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Regular Article

Do dimensions of childhood adversity differ in their direct associations with youth psychopathology? A meta-analysis

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Abstract

Growing evidence supports the unique pathways by which threat and deprivation, two core dimensions of adversity, confer risk for youth psychopathology. However, the extent to which these dimensions differ in their direct associations with youth psychopathology remains unclear. The primary aim of this preregistered meta-analysis was to synthesize the associations between threat, deprivation, internalizing, externalizing, and trauma-specific psychopathology. Because threat is proposed to be directly linked with socioemotional development, we hypothesized that the magnitude of associations between threat and psychopathology would be larger than those with deprivation. We conducted a search for peer-reviewed articles in English using PubMed and PsycINFO databases through August 2022. Studies that assessed both threat and deprivation and used previously validated measures of youth psychopathology were included. One hundred and twenty-seven articles were included in the synthesis ($N = 163{,}767$). Results of our three-level meta-analyses indicated that adversity dimension significantly moderated the associations between adversity and psychopathology, such that the magnitude of effects for threat (r's = .21–26) were consistently larger than those for deprivation (r's = .16–.19). These differences were more pronounced when accounting for the threat-deprivation correlation. Additional significant moderators included emotional abuse and youth self-report of adversity. Findings are consistent with the Dimensional Model of Adversity and Psychopathology, with clinical, research, and policy implications.

Keywords: adolescents; children; deprivation; meta-analysis; psychopathology; threat

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Introduction

Childhood adversity, such as abuse and neglect, exposure to violence, and institutional rearing, are associated with heightened risk for mental health problems across internalizing (e.g., depression, anxiety, somatic symptoms) and externalizing (e.g., aggression, conduct problems, substance use) dimensions of psychopathology (Kessler et al., 2010; McLaughlin et al., 2012). In particular, experiences reflecting disruptions in the early caregiving relationships and/or exposure to interpersonal violence are associated with a nonspecific latent vulnerability for later mental health problems (McCrory & Viding, 2015). The Dimensional Model of Adversity and Psychopathology (DMAP; McLaughlin et al., 2014; McLaughlin & Sheridan, 2016) conceptualizes adversity along two broad dimensions of *threat* and *deprivation*. Threat involves experiences of harm or threatened harm to a child's physical integrity, such as physical abuse or violence exposures in the home or community, whereas deprivation comprises the absence of environmental input and complexity, such as neglect or food insecurity (McLaughlin et al., 2014; McLaughlin & Sheridan, 2016). The DMAP framework posits that threat and deprivation confer risk for psychopathology via distinct developmental pathways, with threat-related experiences impacting primarily emotion processing (e.g., threat-safety discrimination; McLaughlin et al., 2016) and deprivation-related experiences impacting neurocognitive abilities (e.g., executive function; Johnson et al., 2021).

Evidence in support of DMAP is growing, with recent meta-analyses demonstrating differential associations between threat and deprivation on developmental mechanisms implicated in psychopathology. For instance, Colich et al. (2020) examined the moderating effects of adversity dimension on the association between early life adversity and biological ageing across 54 studies and found that only threat, and not deprivation, was significantly associated with both pubertal timing and cellular ageing. Likewise, Johnson et al. (2021) synthesized findings from 91 studies examining the association between early life adversity and youth executive functioning and found that deprivation was more strongly associated with lower inhibitory control and working memory when compared with threat. Thus, both theoretical and empirical evidence support potential differential effects of threat and deprivation on youth outcomes, but the moderating role of adversity dimension on youth psychopathology has not yet been examined in prior meta-analyses.

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The DMAP framework does not hypothesize differential relations between adversity dimensions and specific psychopathology outcomes. Nonetheless, specific mental health problems have been theoretically and empirically linked with specific types of adversity reflecting the dimensions of threat and deprivation (see Wade et al., 2022 for a review). For instance, McLaughlin et al. (2014) have posited that threat is conceptually consistent with traumatic events as defined by the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013). In turn, traumatic events precede the onset of posttraumatic stress disorder (PTSD) symptoms, and thus PTSD may be more strongly related to the threat dimension of adversity (e.g., Guyon-Harris et al., 2021). Conversely, symptoms of ADHD, captured in the externalizing dimension of psychopathology, have been strongly linked with experiences of deprivation, as documented by longitudinal studies of children with histories of institutional rearing, which reflects profound social and cognitive deprivation (Bos et al., 2011). When considering psychopathology broadly, a recent meta-analysis by Baldwin et al. (2023) synthesized findings across 34 quasi-experimental studies and demonstrated a larger effect size between emotional *abuse* and psychopathology relative to emotional or physical *neglect*. Taken together, evidence suggests that threat and deprivation may differ in how strongly they are associated with dimensions of internalizing, externalizing, and trauma-specific psychopathology, and these differential associations may be driven in part by links between adversity dimensions and specific mental health outcomes. Clarifying these associations could have important implications for prevention and intervention efforts with children exposed to adversity, given the differences in evidence-based intervention approaches for broad dimensions of psychopathology as well as specific disorders (e.g., internalizing vs. externalizing disorders vs. PTSD) and the need to prioritize treatment of comorbid problems.

Evidence of differential associations between threat, deprivation, and psychopathology

Prior studies testing DMAP have also suggested differential associations between threat, deprivation, and psychopathology outcomes. For instance, Miller et al. (2018) found that threat in the first 6 years of life was uniquely associated with both internalizing and externalizing symptoms at age 17 in a sample of 585 children followed longitudinally. Consistent with the DMAP framework, the authors found an *indirect* effect of deprivation on externalizing symptomatology via verbal abilities, but no evidence of a *direct* effect from deprivation to internalizing or externalizing symptoms when simultaneously accounting for the effects of threat. Threat, on the other hand, was directly associated with both internalizing and externalizing problems. Miller et al. (2021) found a similar pattern of direct associations in a birth cohort of U.S. children, such that associations were found between threat and both internalizing and externalizing psychopathology at ages 5, 9, and 15, but not between deprivation and psychopathology at these ages. Similarly, Schäfer et al. (2021) evaluated DMAP in a large sample of Brazilian youth ages 6 to 17 ($N = 2511$) and found concurrent associations between threat and both internalizing and externalizing psychopathology. No such associations were found between deprivation and internalizing or externalizing psychopathology, nor between the two adversity dimensions and psychopathology assessed 3 years later. Interestingly, both threat and deprivation were associated with a general psychopathology factor at follow-up, though the effect size for deprivation appeared smaller than for threat ($\beta = .072$ and .177, respectively). Taken together, studies directly testing DMAP have found differences in the direct associations between threat and deprivation and internalizing and externalizing symptoms across childhood and adolescence.

Variability in adversity measurement and modeling approaches

Variability in current measurement approaches to childhood adversity may affect findings on the associations between adversity and youth psychopathology. For instance, consistent with the cumulative risk model (Evans et al., 2013), many researchers continue to rely on the use of dichotomous variables to capture the presence or absence of specific types of adversity, which are often summed to obtain a composite score reflecting the degree of adversity exposures. Other investigators have emphasized the importance of accounting for additional features of adversities, such as frequency and severity, and modeling their relations with outcomes to better capture the variability in outcomes among adversity-exposed youth (Jackson et al., 2019; McLaughlin et al., 2016). Adversity can also be assessed via youth self-report, caregiver-report, or administrative records (e.g., Child Protective Services, U.S. Census), and these sources of information are often used independently or in various combinations. Indeed, within a single dataset, investigators may exercise researcher degrees of freedom and arrive at multiple iterations of adversity scores to be used in their analyses. Recent work has shown that these measurement practices and analytic decisions, including those pertaining to the operationalization of environmental experiences, can influence results and impact replicability (e.g., Demidenko et al., 2022). Thus, there is a need to directly examine the effects of measurement-related variables on the links between adversity and youth psychopathology.

Researchers examining the links between adversity and youth psychopathology have begun to directly compare measurement approaches and their effects on associations with youth mental health outcomes. Stein et al. (2022) compared cumulative risk and dimensional approaches and their associations with early psychopathology in a sample of preschool children. Using a cumulative risk score, they found relatively uniform associations between cumulative adversity and multiple early forms of psychopathology. However, using the DMAP approach, they found particularly strong associations between threat, but not deprivation, and behavioral problems, demonstrating that the ability to detect such differential effects depended in part on the conceptualization and modeling of adversity. In a large sample of 9- to 10-year-old children, Jeong et al. (2023) examined both a general factor capturing diverse array of adversities and empirically derived specific factors of environmental adversities, and their associations with general and specific dimensions of psychopathology. They found that the general adversity factor was associated with externalizing problems (ADHD, conduct problems) but not internalizing or general psychopathology, whereas specific adversity factors were differentially associated with both general psychopathology and internalizing and externalizing problems. Schlensog-Schuster et al. (2022) examined child maltreatment and its associations with internalizing and externalizing disorder symptoms in a sample of youth ages 3 to 16. Separating physical forms of maltreatment into abuse (i.e., threat) and neglect (i.e., deprivation) factors, they found that abuse was associated with both internalizing and externalizing disorders while neglect was only associated with externalizing disorders. Interestingly, when

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emotional abuse and neglect were added to the model as a third factor capturing emotional maltreatment, only the association between abuse and externalizing disorders remained significant. Additionally, the use of latent variables reduces measurement error and should result in more accurate estimates with outcomes when compared to observed variables, but these differences have not been directly examined in prior meta-analyses.

In sum, these and other studies suggest that differences in the measurement and modeling of childhood adversity may contribute to the heterogeneity of findings relating adversity to psychopathology across childhood and adolescence. To ensure that such measurement and modeling differences are not driving discrepant findings in the existing literature, there is a need to systematically examine whether specific measurement (e.g., use of continuous versus dichotomous variables) and modeling parameters (e.g., use of latent factors versus observed variables) moderate the strength of associations between adversity and psychopathology.

The current meta-analysis

In the current preregistered meta-analysis, we sought to synthesize the associations between childhood adversity across the dimensions of threat and deprivation and internalizing, externalizing, and PTSD symptoms during childhood and adolescence. We included PTSD as an outcome in addition to symptoms in the internalizing and externalizing spectra, given that PTSD captures unique symptoms that have been understudied in the youth psychopathology literature (Forbes et al., 2023). No differential hypotheses regarding psychopathology type were made; instead, we aimed to examine the effects of adversity on each psychopathology outcome and evaluate whether the magnitude of these associations is moderated by adversity dimensions of threat versus deprivation. Given findings from prior work evaluating the DMAP framework (e.g., Schlensog-Schuster et al., 2022), we preregistered the hypothesis that adversity dimension would significantly moderate the associations between adversity and each psychopathology outcome, such that threat would have *larger direct effects* with psychopathology relative to deprivation. We additionally sought to estimate the effect sizes of associations between threat, deprivation, and psychopathology while accounting for the overlap between the adversity dimensions (i.e., by using partial correlations). We hypothesized that the magnitude of effects when accounting for the overlap between threat and deprivation would be smaller than the magnitude of effects when not accounting for their overlap. This hypothesis was also preregistered, though the directionality was not specified in the preregistration. Finally, given the scope of our meta-analysis, we anticipated a wide range of adversity measurement practices to be captured in our sample of studies and expected heterogeneity of effects within and between studies based on these variables. As such, our final aim was to investigate whether the associations between adversity and psychopathology were moderated by measurement-related variables (e.g., dichotomous vs. continuous measures) and additional moderators (e.g., study and sample characteristics, inclusion of specific threat and deprivation indicators). Analyses of these additional moderators were considered exploratory in nature due to the lack of established findings on their effects. Consistent with the DMAP framework, we hypothesized that the use of measurement practices that account for additional variance within adversity (e.g., frequency, severity, multiple types of adversity) would strengthen the observed associations between adversity and psychopathology when compared to measurement that did not (e.g., dichotomous, single adversity type). This final hypothesis was not preregistered.

