1.093 (1, 41) | .302    |
| Gender perpetrator  | 4 | 45   |             |             |            |         |
| Female (RC)         | 4 | 13   | -0.045 (-0.230; 0.141) |             |            |         |
| Male                | 4 | 17   | -0.065 (-0.136; 0.177) | -0.021 (-0.177; 0.136) |            |         |
| Both                | 2 | 15   | -0.010 (-0.188; 0.169) | 0.035 (-0.155; 0.225) |            |         |
| Gender victim       | 4 | 45   |             |             |            |         |
| Mother (RC)         | 1 | 8    | 0.021 (-0.208; 0.249) |             |            |         |
| Father              | 1 | 9    | -0.017 (-0.244; 0.209) | -0.038 (-0.271; 0.195) |            |         |
| Both                | 4 | 28   | -0.055 (-0.191; 0.245) | -0.075 (-0.285; 0.134) |            |         |
Data used in this meta-analysis was predominantly gathered in a scholarly context and more often included a sample of higher educated emerging adults. As higher education proved to be inversely related to criminal conduct (Ford & Schroeder, 2010), this might explain why a significant effect is absent. Various explanations may underlie the contrast between our results and previous findings. Firstly, in previous research only small samples of CPA-perpetrators in the age range 18–23 years were included. Secondly, these samples differed in terms of type of measurement used and data source (e.g., child, parent, clinician). Moreover, operationalization of CPA in terminology, frequency, and severity differed between studies, which might have led to variations in labeling behavior as abusive (Ibabe, 2020). As Herrenkohl et al. (2022) rightly pointed out, there is still much knowledge to be acquired on proximal and distal influences of individual risk factors on CPA over time.

Results on contextual static risk factors showed that living in a single-parent household did not increase the risk of CPA towards mothers as opposed to previous findings (Kuay et al., 2017; Loinaz & Sousa, 2019; McManus et al., 2017; Peck et al., 2021). In contrast, it seemed to decrease the risk of victimization for single-household fathers, for which no
prior reference in research was found. The higher number of double versus single-parent households in our study could have influenced the non-significant relation between CPA and mothers as victim of CPA. Alternatively, as suggested by Koepke and Denissen (2012), developmental shifts towards independency (such as spending less time at home) alter the parent–child relationship but also limit the opportunities for CPA to occur. As expected, exposure to domestic violence, especially victimization, was found to be a relevant risk factor for CPA. It is consistent with previous findings that domestic violence increases the risk of CPA towards either parent (Martín et al., 2022; Simmons et al., 2020). Moreover, it is a well-known predictor for criminal behavior in general (Andrews et al., 2006; Martín et al., 2022). As for a potential reciprocal effect between (current) child abuse and CPA, more research is needed on possible transference from a unidirectional into a bidirectional relationship between these types of abuse (Gallego et al., 2019; Martín et al., 2022). Victimization can also indirectly contribute to the risk of CPA by giving rise to antisocial (pro-aggressive) cognitions or decrease the willingness to accept authority from parents or any authority figure (Browne & Hamilton, 1998). The positive, but non-significant, association between CPA and witnessing DV found in our meta-analysis is somewhat surprising, as it is a known precursor to health risks and emotional problems (Sousa et al., 2011) and hostile perceptions (Contreras & Cano-Lozano, 2016). The latter is found to increase the risk of emotional and psychological CPA (Cortina & Martín, 2020).

Relevant individual dynamic factors for CPA in emerging adults such as antisocial cognitions and authority and empathy problems, have proven to uphold as risk factors. The absence of a significant relation between our overarching category ‘psychopathology’ and CPA contradicts with previous findings on the presence of mental health problems in perpetrator samples (Simmons et al., 2018). Further research with larger samples on type of psychopathology in relation to (type of) CPA is expected to yield different results, as significant relations were previously found between CPA and inhibitory and behavioral problems, attention deficits and motor impulsivity, depressive symptomatology and suicidal ideation, and (perceived) distress (Beckmann et al., 2021; Cortina & Martín, 2020; Ghanizadeh & Jafari, 2010; Jiménez et al., 2019; Rico et al., 2017; Simmons et al., 2018). In the two-study risk factors section of our meta-analysis, only empathy problems correlated with CPA. Having trouble relating to the feelings of others may negatively impact the inhibition of abusive behavior or the quality of the parent–child relationship. This concurs with recent findings by Martín et al. (2020) in both adolescents and adults, but it contradicts results from the Contreras’ et al. (2020) study in adolescents. The limited available data could account for the lack of associations between CPA on the one hand and communication problems, substance abuse, narcissism and self-esteem problems on the other. In particular, the individual dynamic risk factors substance abuse and self-esteem problems warrant further research, since these have proven to be related to risk of criminal behavior in general (Andrews et al., 2006).

As for the contextual dynamic risk factors, no significant relations were found between non-authoritative parenting styles, communication problems, and CPA. This was unexpected because previous studies almost consistently reported on the influence of parenting style (Cano-Lozanno et al., 2021a; Harris-McKoy & Cui, 2013), especially combined with exposure to domestic violence and communication problems (see Bartle-Haring et al., 2015; Beckmann et al., 2021; Gallego et al., 2019; Kuay et al., 2017; Lyons et al., 2015; Simmons et al., 2020). Moreover, parent-to-child communication problems were associated with a negative attitude towards authority (Del Moral et al., 2019), both of which were found to increase the chance of psychological CPA (Cortina & Martín, 2020).