Method

Search strategy

The current study was preregistered on PROSPERO (CRD42021271879), consistent with the PRISMA reporting guidelines. Searches were conducted electronically on PsycINFO and PubMed databases for articles published in peer-reviewed journals through August 2022. Search terms were generated based on terms used in previous meta-analyses examining the differential effects of threat and deprivation (Colich et al., 2020; Johnson et al., 2021) and youth psychopathology (Compas et al., 2017). Search terms included words specific to experiences of threat and deprivation consistent with our operationalization of these dimensions (see below), internalizing, externalizing, PTSD symptoms, and childhood (see Table S1 for a full list of search terms). We additionally searched within studies citing the two commonly referenced publications in which the DMAP framework was originally proposed (McLaughlin et al., 2014; McLaughlin & Sheridan, 2016).

Operationalization of primary constructs

Threat and deprivation

Given the large number of studies that have examined childhood adversities in relation to youth psychopathology prior to the introduction of the DMAP framework, we used the following operationalization of threat and deprivation in the current meta-analysis. Based on prior meta-analyses employing the DMAP framework (Colich et al., 2020; Johnson et al., 2021), we defined threat as one or more of the following exposures to violence: (1) physical abuse, (2) sexual abuse, (3) emotional abuse, (4) witnessing domestic violence, and (5) exposure to violence outside the home (e.g., school, community, war). Thus, all studies had one or more of these indicators. If additional threat indicators were also included (e.g., medical trauma, natural disasters), these were coded as "Other" threat indicators. Deprivation was defined as the following: (1) physical, emotional, or another form of neglect, (2) food insecurity, (3) low cognitive stimulation or material provision, (4) institutionalization, and (5) poverty defined against a national benchmark. We initially included caregiver psychopathology and substance use as indicators of deprivation and not threat based on prior work by Henry et al. (2021) supporting this categorization but ultimately collapsed these into "Other" deprivation indicators due to low frequencies. Of note, DMAP posits that poverty is a risk factor for adversity across dimensions of threat and deprivation and a proxy of deprivation specifically (McLaughlin et al., 2014); because we anticipated that poverty might be the only available indicator of deprivation in many studies that included threat (thus meeting full inclusion criteria), we included poverty as an acceptable indicator of deprivation but adhered to a more stringent definition (i.e., as defined against a national benchmark rather than relative standing within the study sample). We also planned to test as moderators the inclusion of specific indicators of threat and deprivation, including poverty.

Youth psychopathology

Youth psychopathology outcomes were defined as internalizing and externalizing spectra as well as their specific factors (i.e., depression, anxiety, and somatization for internalizing; aggression, conduct, delinquency, ADHD, and substance use for externalizing).

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Similarly, studies that included total PTSD symptom scores or those reflecting specific symptom clusters (if total scores were unavailable) were both included. For studies with psychopathology data at multiple time points, we included the time point that reflected the greatest length of time between adversity and psychopathology.

Inclusion/Exclusion criteria

Given the large number of studies examining links between adversity and psychopathology, we limited the current meta-analysis to peer-reviewed journal articles available in English. To be included in the meta-analysis, studies had to have at least one indicator of threat *and* one indicator of deprivation as defined above *within a single sample*. For a small subset of studies explicitly testing the DMAP framework by using composite scores or latent variables of threat and deprivation, we allowed additional study-specific indicators of threat and deprivation (e.g., lack of parental warmth) and coded these as 'other' for analyses. To ensure the quality of outcome measurement, only previously validated measures of youth internalizing, externalizing, and PTSD symptoms were included. Finally, we included only studies whose mean sample age was less than 18 at psychopathology assessment.

Screening and data extraction

Screening was conducted using Covidence online software, and data extraction was conducted using an online spreadsheet. After removing duplicates, two independent reviewers conducted screening of titles and abstracts based on the inclusion criteria. Articles with abstracts meeting inclusion/exclusion criteria as defined above were retrieved and screened again by two independent reviewers. We made attempts to contact authors for articles that appeared to meet our inclusion criteria but did not provide sufficient data ($k = 220$), with a 9% ($k = 20$) response rate. Two reviewers extracted data independently for the full set of included articles ($k = 127$). Specifically, the first author screened and extracted all studies, while the three-second authors screened and extracted approximately one-third of the studies each. Study team members met regularly to resolve conflicts during article screening and to achieve group consensus during data extraction.

Effect size coding

Effect sizes were coded as correlation coefficients (r). For a small subset of studies that only reported standardized regression coefficients ($k = 14$), beta coefficients were converted to r using the formula provided by Peterson and Brown (2005). Original data type (correlation coefficient versus beta coefficient) was coded and examined as a moderator of each of the pooled estimates between adversity and psychopathology.

Moderators

Additional variables pertaining to adversity measurement, psychopathology assessment, study and sample characteristics, and threat and deprivation indicators were coded to be examined as moderators. Adversity measurement variables included: continuous (versus dichotomous) measurement, multiple adversity indicators (versus single type), latent (versus observed) adversity variable, ages of sample included at adversity measurement (each coded dichotomously; infancy = ages 0–2, early childhood = ages ≥ 2–8, middle childhood = ages ≥ 8–12, early adolescence = ages ≥ 12–15, late adolescence = ages ≥ 15–18), lifetime assessment (versus a specific time frame), and reporting source (each coded dichotomously; youth self-report, caregiver-report, records review). Sample age and reporting source categories were not mutually exclusive (e.g., studies could be coded as having both self- and caregiver-report or as including both early and middle childhood).

Psychopathology assessment variables included: psychopathology type (internalizing spectrum, depression, anxiety, somatization, externalizing spectrum, aggression, delinquency, ADHD, substance use, PTSD total, reexperiencing, avoidance, hyperarousal, cognition, and mood), developmental stages of children at assessment (early childhood, middle childhood, early adolescence, late adolescence), and effect size type (correlation coefficient versus standardized beta coefficient). Study and sample characteristics included: publication year, location of study (U.S., Canada, Australia, and U.K. versus other), mean sample age at psychopathology assessment, percentage of participants of color, and percentage of participants described as living in poverty.

Finally, each threat and deprivation indicator described above was coded dichotomously for each effect size (1 = yes, 0 = no), reflecting whether the indicator was included in the measurement of the adversity dimension (i.e., threat or deprivation) for that effect size. Several indicators were categorized into a catchall "Other" category for each adversity dimension based on low frequencies in our data. Specifically, natural disasters and medical trauma were coded as Other threat indicators, and institutionalization and caregiver psychopathology (including substance use) were coded as Other deprivation indicators. This "Other" category also encompassed study-specific indicators of threat or deprivation included in composite or latent variables of threat or deprivation.

Analytic plan

Analyses were conducted using the metafor package in R version 4.2.1 (R Foundation for Statistical Computing). We used a multilevel meta-analytic approach (Assink & Wibbelink, 2016), which accounts for dependence in effect sizes (i.e., multiple effects sizes coded from the same study). We modeled variance in effect sizes across three levels: between participants within each study (i.e., level 1, sampling variance), between effect sizes within the same study (i.e., level 2, within-study variance), and between studies (i.e., level 3, between-study variance). Thus, a random-effects three-level model was estimated using the Restricted Maximum Likelihood method with the Knapp and Hartung (2003) adjustment for each meta-analytic effect of interest. We then assessed the overall heterogeneity of results using the I^2 statistic (Higgins et al., 2003), followed by assessing heterogeneity of within-study and between-study variances using one-sided log-likelihood-ratio tests. All correlations were converted to Fisher's z scores for analyses and converted back to correlation coefficients to aid interpretation.

The overall effect between adversity and each psychopathology outcome (i.e., internalizing, externalizing, PTSD symptoms) was first estimated, followed by the effect between threat and deprivation. For all studies that provided bivariate correlations between threat and deprivation, partial correlations (i.e., correlations between each adversity dimension and each psychopathology outcome accounting for the overlap between the dimensions) were calculated using the formula:

$$r_{xy.z} = \frac{r_{xy} - r_{xz} * r_{yz}}{\sqrt{1 - r_{xz}^2} * \sqrt{1 - r_{yz}^2}}$$

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where x = threat (or deprivation), y = psychopathology, and z = deprivation (or threat). The effects between threat, deprivation, and each psychopathology outcome using partial correlations were estimated separately using the same steps outlined above.

Moderators

Hypotheses regarding moderators were not included in the preregistration. To ensure adequate representation at each level of the dichotomous moderators, we examined coded variables as a moderator only if a minimum of five studies provided effect sizes in each cell. Continuous moderators without a meaningful zero point were centered prior to analyses for ease of interpretation. Given the large number of moderators, a Bonferroni correction was applied to the alpha level (i.e., .05 divided by the number of individual moderators), yielding a family-wise error rate for each meta-analytic effect. A three-level model was fitted for each individual moderator, followed by a final three-level model that included all significant moderators based on the family-wise error rate. This method minimizes Type II error when testing categorical moderators and addresses potential multicollinearity among moderators (Assink & Wibbelink, 2016; Weisz et al., 2013). For each significant dichotomous moderator in the final three-level model, follow-up analyses were conducted to estimate the effect size of interest at each level. Because adversity measurement variables were coded separately for threat and deprivation, only study and sample characteristics and adversity indicators were examined as moderators of the pooled estimate of the threat-deprivation correlation.

Publication bias

We used multiple methods to assess potential publication bias. First, we visually inspected funnel plots for asymmetry. We then conducted Egger's test that examines whether sampling variance moderates the meta-analytic effect, a method recommended specifically for multilevel meta-analytic models (Rodgers & Pustejovsky, 2021).

Results

Search results

Our initial search in the two databases yielded a total of 6323 records, from which 1940 duplicate records were removed. Of the remaining 4883 records, we excluded 4165 during title and abstract screening. Of the remaining 718 articles, we excluded 591 articles during full-text screening, resulting in a total of 127 articles included in the current meta-analysis (see Figure 1). All articles were published in peer-reviewed journals between 1984 and 2021. Among the 127 articles identified, 8 articles used data from LONGSCAN, 5 from Fragile Families and Well-Being Study, 3 from National Survey of Child and Adolescent Well-being (NSCAW) Study, and 2 from the ABCD Study. Additionally, 9 articles were comprised of 2 unique subsamples each, which were considered to be independent cohorts in our analyses though counted as the same article in the article count. In all, 122 unique cohorts totaling $N = 163{,}767$ individual participants contributed 2028 effect sizes in the current meta-analysis. See Table 1 for characteristics of studies included in meta-analysis.

Internalizing psychopathology

Overall effects ($k = 98$, ESs = 598, $N = 127{,}071$)

The overall effect between adversity and internalizing psychopathology was positive and significant, $r = .21$, 95% CI [.18, .23], $t = 17.20$, $p < .001$. There was significant heterogeneity within, $\sigma^2 = 0.019$, $\chi^2(2) = 5231.39$, $p < .001$, and between, $\sigma^2 = 0.014$, $\chi^2(2) = 179.19$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. From the total variance, 4.53% was attributed to within-study sampling variance (i.e., Level 1), 43.22% to within-study variance (i.e., Level 2), and 52.25% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 95.47%.

Moderation by adversity dimension

Adversity dimension (i.e., threat versus deprivation) was a significant moderator of the meta-analytic associations between adversity and internalizing psychopathology, $F(1, 596) = 4.757$, $p = .030$, such that the effect size for threat was significantly larger than the effect size for deprivation. The correlations between threat and internalizing psychopathology, $r = .21$, 95% CI [.19, .24], $t = 17.02$, $p < .001$, and deprivation and internalizing psychopathology, $r = .19$, 95% CI [.17, .22], $t = 14.55$, $p < .001$, were both positive and significant.

Other moderators

The final multilevel model with moderators included 11 variables based on a family-wise error rate of .001 (see Table S2 for results of individual moderator analyses). The overall model was significant, $F(11, 584) = 15.892$, $p < .001$. Full results of the final model are presented in Table S3. Estimated effect sizes between adversity and internalizing psychopathology were larger for effects that included emotional abuse in the measurement of threat (vs. effects that did not include emotional abuse), included emotional neglect in the measurement of deprivation (vs. those that did not), used multiple indicators of adversity (vs. a single indicator), used youth self-report of adversity (vs. no youth self-report), and where depression was the type of internalizing psychopathology (vs. anxiety, somatic symptoms, or internalizing symptoms broadly). The estimated effect size between adversity and internalizing psychopathology was smaller for effects that included miscellaneous deprivation indicators (e.g., low parental education, single-parent household) in their measurement of deprivation than for effects that did not include miscellaneous indicators. Inclusion of poverty as a deprivation indicator, timing of adversity in late adolescence, inclusion of records review in the measurement of adversity, inclusion of self-reported psychopathology, and time since adversity did not significantly moderate the association between adversity and psychopathology in the final model. Results of follow-up analyses yielding effect sizes at each level of significant categorical moderators are summarized in Table 2.

Externalizing psychopathology

Overall effects ($k = 69$, ESs = 386, $N = 82{,}603$)

The overall effect between adversity and externalizing psychopathology was also positive and significant, $r = .20$, 95% CI [.16, .23], $t = 11.64$, $p < .001$. There was significant heterogeneity within, $\sigma^2 = 0.020$, $\chi^2(2) = 4626.62$, $p < .001$, and between, $\sigma^2 = 0.019$, $\chi^2(2) = 153.66$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. From the total variance, 4.13% was attributed to within-study sampling variance (i.e., Level 1), 32.13% to within-study variance (i.e., Level 2), and 36.74% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 95.87%.

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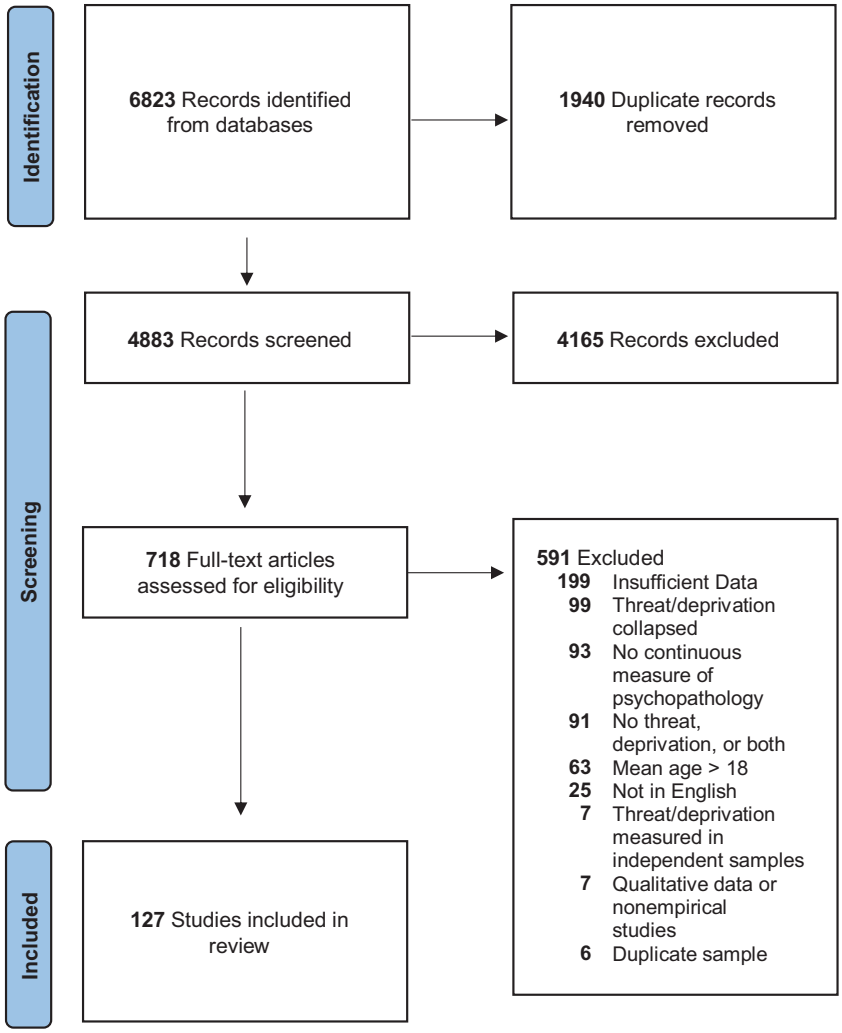

Figure 1. PRISMA flow diagram.

Moderation by adversity dimension

Adversity dimension (i.e., threat versus deprivation) was again a significant moderator of the meta-analytic associations between adversity and externalizing symptoms, $F(1, 384) = 37.072$, $p < .001$, such that the effect size for threat was significantly larger than the effect size for deprivation. The pooled correlations between threat and externalizing, $r = .22$, 95% CI [.19, .25], $t = 12.74$, $p < .001$, and deprivation and externalizing, $r = .16$, 95% CI [.12, .19], $t = 8.70$, $p < .001$, problems were both positive and significant.

Other moderators

Based on a family-wise error rate of .001, the final multilevel model with moderators for externalizing problems included 3 variables: multiple indicators of adversity (versus single), inclusion of youth self-report of adversity, and inclusion of emotional abuse as a threat indicator (see Table S4 for results of individual moderator analyses). The overall model (see Table S5) was significant, $F(3, 382) = 18.151$, $p < .001$. Estimated effect sizes between adversity and externalizing psychopathology were larger for effects that included emotional abuse in the measurement of threat (vs. effects that did not include emotional abuse), used multiple indicators of adversity (vs. a single indicator), and included youth self-report of adversity (vs. no youth self-report). Results of follow-up analyses yielding estimated effect sizes at each level of significant categorical moderators are summarized in Table 4.

PTSD symptoms

Overall effects ($k = 25$, $ESs = 121$, $N = 31{,}757$)

The overall effect between adversity and PTSD symptoms was again positive and significant, $r = .23$, 95% CI [.17, .29], $t = 7.26$, $p < .001$. There was significant heterogeneity within, $\sigma^2 = 0.020$, $\chi^2(2) = 602.03$, $p < .001$, and between, $\sigma^2 = 0.025$, $\chi^2(2) = 32.88$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. Of the total variance, 2.72% was attributed to within-study sampling variance (i.e., Level 1), 29.76% to within-study variance (i.e., Level 2), and 65.62% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 97.28%.

Moderation by adversity dimension

Adversity dimension was a significant moderator of the meta-analytic associations between adversity and PTSD, $F(1, 119) = 25.45$, $p < .001$ symptoms, such that the effect size for threat was significantly larger than the effect size for deprivation. Consistent with the results for internalizing and externalizing psychopathology, the correlations between threat and PTSD symptoms, $r = .26$, 95% CI

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Table 1. Characteristics of Studies Included in Meta-Analysis ($k = 127$)

					Threat		Deprivation		Psychopathology			Length of time (in years) between adversity and psychopathology	Threat-deprivation correlation available
Reference	Cohort description	Country	N	Number of ESs	Indicators	Informant/ Source	Indicators	Informant/ Source	Psychopathology type	Informant	Mean age		
Aloba et al. (2020)	Public high school adolescents age 13–18	Nigeria	1337	12	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression	Youth	15.2	0	Yes
Alto et al. (2022)	Adolescent females ages 13–16 with depression and their primary caregivers from urban, low-income families	The U.S.	170	20	Physical abuse, Sexual abuse, Emotional abuse, Community violence	Caregiver	Physical neglect, Emotional neglect	Caregiver	Externalizing spectrum, PTSD	Caregiver	14.5	0	Yes
Arata et al. (2007)	Middle and high school youth from urban schools and a mandated early truancy program	The U.S.	1313	12	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, Externalizing spectrum	Youth	15.6	0	Yes
Auslander et al. (2018)	Adolescent females ages 12–19 who have been formally investigated or substantiated by the childhood welfare system	The U.S.	234	8	Physical abuse, Sexual abuse, Emotional abuse, Peer Victimization	Youth	Physical neglect	Youth	Internalizing-Depression, PTSD	Youth	14.9	0	Yes
Bachmann et al. (2022)	Children ages 4–6 at moderate or high risk for poor outcomes from a longitudinal multicentre study cohort	UK	174	1	Physical abuse	Caregiver	Poverty	Caregiver	Externalizing spectrum	Caregiver	12.1	0	Yes
Bagley & Mallick (2000)	17 year old females identified from infant health records for risk factors related to health during and after pregnancy and economic poverty	Canada	290	6	Physical abuse, Sexual abuse, Emotional abuse	Youth	Poverty	Caregiver	Internalizing spectrum, Externalizing-Conduct	Youth	17.0	0 (Threat), 8 (Deprivation)	No
Bennett et al. (2005)	Children ages 3–7 enrolled in publicly funded preschool or therapeutic programs and their mothers	The U.S.	177	2	Physical abuse	Records	Neglect-unspecified	Records	Internalizing spectrum, Externalizing spectrum	Other	5.0	0	Yes
Bi & Keller (2021)	Children ages 1.5–16 whose parents lost custody	The U.S.	20	2	Emotional abuse	Caregiver	Emotional neglect	Caregiver	Internalizing spectrum, Externalizing spectrum	Caregiver	6.5	0	Yes
Blair et al. (2022)	Adolescents ages 14–18 years from residential care centers or the community	The U.S.	142	4	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, Externalizing-ADHD	Youth	16.4	0	Yes
Bolger & Patterson (2001)	Community sample of children assessed at ages 9–13	The U.S.	785	4	Physical abuse, Sexual abuse, Emotional abuse	Records	Neglect-unspecified, Poverty	Records	Internalizing spectrum	Youth	11.5	0	No

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Table 1. (*Continued*)

					Threat		Deprivation		Psychopathology			Length of time (in years) between adversity and psychopathology	Threat-deprivation correlation available
Reference	Cohort description	Country	N	Number of ESs	Indicators	Informant/ Source	Indicators	Informant/ Source	Psychopathology type	Informant	Mean age		
Brown (1984)	9th grade students attending required English class located in a small southeastern school	The U.S.	102	2	Physical abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	Externalizing-delinquency	Youth	14.0	0	Yes
Buckle et al. (2005)	Urban sample of adolescent psychiatric inpatients ages 12–18 years	Australia	81	18	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing spectrum, Externalizing spectrum, Externalizing-Substance use	Youth	16.0	0	Yes
Busso et al. (2017)	Adolescents recruited from schools, after-schools programs, medical clinics, and the community	The U.S.	167	2	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth	Poverty	Caregiver	Internalizing spectrum, Externalizing spectrum	Youth	14.9	0	Yes
Castro et al. (2017)	Children ages 8–17 and their mothers recruited from the Centers of Specialized Assistance for Women Victims of IPV	Spain	152	9	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence	Caregiver	Neglect-unspecified	Caregiver	PTSD	Youth	11.4	0	Yes
Chahal et al. (2022)	Adolescents ages 9–19 recruited from community locations around San Francisco Bay area	The U.S.	225	1	Physical Abuse, Sexual Abuse, Emotional Abuse, Witnessing domestic violence, Community violence, Peer victimization, Other	Youth, Caregiver, Records	Neglect-unspecified, Poverty, Other	Youth, Caregiver, Records	Internalizing Spectrum	Youth	15.6	4	Yes
Choe & Yu (2022)	Adolescents ages 14–16 from the Korean Children and Youth Panel Survey	Korea	1797	4	Physical abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Externalizing-Aggression	Youth	13.9	0	No
Cohen & Thakur (2021)	**NSCAW-II;** Youth ages 11–14 involved in the child welfare system	The U.S.	657	8	Physical abuse, Emotional abuse	Youth, Caregiver	Emotional neglect	Youth, Caregiver	Internalizing spectrum, Externalizing spectrum	Youth, Caregiver	15.5	3	Yes
Collings et al. (2013)	All adolescents grades 8–12 attending a high school in the metropolitan area of Durban	South Africa	720	32	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth	Neglect-unspecified, Poverty	Youth	Internalizing-Somatic symptoms, PTSD	Youth	15.4	0	Yes