Contrary to our expectations, only few moderating effects were found—one of them being age of perpetrator. However, it only influenced the relation between witnessing DV and CPA, decreasing in strength when perpetrators got older. Over time, the negative effect of witnessing DV might diminish as emerging adults spend more time elsewhere, with peers or may feel less powerless to change their situation (Goodman et al., 2015). Age not being a relevant risk factor or moderator for all but one of the incorporated risk factors (namely witness to DV) concurs with recent findings by Martín et al. (2022), suggesting that adolescents and emerging adults might have an overlapping CPA perpetrator profile. Although living in a single-parent household was not significantly related to CPA, the relation proved to be moderated by gender of victim. Living as a single father seems to be a protective factor for CPA, which contrasts earlier findings that single-household mothers in particular are at greater risk of CPA (Cancino-Padilla et al., 2020; Kuay et al., 2017; Loizaz & Sousa, 2019; McManus et al., 2017; Peck et al., 2021). However, a relatively smaller number of fathers were identified in our study as primary caregiver in a single-parent household, so in most cases CPA in a single parent household would have been mother-oriented. Gender of victim also moderated the relation between gender of perpetrator and CPA, leaving fathers at slightly bigger risk for CPA by sons, compared to mothers. Although only few fathers were indicated as victim within the included samples. Finally, a moderating influence of type of CPA was only found for the relation between gender of perpetrator and CPA. More specifically, differences in male and female perpetrators decreased regarding verbal/psychological CPA when compared to physical CPA. On the one hand this could be explained by an augmented control over (aggressive) impulses when aging (especially in boys), on the other hand a learning effect could be at play. As verbal/psychological CPA often precedes physical CPA, and threats and intimidation prove sufficient to assert control, adolescent boys may experience a lesser need to transgress into physical CPA when growing into adulthood. Girls on the
other hand tend to display more physical aggression over time. Interestingly, Beckmann et al. (2021) did find a higher level of verbal CPA in adolescent daughters, but no gender differences in perpetration of physical CPA. Further research is needed to clarify whether this is an age-related difference.

Limitations and Future Directions

In this meta-analysis, several interesting findings emerged. Yet, some limitations must be addressed. First, the results from the included studies partially depended on the way CPA was defined and operationalized in terms of target behavior, frequency, and severity (Ibabe, 2020; Simmons et al., 2018; Williams et al., 2017). For example, when yelling at your mother once is defined as verbal abuse, a relatively large part of the sample will be labelled as perpetrator. The distinction between oppositional conduct and abusive behavior, however, might be more complex, rendering it less likely to find differences on factor level (Ibabe, 2020). Using a universal CPA definition helps to improve the identification of similarities and differences in risk factors across studies. This is especially important for CPA types with low prevalence rates, such as financial and sexual CPA (the latter was excluded from our study due to a lack of data).

Second, the results may be influenced by the way risk categories were operationalized (Williams et al., 2017). For instance, risk categories such as narcissism and empathy deficits were coded as separate risk factors, but theoretically might share a similar underlying construct of mentalization problems. This limitation needs to be addressed in future research. Third, potential publication bias was found for all but one of the risk factor categories, suggesting a limited generalization over CPA perpetrators emerging into adulthood. However, the trim-and-fill method used to check for potential publication bias is not particularly suited for use in heterogeneous data (Shi & Lin, 2019), but is second best as there are no viable methods available for assessing independent effect sizes from three-level meta-analyses.

Fourth, the meager findings on dynamic risk factors and moderating influences render inferences on their distinctive relatedness to (types of) CPA less feasible. It is possible that other -not included- risk or moderating factors play a role in predicting risk of CPA, such as attachment problems or specific psychopathology. Any potential impact of developmental changes on the influence of parenting styles (Harris-McKoy & Cui, 2013) and subsequently the impact of other risk factors (Simmons et al., 2018), highlight a potential weakness of retrospective designs, given its little sensitivity for changes over time.

Lastly, the results are influenced by a limited availability of data, resulting in an underpowered meta-analysis. Striving for an open science society, in which researchers worldwide can access data, could help the field move forward. Conducting more empirical and longitudinal studies could ‘fill the gap’ in knowledge about the (interaction between) risk factors and moderating effects for CPA (Simmons et al., 2018).

Clinical Implications

One of the final developmental phases of emerging adults will be leaving the parental home to start a family of their own, emphasizing the importance of both early prevention as well as targeted interventions to prohibit the inter-generational cycle of domestic violence to continue into the next generation (Martín et al., 2022). Several findings from our meta-analysis are worth mentioning with regard to therapeutic interventions. Firstly, the need to focus interventions on changing dysfunctional cognitions and empathy problems in emerging adults. Secondly, a family-oriented approach is needed, focusing on both the importance of preventing and ending domestic violence in family homes as well as working systemically to restore hierarchy by creating an age-appropriate equilibrium of power. As recent data shows, emerging adults move out at an increasingly older age (Dutch Central Bureau of Statistics [CBS], 2019; Fry et al., 2020; Eurostat, 2021). Hence, future research remains essential to gain more insight into the complex interplay of factors associated with CPA in emerging adults.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s10896-022-00469-4.

Declarations of Interest None.

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Analyses were performed on nine independent samples, highlighted by an asterisk (*) in the reference list. From these studies, a total of 450 effect sizes were extracted from our study due to a lack of data).

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