Company-Córdoba et al. (2020)	Children and adolescents ages 6–17 years from three vulnerable schools in rural and urban areas	Guatemala	185	2	Community violence	Youth	Food insecurity	Caregiver	Internalizing-Depression	Youth	11.8	0	Yes
Cooley & Taussig (2021)	Children ages 8–11 living in out-of-home care	The U.S.	470	16	Physical abuse, Sexual abuse, Emotional abuse, Community violence	Youth, Records	Physical neglect, Neglect-unspecified	Records	Externalizing spectrum, Externalizing-Aggression, Externalizing-ADHD	Caregiver	10.3	0	Yes
Crea et al. (2018)	Children adopted from foster care	The U.S.	217	2	Physical abuse, Sexual abuse	Caregiver	Neglect-unspecified	Caregiver	Externalizing spectrum	Caregiver	17.9	14	Yes
Cromer & Villodas (2017)	**LONGSCAN**; Children (age 4) at high-risk for maltreatment or being investigated for maltreatment and their caregivers followed longitudinally	The U.S.	1154	3	Physical abuse, Sexual abuse, Emotional abuse, Community violence	Caregiver, Records	Poverty	Caregiver	Internalizing spectrum, Externalizing spectrum, PTSD	Youth, Caregiver	8.0	2–4	Yes
Crowley et al. (2003)	Adolescents ages 14–18 referred for treatment of conduct and substance use problems	The U.S.	200	9	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect, Neglect-unspecified	Youth	Internalizing-Depression, Externalizing-Conduct, Externalizing-Substance use	Youth	16.1	0	No
deOliveira et al. (2018)	High-risk adolescents ages 11–17 recruited from public schools in the suburbs, capital state, and a city with the highest crime rates	Brazil	347	24	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing spectrum, Internalizing-Depression, Internalizing-Anxiety, Externalizing spectrum	Youth, Caregiver, Other	13.3	0	Yes
Derin et al. (2022)	Adolescents ages 11–18 with and without a diagnosis of social anxiety disorder	Turkey	120	3	Physical abuse, Sexual abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	Internalizing-Anxiety	Youth	14.6	0	Yes
Dhakal et al. (2019)	Young people ages 12–18 living in out-of-home care institutions and rescued from child labor/trafficking	Nepal	103	10	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth	Neglect-unspecified	Youth	Internalizing spectrum, Externalizing spectrum	Youth	15.0	0	Yes
Duprey et al. (2020)	**LONGSCAN**; Children (age 4) at high risk for maltreatment or being investigated for maltreatment and their caregivers followed longitudinally	The U.S.	1354	6	Physical abuse, Sexual abuse, Emotional abuse	Records	Neglect-unspecified	Records	Internalizing spectrum, Externalizing spectrum	Caregiver	14.4	8	Yes

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Table 1. (*Continued*)

					Threat		Deprivation		Psychopathology			Length of time (in years) between adversity and psychopathology	Threat-deprivation correlation available
Reference	Cohort description	Country	N	Number of ESs	Indicators	Informant/ Source	Indicators	Informant/ Source	Psychopathology type	Informant	Mean age		
Egeland et al. (2002)	High-risk children from birth-17.5 years and their families; from Minnesota Longitudinal Study of High-Risk Parents and Children	The U.S.	140	1	Physical abuse	Records	Emotional neglect	Observational	Externalizing spectrum	Youth, Other	16.0	11.5	Yes
Ellis & Wolfe (2009)	High school students from three schools in southwestern Ontario	Canada	1558	2	Physical abuse, Emotional abuse	Youth	Emotional neglect	Youth	Externalizing-delinquency	Youth	15.0	0	Yes
Esparza-Del Villar et al. (2021)	High school students from two cities in Mexico recruited from the community	Mexico	526	20	Physical abuse, Emotional abuse, Sexual abuse, Peer victimization	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	16.5	0	No
Farrow et al. (2020)	Children ages 8–9 and their mothers from metropolitan areas in Melbourne	Australia	129	3	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence, Other	Caregiver	Physical neglect, Other	Caregiver	Internalizing spectrum, Internalizing-Depression, Internalizing-Anxiety	Youth, Caregiver	10.0	1.5	Yes
Gardner et al. (2015)	Low-income youth from urban South African settlements	South Africa	716	2	Physical Abuse, Sexual Abuse, Emotional Abuse, Community violence	Youth	Food insecurity, Poverty	Youth	Externalizing spectrum	Youth	17.7	4	Yes
Goetschius et al. (2021)	**FFCWS;** Population-based sample of children born in large U.S. cities with an oversample of non-marital births	The U.S.	3246	2	Physical Abuse, Emotional Abuse, Witnessing domestic violence, Community violence	Caregiver	Physical neglect, Emotional neglect, Other	Caregiver	Internalizing spectrum, Externalizing spectrum	Youth	15.0	6	Yes
Goodyear et al. (2002)	Latina teenagers who are pregnant or have been in the last 3 months recruited from a community sample	The U.S.	493	8	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, Externalizing-Conduct	Youth	16.8	0	Yes
Guo et al. (2020)	Adolescents ages 11–18 from grade 7 to grade 12 from rural areas	China	6196	2	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Anxiety, PTSD	Youth	Not reported	0	No
Haddad et al. (2022)	Adolescents ages 14–17 years recruited from private schools	Lebanon	1810	4	Physical abuse, Emotional abuse, Sexual abuse, Peer victimization	Youth	Neglect-unspecified	Youth	Internalizing-Anxiety	Youth	15.4	0	No

Hallit et al. (2020)	Adolescents ages 14–17 years from private schools	Lebanon	1810	4	Physical abuse, Emotional abuse, Sexual abuse, Peer victimization	Youth	Neglect	Youth	Externalizing-Substance use	Youth	15.4	0	No
Hamilton et al. (2013)	Adolescents ages 12–13 recruited from public and private middle schools	Canada	225	4	Emotional abuse, Peer victimization	Youth	Emotional neglect	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	14.3	0.75	Yes
Hecker et al. (2019)	Tanzanian children ages 6 to 15 living in a small town	Tanzania	409	2	Physical abuse, Emotional abuse, Sexual abuse, Peer victimization	Youth	Physical neglect, Emotional neglect	Youth	Internalizing spectrum, Externalizing spectrum	Youth	10.5	0	Yes
Hein et al. (2020)	**FFCWS;** Population-based sample of children born in large U.S. cities with an oversample of non-marital births	The U.S.	237	11	Physical abuse, Emotional abuse, Witnessing domestic violence, Community violence	Caregiver	Physical neglect, Emotional neglect, Other	Caregiver	Internalizing-Depression, Internalizing-Anxiety	Youth, Caregiver	15.0	6	Yes
Heleniak et al. (2021)	Adolescents ages 16–17 from community centers and after-school programs	The U.S.	147	3	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth	Poverty	Caregiver	Internalizing-Depression, Internalizing-Anxiety, Externalizing-Substance use	Youth	16.8	0.33	Yes
Heleniak & McLaughlin (2020)	Children and adolescents ages 8–16 with a high concentration of exposure to interpersonal violence	The U.S.	246	8	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth, Caregiver	Emotional neglect, Poverty	Youth, Caregiver	Externalizing spectrum	Youth, Caregiver	12.6	0	Yes
Henry et al. (2021)	Children and adolescents ages 5 to 18 in state custody	The U.S.	23850	3	Physical abuse, Sexual abuse, Witnessing domestic violence, Community violence, Other	Other	Neglect-unspecified, Caregiver psychopathology, Other	Other	Internalizing spectrum, Externalizing spectrum	Other	13.5	0.5	Yes
Hermenau et al. (2015)	Children from a primary school grades 2 to 7 who had lost one or both parents	Tanzania	89	1	Physical abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression	Youth	11.1	0	No
Hodgdon et al. (2019)	Treatment-seeking children and adolescents ages 4 to 18 from residential care or other community-based services	The U.S.	549	9	Physical Abuse, Sexual Abuse, Emotional Abuse, Witnessing domestic violence, Community violence, Other	Other	Neglect-unspecified, Other	Other	Internalizing spectrum, Externalizing spectrum, PTSD	Youth, Caregiver	14.2	0	Yes

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Table 1. (*Continued*)

					Threat		Deprivation		Psychopathology			Length of time (in years) between adversity and psychopathology	Threat-deprivation correlation available
Reference	Cohort description	Country	N	Number of ESs	Indicators	Informant/ Source	Indicators	Informant/ Source	Psychopathology type	Informant	Mean age		
Hoeboer et al. (2021)	Children and adolescents ages 9–23 receiving evidence-based treatment for trauma-related symptoms	The Netherlands	287	3	Physical abuse, Sexual abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	PTSD	Youth	15.5	0	Yes
Hsieh et al. (2020)	Fourth-grade students recruited from a nationwide sample	Taiwan	6233	2	Sexual abuse	Youth	Physical neglect, Emotional neglect	Youth	PTSD	Youth	10.5	0	Yes
Hsieh et al. (2016)	Fourth-grade students recruited from a nationwide sample	Taiwan	6233	6	Physical abuse, Emotional abuse, Witnessing domestic violence	Youth	Physical neglect, Emotional neglect	Youth	PTSD	Youth	10.5	0	Yes
Huang et al. (2015)	**FFCWS;** Population-based sample of children born in large U.S. cities with an oversample of non-marital births	The U.S.	2410	1	Witnessing domestic violence	Caregiver	Neglect-unspecified	Caregiver	Externalizing-Delinquency	Youth	9.0	6 (Threat), 4 (Deprivation)	Yes
Hunt et al. (2017)	**FFCWS;** Population-based sample of children born in large U.S. cities with an oversample of non-marital births	The U.S.	3108	12	Physical abuse, Emotional abuse, Witnessing domestic violence	Caregiver	Physical neglect, Emotional neglect	Caregiver	Internalizing spectrum, Externalizing spectrum	Caregiver	9.0	4	No
Jenness et al. (2020)	Youth ages 8–16 with and without exposure to maltreatment recruited from schools, after-school and prevention programs, adoption programs, food banks, shelters, parenting programs medical clinics, and general community	The U.S.	151	3	Physical abuse, Sexual Abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth, Caregiver	Neglect-unspecified, Food insecurity, Poverty, Low cognitive enrichment	Youth, Caregiver	Internalizing spectrum, Externalizing spectrum, PTSD	Youth, Caregiver	12.6	0	Yes
Jessar et al. (2017)	Adolescents ages 12–13 years recruited from the Adolescent Cognition and Emotion Project	The U.S.	204	1	Emotional abuse	Youth	Emotional neglect	Youth	Internalizing-Depression	Youth	15.1	1.5	Yes
Joo et al. (2021)	Elementary school children (age 10) recruited from the Panel Study on Korean Children	Korea	1484	2	Physical abuse, Emotional abuse	Caregiver	Neglect-unspecified	Caregiver	Internalizing spectrum	Youth	10.0	0	Yes
Jose & Cherayi (2020)	Community Sample of parents who abuse alcohol and their children between 6 and 16 years	India	4133	12	Physical abuse, Emotional abuse	Youth	Physical abuse, Emotional neglect	Youth	Internalizing spectrum, Externalizing spectrum	Caregiver	11.9	0	No

Kasparek et al. (2020)	Youth ages 8–16 and their parent/guardian recruited from schools, after-school and prevention programs, adoption programs, food banks, shelters, parenting programs medical clinics, and general community	The U.S.	132	8	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence	Youth, Caregiver	Neglect-unspecified, Food insecurity	Youth, Caregiver	Internalizing-Depression, Externalizing spectrum	Youth	12.7	0	Yes
Khodarahimi (2014)	A community sample of adolescents ages 11–19 years	Iran	300	6	Physical abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Internalizing-Anxiety, Internalizing-Somatic symptoms	Youth	14.7	0	Yes
Kidman et al. (2019)	Adolescents ages 10–16 years and their primary caregivers	Malawi	1878	2	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth	Neglect-unspecified, Food insecurity, Low cognitive enrichment	Youth	Internalizing-Depression, PTSD	Youth	Not reported	3	Yes
Kobulsky et al. (2018)	**LONGSCAN**; Children (age 4) at high risk for maltreatment or being investigated for maltreatment and their caregivers followed longitudinally	The U.S.	1161	4	Physical abuse, Sexual abuse, Emotional abuse	Youth, Records	Neglect-unspecified	Youth, Records	Internalizing-Depression, Internalizing-Anxiety	Youth	16.0	4	Yes
Kovačević et al. (2022)	Adolescents ages 12–18 recruited from the institution for children and adolescents without parental care and a school in the community	Serbia	60	36	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical abuse, Emotional neglect	Youth	Internalizing spectrum, Internalizing-Depression, Internalizing-Somatic symptoms, Externalizing-Aggression, Externalizing-Delinquency, Externalizing-ADHD	Youth	15.8	0	No
Lee et al. (2023)	Children with Child Protective Services involvement and their primary caregivers enrolled in a randomized controlled trial of an early childhood parenting intervention and followed longitudinally	The U.S.	249	2	Witnessing domestic violence	Caregiver	Low cognitive enrichment, Other	Observational	Internalizing spectrum, Externalizing spectrum	Caregiver	9.0	4	Yes

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Table 1. (*Continued*)

					Threat		Deprivation		Psychopathology			Length of time (in years) between adversity and psychopathology	Threat-deprivation correlation available
Reference	Cohort description	Country	N	Number of ESs	Indicators	Informant/ Source	Indicators	Informant/ Source	Psychopathology type	Informant	Mean age		
Lee et al. (2022)	**LONGSCAN**; Children (age 4) at high risk for maltreatment or being investigated for maltreatment and their caregivers followed longitudinally	The U.S.	1345	8	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence	Caregiver, Records	Neglect-unspecified	Records	Internalizing spectrum, Internalizing-Somatic symptoms	Caregiver	16.0	4	Yes
Lee & Feng (2021)	Adolescents ages 11–21 from five halfway houses and twenty high schools	Taiwan	2321	40	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth	Physical abuse, Emotional neglect	Youth	Internalizing-Depression, Internalizing-Anxiety, Externalizing-Aggression, Externalizing-Delinquency	Youth	15.9	0	Yes
Li et al. (2022)	Adolescents ages 11–17 from third grade of primary school to third grade of secondary school	China	13754	3	Physical abuse, Emotional abuse, Witnessing domestic violence	Youth	Neglect-unspecified	Youth	Internalizing-Depression	Youth	13.6	0	Yes
Li et al. (2020)	Adolescents ages 11–20 from middle and high schools	China	961	6	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression	Youth	15.2	0	Yes
Li et al. (2007)	African American youth ages 10–15 from schools in poor, working, and middle-class neighborhoods	The U.S.	263	2	Community violence	Youth	Poverty	Records	Internalizing spectrum, Externalizing spectrum	Youth, Caregiver	12.0	0	Yes
López-Soler et al. (2017)	Spanish children ages 6 to 17 and their mothers recruited from the Centers of Specialized Assistance for Women Victims of IPV	Spain	189	18	Physical abuse, Emotional abuse, Witnessing domestic violence	Caregiver	Neglect-unspecified	Caregiver	Internalizing spectrum, Internalizing-Depression, Internalizing-Somatic symptoms, Externalizing-Aggression, Externalizing-Delinquency, Externalizing-ADHD	Caregiver	10.2	0	Yes
Lurie et al. (2022)	Youth ages 10–18 and their caregivers were recruited from two different longitudinal studies	The U.S.	406	4	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth, Caregiver	Physical neglect, Emotional neglect, Food insecurity, Low cognitive enrichment, Poverty	Youth, Caregiver	Internalizing-Depression, Internalizing-Anxiety	Youth	12.7	0	Yes

Madigan et al. (2014)	Girls ages 15 to 18 emerging into parenthood recruited from pediatric hospitals or young parent resource centers	Canada	55	4	Physical abuse, Sexual abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	17.8	0.875	Yes
Manly et al. (2001)	Children ages 5.5 to 11.5 from summer day camps in urban upstate New York City	The U.S.	492	12	Physical abuse, Sexual abuse	Records	Physical neglect	Records	Internalizing spectrum, Externalizing spectrum	Other	7.4	0–4	No
Manly et al. (2013)	Low-income children ages 4–9 and their mothers recruited from schools in upstate New York	The U.S.	170	24	Community violence	Records	Neglect-unspecified	Records	Externalizing spectrum, Externalizing-Aggression, Externalizing-Conduct, Externalizing-Delinquency	Other	9.0	3–5	Yes
Maxwell et al. (2022)	**ABCD;** Children ages 9–10 across 21 U.S. research sites followed longitudinally	The U.S.	8623	2	Community violence	Caregiver	Poverty	Records	Internalizing spectrum, Externalizing spectrum	Caregiver	9.9	0	Yes
McGee et al. (1995)	Adolescents ages 11 to 17 from Canadian child protection agency caseloads	Canada	160	48	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence	Youth, Other	Neglect-unspecified	Youth, Other	Internalizing spectrum, Externalizing spectrum	Youth, Caregiver	13.8	0	Yes
McNeilly et al. (2021)	Study 1: Children and adolescents ages 6–18 years recruited from schools, after-school and prevention programs, medical clinics, and the general community.	The U.S.	94	4	Physical abuse, Sexual abuse, Community violence	Youth	Poverty, Food insecurity	Caregiver	Internalizing spectrum, Externalizing spectrum	Youth, Caregiver	13.6	0	Yes
	Study 2: Children and Adolescents ages 8–16 years recruited from schools, after-school and prevention programs, medical clinics, and the general community.		259	4	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth, Caregiver	Poverty, Food insecurity	Caregiver	Internalizing spectrum, Externalizing spectrum	Youth, Caregiver	12.6	0	Yes
Menon et al. (2018)	Freshmen and sophomore high school students from the Houston area recruited from the "Dating it Safe" longitudinal study	The U.S.	1042	4	Physical abuse, Witnessing domestic violence	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, PTSD	Youth	15.1	0	Yes
Miller et al. (2018)	Children aged 5 and their parents recruited from the Child Development project	The U.S.	585	2	Physical abuse, Other	Parent, observational	Low cognitive enrichment	Other	Internalizing Spectrum, Externalizing Spectrum	Caregiver	17.0	11	Yes

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Table 1. (*Continued*)

					Threat		Deprivation		Psychopathology			Length of time (in years) between adversity and psychopathology	Threat-deprivation correlation available
Reference	Cohort description	Country	N	Number of ESs	Indicators	Informant/ Source	Indicators	Informant/ Source	Psychopathology type	Informant	Mean age		
Miller et al. (2021)	**FFCWS;** Population-based sample of children born in large U.S. cities with an oversample of non-marital births	The U.S.	2301	2	Physical abuse, Emotional abuse, Witnessing domestic violence, Community violence, Other	Caregiver	Low cognitive enrichment, Other	Caregiver, Observational	Internalizing Spectrum, Externalizing Spectrum	Caregiver	15.0	12	Yes
Miller-Graff et al. (2021)	**LONGSCAN**; Children (age 4) at high risk for maltreatment or being investigated for maltreatment and their caregivers followed longitudinally	The U.S.	1221	4	Physical abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth, Caregiver	Poverty	Caregiver	Internalizing Spectrum, PTSD	Youth, Caregiver	16.0	8	Yes
	NSCAW-I; Children (age 8) involved in the child welfare system due to abuse allegations followed longitudinally		309	4	Physical abuse, Emotional abuse, Witnessing domestic violence	Youth, Caregiver	Poverty	Caregiver	Internalizing Spectrum, PTSD	Youth, Caregiver	15.0	7	Yes
Moussavi et al. (2021)	Youth in foster care ages 11–17 recruited from "Young in Foster Care" longitudinal study	Norway	282	4	Physical abuse, Sexual abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	14.8	0	No
Nguyen et al. (2010)	Students ages 12–18 from secondary schools in one urban and one rural district in north Vietnam	Vietnam	2591	12	Physical abuse, Sexual abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	15.0	0	No
Nkuba et al. (2019)	Adolescents ages 12–17 and their caregivers recruited from six diverse regions of Tanzania	Tanzania	1032	8	Physical abuse, Emotional abuse, Peer victimization,	Youth, Caregiver	Neglect-unspecified	Youth, Caregiver	Externalizing-Aggression, Externalizing-Delinquency	Youth, Caregiver	14.9	0	No
Nöthling et al. (2019)	Adolescents ages 12–18 referred to an adolescent trauma research clinic by schoolteachers or community/social workers	South Africa	215	10	Physical Abuse, Sexual Abuse, Emotional Abuse, Witnessing domestic violence, Community violence, Other	Youth	Physical neglect, Emotional neglect	Youth	PTSD	Youth	14.9	0	Yes
Oshri et al. (2011)	Adolescents ages 12–18 recently enrolled in an outpatient substance abuse treatment service	The U.S.	394	10	Sexual abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Externalizing spectrum, Externalizing-Substance use	Youth	16.3	0	Yes

Papalia et al. (2022)	Youth ages 10–20 years from two justice centers	Australia	215	20	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth	Physical neglect, Emotional neglect	Youth	Internalizing spectrum, Externalizing spectrum	Youth	16.8	0	Yes
Park & Kim (2018)	Geographically representative Sample of 1st grade children	Korea	1796	1	Physical abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression	Youth	11.0	2	Yes
Petrenko et al. (2012)	Preadolescent youth ages 9 to 11 placed in out-of-home care and their current caregivers	The U.S.	334	18	Physical abuse, Sexual abuse, Emotional abuse	Records	Physical neglect, Neglect-unspecified	Records	Internalizing spectrum, Externalizing spectrum	Caregiver	10.3	0	Yes
Petrican et al. (2021)	**ABCD;** Children ages 9–10 across 21 U.S. research sites followed longitudinally	The U.S.	1514	2	Community violence, Other	Youth, Caregiver	Poverty, Other	Youth, Caregiver	Internalizing spectrum, Externalizing spectrum	Caregiver	11.0	0	Yes
Pirdehghan et al. (2016)	Students in 6th and 7th levels of secondary schools	Iran	700	6	Physical abuse, Sexual abuse, Emotional abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	13.3	0	No
Raffaelli et al. (2018)	Street involved youth ages 9–18 recruited from different Brazilian cities	Brazil	113	2	Physical abuse, Sexual abuse	Youth	Poverty	Youth	Internalizing-Somatic symptoms	Youth	14.7	0.5	Yes
Rakesh et al. (2021)	Community-residing early adolescents	Australia	166	8	Physical abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect,	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	16.5	2	Yes
Ribeiro et al. (2019)	Pregnant adolescents ages 12 to 19 receiving prenatal care in the national public health system in urban Pelotas	Brazil	869	6	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect,	Youth	Internalizing-Depression	Youth	Not reported	0	No
Roque-Lopez et al. (2021)	Girls age 13 to 16 from residential or semi-residential youth care settings due to inadequate parental care	Colombia	44	8	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence	Youth	Physical neglect, Emotional neglect,	Youth	PTSD	Youth	14.1	0	No
Saltz et al. (2020)	Adolescent psychiatric inpatients ages 13 to 17	The U.S.	50	18	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect,	Youth	Internalizing-Depression, Internalizing-Anxiety, PTSD	Youth	15.2	0	Yes
Sekowski et al. (2020)	Adolescent psychiatric inpatients ages 12 to 17	The U.S.	112	6	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect,	Youth	Internalizing-Depression	Youth	15.4	0	Yes
Sevenoaks et al. (2022)	Adolescents with perinatal HIV infection recruited from a neuropsychiatric substudy	South Africa	135	18	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect,	Youth	Internalizing-Depression, Internalizing-Anxiety, Externalizing spectrum	Youth	13.6	0	No

(*Continued*)

Table 1. (*Continued*)

					Threat		Deprivation		Psychopathology			Length of time (in years) between adversity and psychopathology	Threat-deprivation correlation available
Reference	Cohort description	Country	N	Number of ESs	Indicators	Informant/ Source	Indicators	Informant/ Source	Psychopathology type	Informant	Mean age		
Shaffer et al. (2009)	Children and their mothers ages 12–34 of low socioeconomic status recruited from the Minnesota Longitudinal Study of Parents and Children	The U.S.	196	1	Emotional abuse	Observational	Emotional neglect	Observational	Externalizing-Aggression	Other	7.5	2.5	Yes
Shao et al. (2021)	Adolescents age 10–14 years from 3 junior high schools and 4 elementary schools	China	718	6	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect,	Youth	Internalizing-Depression	Youth	11.5	0	Yes
Shen et al. (2019)	4th-grade students ages 10–11 from 314 primary schools	Taiwan	6233	6	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence, Peer victimization	Youth	Physical neglect	Youth	PTSD	Youth	10.5	0	Yes
Silva & Calheiros (2020)	Children and adolescents ages 8–16 referred to and with an open file in CYPC, and their caregivers or caseworkers	Portugal	203	4	Physical abuse, Emotional abuse	Other	Physical neglect, Emotional neglect,	Other	Internalizing spectrum, Externalizing spectrum	Caregiver	12.6	0	Yes
Simmel (2007)	Statewide longitudinal sample of adoptive foster youth and adoptive parents	The U.S.	293	6	Physical abuse, Sexual abuse	Caregiver	Neglect-unspecified	Caregiver	Internalizing spectrum, Externalizing spectrum, Externalizing-Conduct	Caregiver	10.9	8	No
Snyder & Merritt (2014)	**NSCAW-II;** Children ages 11 to 17 involved in the child welfare system due to abuse allegations followed longitudinally	The U.S.	784	3	Community violence	Youth	Physical neglect, Neglect-unspecified, Caregiver psychopathology	Other	Externalizing-Delinquency	Youth	13.6	0	Yes
Stein et al. (2022)	Children ages 2–5 recruited from pediatric primary care clinics	The U.S.	755	4	Physical abuse, Sexual abuse, Witnessing domestic violence, Community violence	Caregiver	Neglect-unspecified, Low cognitive enrichment	Caregiver	Internalizing-Depression, Internalizing-Anxiety, Externalizing spectrum, Externalizing-ADHD	Caregiver	4.0	0	Yes
Sullivan et al. (2006)	Adolescents ages 12–18 admitted to the short-term adolescent treatment unit of a private, not-for-profit psychiatric teaching hospital	The U.S.	89	6	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	PTSD	Youth	16.0	0	Yes

Sumner et al. (2019)	Children and adolescents ages 8–16 and their parents from the community	The U.S.	241	2	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence, Community violence	Youth, Caregiver	Physical neglect, Emotional neglect, Food insecurity, Low cognitive enrichment	Youth, Caregiver	Internalizing-Depression, Externalizing spectrum	Youth, Caregiver	12.7	0	Yes
Tang et al. (2020)	Adolescents ages 9–18 from 11 public schools in three severely earthquake-affected counties	China	5563	2	Peer victimization, Other	Youth	Physical neglect, Emotional neglect, Poverty	Youth	Internalizing-Anxiety	Youth	14.4	0	Yes
Tang et al. (2018)	Child and adolescent earthquake survivors from 11 public schools	China	5505	8	Physical abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, PTSD	Youth	14.4	0	Yes
Telman et al. (2016)	Children ages 6–12 years exposed to IPV and their caregivers recruited from a larger RCT	The Nether-lands	120	3	Physical abuse, Emotional abuse, Witnessing domestic violence	Caregiver	Neglect-unspecified	Caregiver	PTSD	Caregiver	9.9	0	Yes
Thepthien & Htike (2020)	Students ages 15–18 from 12 vocational schools	Thailand	2058	16	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	Not reported	0	Yes
Tubman et al. (2021)	Adolescents ages 12–18 receiving substance use treatment services at two outpatient facilities in South Florida	The U.S.	394	6	Sexual abuse	Youth	Neglect-unspecified	Youth	Internalizing-Depression, Internalizing-Anxiety, Externalizing-Conduct	Youth	16.3	0	Yes
Vahl et al. (2016)	Detained adolescents ages 12–18 from Juvenile Detention Centers	Belgium	341	12	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing spectrum, Externalizing spectrum	Youth	15.8	0	Yes
van Berkel et al. (2018)	Children ages 5–17 with at least one juvenile sibling living in the same household derived from the National Survey of Children's Exposure to Violence	The U.S.	2053	2	Physical abuse, Peer victimization	Youth, Caregiver	Neglect-unspecified	Youth, Caregiver	Externalizing-Delinquency	Caregiver	10.6	0	Yes
Vasic et al. (2021)	Children and adolescents ages 11–18 residing in two refugee centers	Serbia	184	3	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence	Youth	Physical neglect, Emotional neglect	Youth	Internalizing spectrum, Externalizing spectrum, PTSD	Youth	14.1	0	Yes
Vaughn-Coaxum et al. (2019)	Early adolescents ages 10–14 and their parents recruited from the community, schools, and healthcare settings	The U.S.	117	2	Community violence, Peer victimization	Youth	Poverty, other	Caregiver	Internalizing-Depression	Youth, Caregiver	13.0	0.025	Yes

(*Continued*)

Table 1. (*Continued*)

					Threat		Deprivation		Psychopathology			Length of time (in years) between adversity and psychopathology	Threat-deprivation correlation available
Reference	Cohort description	Country	N	Number of ESs	Indicators	Informant/ Source	Indicators	Informant/ Source	Psychopathology type	Informant	Mean age		
Voth Schrag et al. (2017)	Adolescent girls ages 12–19 with a history of involvement with the welfare system recruited from the metropolitan area of one large midwestern city, including urban, and sub-urban core and outlying rural areas	The U.S.	103	8	Physical abuse, Sexual abuse, Emotional abuse, Witnessing domestic violence	Youth	Physical neglect	Youth	Internalizing-Depression, PTSD	Youth	14.9	0	Yes
Wang et al. (2022)	Adolescents ages 15–17; 281 Clinical samples of adolescents with Major Depressive Disorder and 1507 senior high school students	China	1788	24	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, Internalizing-Anxiety	Youth	16.1	0	Yes
Weissman et al. (2022)	Adolescents ages 10–13 from a longitudinal study of youth followed since the age of 36 months	The U.S.	177	6	Physical abuse, Sexual abuse, Witnessing domestic violence, Community violence	Youth, Caregiver, Observational	Physical neglect, Emotional neglect, Food insecurity, Low cognitive enrichment, Poverty	Youth, Caregiver, Observational	Internalizing-Depression, Internalizing-Anxiety, PTSD	Youth, Caregiver	11.0	0, 8 (Poverty)	Yes
Wolf & Suntheimer (2019)	Nationally representative sample of kindergartners at the start and end of the year	The U.S.	11050	1	Community violence, Other	Caregiver, Other	Poverty, Food insecurity, Low parental warmth, Low cognitive enrichment, Other	Caregiver	Externalizing spectrum	Other	6.4	0	Yes
Yang et al. (2021)	Adolescents ages 12–16 years recruited from 13 schools	China	3094	12	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Externalizing-Aggression	Caregiver	13.6–13.7	0	Yes
Yates et al. (2003)	Mothers and children recruited from the Minnesota Parent-Child Project	The U.S.	155	6	Physical abuse, Witnessing domestic violence	Records, Observational	Physical neglect, Emotional neglect	Records, Observational	Internalizing spectrum, Externalizing spectrum	Youth	16.0	8–11	Yes
Yearwood et al. (2021)	Public high school adolescents ages 11–18 from a severely disadvantages district of Lima	Peru	218	16	Physical abuse, Sexual abuse, Emotional abuse, Community violence	Youth	Physical neglect, Emotional neglect	Youth	Internalizing spectrum, Externalizing spectrum	Youth	14.2	0	Yes
Yonas et al. (2010)	**LONGSCAN**; Children (age 4) at high risk for maltreatment or being investigated for maltreatment and their caregivers followed longitudinally	The U.S.	1684	1	Physical abuse, Sexual abuse	Youth, Records	Neglect-unspecified	Records	Externalizing spectrum	Youth, Caregiver	12.0	0	Yes

Yoon et al. (2021)	**LONGSCAN**; Children (age 4) at high risk for maltreatment or being investigated for maltreatment and their caregivers followed longitudinally	The U.S.	600	3	Physical abuse, Sexual abuse, Emotional abuse	Youth, Records	Neglect-unspecified	Youth, Records	Internalizing spectrum	Youth	12.0	0	Yes
Yoon et al. (2017)	**LONGSCAN**; Children (age 4) at high risk for maltreatment or being investigated for maltreatment and their caregivers followed longitudinally	The U.S.	883	36	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	PTSD	Youth	12.0	0	Yes
You & Lim (2015)	Geographically representative sample of 4th grade children	Korea	2171	16	Physical abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, Externalizing-Aggression, Externalizing-Delinquency	Youth	12.0–13.0	1–2	Yes
Zeller et al. (2015)	TeenView; Adolescents ages 13–18 years undergoing weight loss surgery and their primary caregivers	The U.S.	179	18	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing spectrum, Internalizing-Depression, Externalizing spectrum	Youth	16.6	0	No
Zhang et al. (2019)	Children and young people ages 8–15 removed from their biological family and living in an institution	Japan	457	6	Physical abuse, Sexual abuse, Emotional abuse	Caregiver	Physical neglect, Caregiver psychopathology, Poverty, Other	Caregiver	Internalizing spectrum, Externalizing-Conduct, Externalizing-ADHD	Caregiver	11.7	0	No
Zhang et al. (2022)	Adolescents from three different middle schools with differing education quality and household economic income	China	9071	12	Physical abuse, Sexual abuse, Emotional abuse	Youth	Physical neglect, Emotional neglect	Youth	Internalizing-Depression, Externalizing-Aggression	Youth	14.5	0	Yes
Zhao et al. (2014)	Children ages 7–17 from 3rd to 9th grade in selected schools	China	2917	2	Physical abuse	Youth	Neglect-unspecified	Youth	Internalizing-Anxiety	Caregiver	12.5	0	Yes

Table 2. Results of follow-up analyses examining significant moderators of the association between adversity and internalizing psychopathology

Moderator	Level	*k*	ESs	*r*	95% CI
Adversity dimension	Threat	98	377	.21	.19, .24
	Deprivation	98	221	.19	.17, .22
Other moderators					
Threat indicator: Emotional abuse	Included	74	130	.29	.26, .32
	Not included	76	247	.18	.16, .21
Threat indicator: Emotional neglect	Included	41	74	.25	.21, .28
	Not included	85	147	.16	.13, .19
Deprivation indicator: Other	Included	11	25	.05	−.02, .13
	Not included	87	196	.20	.17, .23
Multiple indicators of adversity	Multiple	14	39	.31	.26, .36
	Single	92	559	.20	.15, .25
Youth self-report of adversity	Included	70	424	.24	.19, .29
	Not included	41	174	.12	.07, .17
Depression	Included	51	232	.23	.21, .26
	Not included	77	366	.19	.16, .21

Note. Some studies provided effect sizes at both levels of categorical moderators.

Table 3. Results of follow-up analyses examining significant moderators of the association between adversity and externalizing psychopathology

Moderator	Level	*k*	ESs	*r*	95% CI
Adversity dimension	Threat	69	239	.22	.19, .25
	Deprivation	69	147	.16	.12, .19
Other moderators					
Threat indicator: Emotional abuse	Included	46	73	.26	.22, .30
	Not included	55	166	.21	.17, .25
Multiple indicators of adversity	Multiple	13	34	.28	.22, .34
	Single	63	352	.18	.15, .22
Youth self-report of adversity	Included	40	214	.24	.20, .27
	Not included	39	172	.14	.10, .18

Note. Some studies provided effect sizes at both levels of categorical moderators.

[.20, .32], $t = 7.92$, $p < .001$, and deprivation and PTSD symptoms, $r = .17$, 95% CI [.10, .23], $t = 4.72$, $p < .001$, were both positive and significant.

Other moderators

Based on a family-wise error rate of .002, the final multilevel model with moderators for PTSD symptoms only included youth self-report of adversity (see Table S6 for results of individual moderator analyses). The overall model was significant, $F(1, 119) = 10.459$, $p = .002$, Estimated effect sizes between adversity and PTSD symptoms were larger for effects that used youth self-report of adversity versus for those that did not use youth self-report. Results of follow-up analyses yielding estimates of effect sizes at each level of significant categorical moderators are summarized in Table 3.

Threat and deprivation

Overall effects ($k = 105$, ESs = 401, $N = 138{,}436$)

The overall correlation between threat and deprivation was positive and significant, $r = .29$, 95% CI [.25, .33], $t = 14.13$, $p < .001$. There was significant heterogeneity within, $\sigma^2 = 0.046$, $\chi^2(2) = 6397.55$, $p < .001$, and between, $\sigma^2 = 0.046$, $\chi^2(2) = 151.33$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. Of the total variance, 1.63% was attributed to within-study sampling variance (i.e., Level 1), 35.16% to within-study variance (i.e., Level 2), and 63.20% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 98.37%.

Moderator analyses

The final multilevel model with moderators for the effect between threat and deprivation included sexual abuse, emotional abuse, community violence, and poverty based on a family-wise error rate of .003 (see Table S8 for results of individual moderator analyses). The overall model was significant, $F(4, 396) = 29.58$, $p < .001$ (see Table S9). Estimated effect sizes of the association between threat and deprivation were larger for effects that included emotional abuse as a threat indicator versus effects that did not include emotional abuse. The estimated effect size was smaller for effects that included sexual abuse and community violence as threat indicators (vs. effects that did not include these indicators) and for effects that included poverty as a deprivation indicator (vs. effects that did not include poverty). See Table 5 for the results of follow-up analyses with estimated effect sizes at each level of the significant moderators.

Publication bias

Egger's test did not indicate concern for publication bias for any of the meta-analytic effects between adversity and psychopathology, Q moderation = 2.547, $p = .110$ for internalizing, Q moderation = 1.365, $p = .243$ for externalizing, Q moderation = 0.002, $p = .966$ for PTSD symptoms, nor for threat-deprivation correlation, Q moderation = 0.552, $p = .457$. See Figure S1 for the funnel plots.

Meta-analyses with partial correlations

The results of meta-analyses using partial correlations, along with the corresponding effects using bivariate correlations, are summarized in Figure 2.

Outcome: Internalizing psychopathology

Threat ($k = 77$, ESs = 276). The overall correlation between threat and internalizing psychopathology using partial correlations (i.e., accounting for the overlap between threat and deprivation) was positive and significant, $r = .19$, 95% CI [.16, .21], $t = 13.46$, $p < .001$. There was significant heterogeneity within, $\sigma^2 = 0.015$, $\chi^2(2) = 1871.61$, $p < .001$, and between, $\sigma^2 = 0.015$, $\chi^2(2) = 51.45$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. Of the total variance, 5.05% was attributed to within-study sampling variance (i.e., Level 1), 44.60% to within-study variance (i.e., Level 2), and 50.36% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 94.95%.

Deprivation ($k = 77$, ESs = 175). The overall correlation between deprivation and internalizing psychopathology using

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Table 4. Results of follow-up analyses examining significant moderators of the association between adversity and PTSD symptoms

Moderator	Level	*k*	ESs	*r*	95% CI
Adversity dimension	Threat	25	81	.26	.20, .32
	Deprivation	25	40	.17	.10, .23
Other moderators					
Youth self-report of adversity	Included	21	94	.25	.19, .31
	Not included	6	27	.12	.03, .21

Note. Some studies provided effect sizes at both levels of categorical moderators.

Table 5. Results of follow-up analyses examining significant moderators of the association between threat and deprivation

Moderator	Level	*k*	ESs	*r*	95% CI
Sexual abuse	Included	80	148	.23	.18, .28
	Not included	103	348	.31	.27, .35
Emotional abuse	Included	93	155	.37	.33, .41
	Not included	104	341	.24	.21, .28
Community violence	Included	38	66	.22	.16, .27
	Not included	103	430	.31	.27, .34
Poverty	Included	21	44	.30	.27, .34
	Not included	109	452	.18	.11, .25

partial correlations was positive and significant, $r = .12$, 95% CI [.09, .15], $t = 7.85$, $p < .001$. There was significant heterogeneity within, $\sigma^2 = 0.017$, $\chi^2(2) = 1062.23$, $p < .001$, and between, $\sigma^2 = 0.015$, $\chi^2(2) = 32.71$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. Of the total variance, 5.00% was attributed to within-study sampling variance (i.e., Level 1), 39.12% to within-study variance (i.e., Level 2), and 55.89% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 95.00%.

Outcome: Externalizing psychopathology

Threat ($k = 56$, ESs = 183). The overall correlation between threat and externalizing psychopathology using partial correlations was positive and significant, $r = .21$, 95% CI [.15, .26], $t = 7.49$, $p < .001$. There was significant heterogeneity within, $\sigma^2 = 0.020$, $\chi^2(2) = 451.38$, $p < .001$, and between, $\sigma^2 = 0.043$, $\chi^2(2) = 70.14$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. Of the total variance, 2.66% was attributed to within-study sampling variance (i.e., Level 1), 11.00% to within-study variance (i.e., Level 2), and 86.34% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 97.34%.

Deprivation ($k = 56$, ESs = 115). The overall correlation between deprivation and externalizing psychopathology using partial correlations was positive and significant, $r = .08$, 95% CI [.03, .12], $t = 3.26$, $p = .001$. There was significant heterogeneity within, $\sigma^2 = 0.019$, $\chi^2(2) = 253.37$, $p < .001$, and between, $\sigma^2 = 0.029$, $\chi^2(2) = 47.80$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. Of the total variance, 3.04% was attributed to within-study sampling variance (i.e., Level 1), 7.93% to within-study variance (i.e., Level 2), and 89.03% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 96.96%.

Outcome: PTSD symptoms

Threat ($k = 24$, ESs = 80). The overall correlation between threat and PTSD symptoms using partial correlations was positive and significant, $r = .23$, 95% CI [.18, .28], $t = 13.46$, $p < .001$. There was significant heterogeneity within, $\sigma^2 = 0.013$, $\chi^2(2) = 212.00$, $p < .001$, and between, $\sigma^2 = 0.015$, $\chi^2(2) = 11.97$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. Of the total variance, 8.14% was attributed to within-study sampling variance (i.e., Level 1), 38.92% to within-study variance (i.e., Level 2), and 52.94% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 91.86%.

Deprivation ($k = 24$, ESs = 39). The overall correlation between threat and PTSD symptoms using partial correlations was positive and significant, $r = .08$, 95% CI [.03, .12], $t = 3.17$, $p = .003$. There was significant heterogeneity within, $\sigma^2 = 0.011$, $\chi^2(2) = 48.36$, $p < .001$, and between, $\sigma^2 = 0.010$, $\chi^2(2) = 15.67$, $p < .001$, studies, as indicated by one-sided log-likelihood ratio tests. Of the total variance, 6.55% was attributed to within-study sampling variance (i.e., Level 1), 14.07% to within-study variance (i.e., Level 2), and 64.70% to between-study variance (i.e., Level 3). The overall proportion of variability in effect sizes attributed to differences between and within studies and not due to sampling error was 78.77%.

Discussion

The primary aims of our meta-analysis were to (1) synthesize the direct associations between childhood adversity and youth psychopathology, (2) test whether adversity dimension moderates this association, and (3) examine the magnitude of overall effects when accounting for the overlap between threat and deprivation (i.e., using partial correlations). We additionally examined effect size- and study-level moderators. When considering childhood adversity across both dimensions of threat and deprivation, we found significant overall effects between exposure to adversity and internalizing, externalizing, and PTSD symptoms during childhood and adolescence ($r = .21$, .20, and .23, respectively). Adversity dimension moderated each of these effects, such that the effects between threat and psychopathology ($r = .21$, .22, and .26 for internalizing, externalizing, and PTSD symptoms, respectively) were consistently larger than the corresponding effects between deprivation and each psychopathology outcome ($r = .19$, .16, and .17, respectively). These differences appear to be consistent with findings from studies comparing the direct effects of threat and deprivation and psychopathology during childhood and adolescence (Miller et al., 2018, 2021). Simultaneously, partly inconsistent with these studies, our results indicated that both dimensions were significantly associated with youth psychopathology despite the significant moderation effect of adversity dimension. These findings can be understood within the DMAP framework as support for differential effects of threat and deprivation on developmental outcomes, and specifically, the purported direct effects of threat on socioemotional outcomes. Specifically, repeated exposure to

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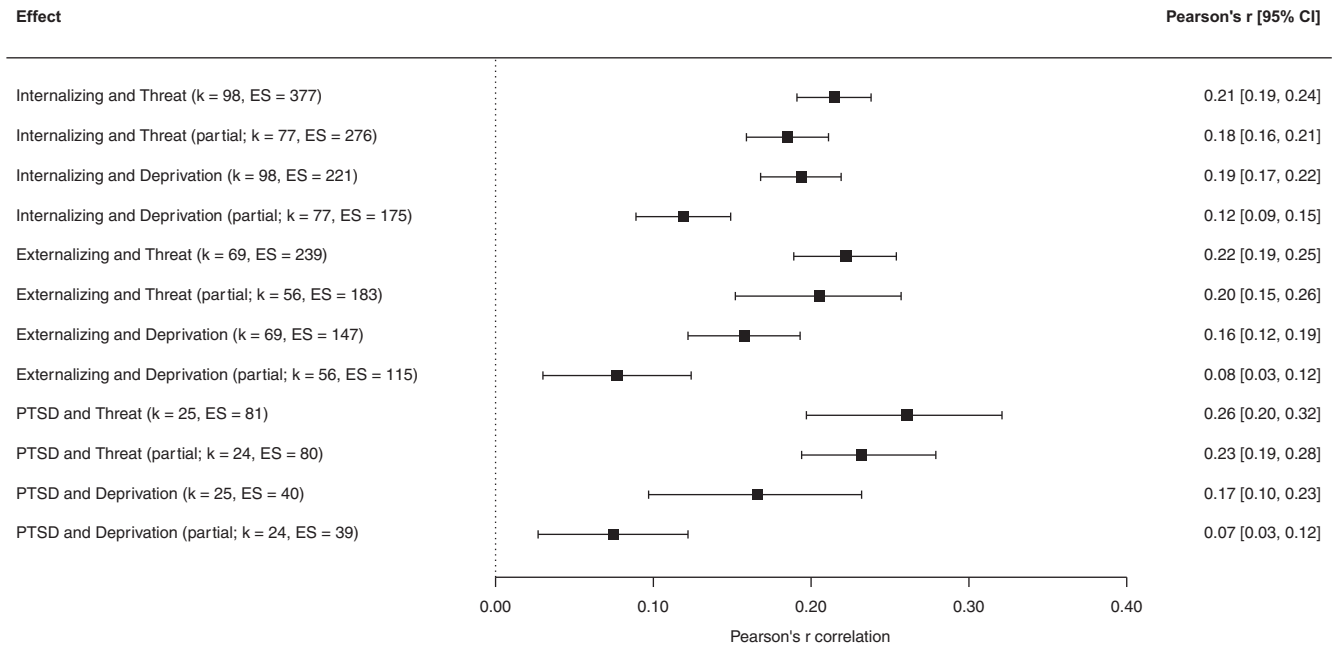

Figure 2. Summary forest plot of multilevel meta-analytic effects between adversity dimensions and youth psychopathology using bivariate and partial correlations. *Note.* k = number of studies, ES = number of effect sizes. Partial correlations account for the correlation between threat and deprivation.

threatening experiences may lead to neurodevelopmental alterations reflecting overresponsiveness to threat, directly affecting emotional reactivity and regulation. Such alterations reflect adaptive responses to dangerous environmental conditions but may become maladaptive in safer contexts, ultimately leading to increased risk for psychopathology.

Threat and deprivation often co-occur, making it important to assess both dimensions of adversity when examining their downstream effects. When synthesizing effects using partial correlations, which allowed us to account for the overlap between threat and deprivation, the meta-analytic effects between threat and psychopathology (r = .18, .20, and .23 for internalizing, externalizing, and PTSD symptoms, respectively), and deprivation and psychopathology (r = .12, .08, and .07), were each attenuated though remained positive and significant. Interestingly, though not directly tested, the degree of attenuation appeared larger for deprivation than for threat. For internalizing psychopathology specifically, the 95% confidence intervals for the pooled estimate with deprivation using bivariate correlations and the pooled effect using partial correlations did not overlap, suggesting that these estimates may significantly differ from one another. The same pattern of attenuation was present for externalizing and PTSD symptoms; although these estimates had overlapping confidence intervals with the corresponding effects using bivariate correlations, they were attenuated by half or more of the original estimated effect. In contrast, the attenuation observed was consistently smaller in magnitude for threat, with confidence intervals overlapping between pooled estimates for bivariate and partial correlations across the three outcomes.

These findings from meta-analyses conducted with partial correlations highlight the strong possibility that researchers could *over*estimate the association between experiences reflecting deprivation and youth psychopathology when they do not account for co-occurring experiences of threat. Thus, researchers should exercise caution when interpreting such effects and attempt to assess experiences consistent with both dimensions of adversity whenever possible. This recommendation is particularly important when the goal is to parse the potential differential effects of adversity dimensions on developmental outcomes, including emotional and behavioral outcomes. The tendency for effect overestimation appears to be less problematic for threat and youth psychopathology, perhaps because of the purported direct impact of threat on emotion processing and therefore on mental health. The links between early life threat-related adversity and socioemotional development also serve to explain the finding that the effects between threat and each youth psychopathology outcome were larger than those between deprivation and psychopathology.

Moderator analyses

Across all pooled estimates, we found significant heterogeneity within and between studies that were not explained by random sampling error. Tests of study- and sample-level moderators yielded important insights. Among the threat indicators, only *emotional abuse* emerged as a significant moderator between threat and both internalizing and externalizing problems, such that the studies that included emotional abuse in the measurement of threat had larger estimated effects between adversity and psychopathology than studies that did not include emotional abuse. Among deprivation indicators, inclusion of *emotional neglect* in the measurement of deprivation was similarly a significant moderator of the association between deprivation and internalizing symptoms only, with inclusion of emotional neglect again associated with larger effects compared to when it was not included. The inclusion of emotional abuse or emotional neglect were not significant moderators of the association between threat and deprivation, respectively, with PTSD symptoms. However, we note that given the relatively small number of studies examining PTSD symptoms and the smaller effect observed between deprivation and PTSD symptoms, it is possible that we were underpowered to detect a similar moderating roles of emotional abuse or emotional neglect for PTSD symptoms. Nonetheless, the results demonstrated the

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importance of including these two specific types of adversity when measuring experiences along the dimensions of threat and deprivation. Emotional maltreatment may be present across multiple types of adversity (e.g., other types of maltreatment), and thus be more robustly associated with youth mental health outcomes. It is also possible that the emotional (versus physical) nature of these adversities more directly impacts youth socio-emotional development, predisposing them to emotional pathology. This finding is also consistent with recent studies highlighting the relative importance of emotional maltreatment in predicting youth mental health outcomes (e.g., Schlensog-Schuster et al., 2022). Additionally, the use of miscellaneous indicators of deprivation (e.g., low parental education, single-parent household, forced displacement) resulted in the attenuation of the estimated effect between adversity and internalizing, but not externalizing or PTSD, symptoms. These results underscore the importance of including indicators that map directly onto material, cognitive, or emotional deprivation when assessing this dimension of adversity, rather than proxies of deprivation or adversities that may be linked with a general risk for adversity broadly or be more consistent with unpredictability, a recently proposed third dimension of adversity (Usacheva et al., 2022).

Regarding adversity measurement, the use of *youth self-report* was consistently associated with larger estimated effects between adversity and internalizing, externalizing, and PTSD symptoms, whereas the use of multiple indicators (versus single) of adversity was associated with larger estimated effects for internalizing, but not externalizing or PTSD symptoms. These results are similar to meta-analytic findings on youth psychopathology assessment, which have found larger effects for youth self-report when compared to parent- or teacher-report (Huang, 2017). Importantly, our results do not support excluding other sources of information given that we coded youth-, caregiver-, and records review as separate variables (i.e., the inclusion of self-report did not preclude the inclusion of other informants). Rather, they suggest that youth should be considered key informants of their own adverse experiences and their perspectives directly assessed in studies when measuring adversity dimensions. Indeed, recent studies have drawn attention to the importance of individuals' own perceptions of stressful or adverse experiences, with implications for downstream effects on mental health. The results additionally underscore the importance of including multiple types of experiences within each dimension and further characterizing the variability within these experiences (e.g., severity, frequency), which is consistent with DMAP (see Berman et al., 2022).

Regarding psychopathology assessment variables, the effect between adversity and internalizing psychopathology was larger when depression was the outcome assessed, compared to when the outcome was internalizing spectrum, anxiety, or somatic symptoms. This suggests the possibility of a specific vulnerability to depression that is associated with childhood adversity, which appears consistent with the evidence of shared putative biomarkers between depression and adversity (Ho & King, 2021). No variables pertaining to psychopathology assessment were significant moderators of the association between adversity and externalizing or PTSD symptoms.

Moderator analyses for the pooled correlation between threat and deprivation, which was positive and significant, $r = .29$, indicated that the inclusion of emotional abuse as a threat indicator again strengthened the association between threat and deprivation compared to when emotional abuse was not included. In contrast, the inclusion of sexual abuse and community violence as indicators of threat was each associated with smaller estimated effects than when they were not included. Finally, the inclusion of poverty as a deprivation indicator was linked with smaller estimated effect between threat and deprivation, which may be due to poverty being associated with both dimensions of adversity.

Study strengths and limitations

The current meta-analysis was well-powered, allowing the inclusion of a large number of effect sizes across many studies, particularly for internalizing and externalizing psychopathology. Using a multilevel meta-analytic approach allowed us to examine multiple effect sizes within the same study, and analyses of publication bias demonstrated minimal concern for the impact of such bias on our findings. Additionally, the studies included in our meta-analysis reflected a diverse number of contexts (30 countries), with nearly half (45%) of the included studies conducted outside of North America. Thus, the results obtained are expected to be generalizable to a broad range of developmental contexts.

We also note several limitations of our study. First, the meta-analytic effects estimated here do not represent causal links between adversity and youth psychopathology due to the cross-sectional design of many included studies. More studies employing prospective and quasi-experimental designs are needed to accurately estimate the potential causal effects between threat, deprivation, and psychopathology (e.g., Baldwin et al., 2023). Second, it is possible that the exclusion of eligible studies with insufficient data biased our results, given that null associations may have been more likely in these studies. Third, perhaps because we took a conservative approach to evaluating the significance of individual moderators by employing a family-wise error rate, significant heterogeneity remained for all pooled estimates even after accounting for effects of moderators (see Results S1–S4). Thus, variability across studies not captured in the variables examined as moderators here should be considered when interpreting the relevance of the meta-analytic findings and explored further in future studies. Finally, the number of studies examining links between adversity and youth PTSD symptoms was the lowest among our three psychopathology outcomes. This is worth noting because PTSD symptoms capture unique trauma-specific symptomatology that frequently present and co-occur with other internalizing and externalizing problems in youth with chronic histories of adversity (Grasso et al., 2016). Prior research has demonstrated specific links between experiences of threat and later PTSD symptoms (Milojevich et al., 2019). Future studies conducted with youth who have experienced adversity should assess PTSD symptoms, along with internalizing and externalizing problems to better understand the links between adversity dimensions and trauma-specific symptoms.

Implications for research, practice, and policy

Our findings are consistent with DMAP and extend prior empirical studies providing support for threat and deprivation as two key dimensions of childhood adversity. Findings suggest differing magnitudes of associations between threat and deprivation with youth psychopathology across internalizing, externalizing, and PTSD symptoms, such that threat appears more strongly associated with psychopathology outcomes, highlighting important considerations for future research. First, we note the crucial importance of assessing *co-occurring* threat and deprivation to ensure accurate estimation of the links between each dimension and youth psychopathology. Second, researchers must attend to

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the role of emotional forms of adversity, such as emotional abuse and neglect, as a transdiagnostic risk factor for youth psychopathology. This is consistent with Baldwin et al.'s (2023) recent meta-analysis of quasi-experimental studies, which showed that emotional abuse resulted in stronger estimates of effects between childhood maltreatment and mental health outcomes relative to other forms of maltreatment, suggesting a potential causal effect. Given that threat is proposed to directly impact neurobiological pathways relevant to emotional processing, emotional abuse may be a particularly influential form of threat implicated in the development of mental health symptoms among youth, whereas emotional neglect may be a form of deprivation linked more strongly with internalizing symptoms when compared to other forms of deprivation (e.g., cognitive, material). Third, adversities based on racial ethnic minority status and other marginalized identities (e.g., racial trauma, discrimination, lack of access to healthcare) should be directly measured and studied in relation to youth mental health outcomes in future studies. Fourth, clearly defining the boundary conditions of deprivation appears to be an important direction for future research, given that less well-defined and/or widely accepted indicators of deprivation (e.g., study-specific indicators) resulted in the *attenuation* of the effect between deprivation and some forms of psychopathology in our meta-analysis. Future research should strive to clarify whether these forms of adversity are more consistent with other dimensions of adversity such as unpredictability and/or serve as a risk factor for adversities across all dimensions. Finally, when assessing adversity, researchers should employ measures that rely on continuous rather than dichotomous (i.e., absence or presence of an experience) characterization of adverse experiences, use multiple indicators to assess adversity dimensions and incorporate youth self-report whenever feasible.

For clinical practice, our findings suggest that in addition to the developmental pathways by which childhood adversity indirectly affects youth mental health trajectories, adversity across dimensions of threat and deprivation may be *directly* and *broadly* linked with youth mental health symptoms. Given the high prevalence of childhood adversity, a comprehensive and validated assessment of these experiences in treatment settings could facilitate accurate conceptualization of the mental health difficulties of individual youth, with implications for delivering effective treatment and improving trajectories of mental health functioning. Histories of threatening experiences, when accompanied by trauma-specific symptoms, are particularly likely to warrant and benefit from emotional processing via evidence-based therapies such as Trauma-Focused Cognitive Behavioral Therapy (Cohen et al., 2017). Despite the documented effectiveness of such therapies, disparities in both rates of adversity exposures and access to mental health treatments persist for marginalized populations such as youth of color in the U.S. and families living in poverty globally. To this end, policies that fund and support wider dissemination of well-established trauma-specific therapies and adaptation of such treatments for specific communities are needed to improve the mental health problems of youth who chronically experience such adversities. Support of such policies, in turn, has the potential to address longstanding inequities in mental health.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0954579424000737.

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