

A systematic review of positive childhood experiences and adult outcomes: Promotive and protective processes for resilience in the context of childhood adversity

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Abstract

Background: Research on positive childhood experiences (PCEs) as counterparts to childhood adversity has surged in the last five years. A systematic review of the additive and interactive effects of childhood adversity and PCEs across adult outcomes is needed that contextualizes the long-term correlates of childhood experiences within a developmental perspective. **Objective:** The current review synthesizes the empirical evidence for PCEs as resilience factors for a range of adult outcomes. **Methods:** Articles published until May 2023 were systematically identified according to PRISMA Guidelines through PubMed and PsycINFO databases and references of included articles. Then, 131 records were screened, and 58 studies were included. **Results:** Higher levels of PCEs were significantly but modestly associated with lower levels of childhood adversity. Higher levels of PCEs were associated with outcomes reflecting mental health, psychosocial functioning, physical health and health behaviors, and psychosocial stress. Most studies found direct, promotive effects of PCEs for more favorable outcomes. Few studies found significant interaction effects between childhood adversity and PCEs on outcomes, suggesting that PCEs may more frequently directly promote positive outcomes rather than moderate the effects of adversity on outcomes. **Conclusions:** Individuals' childhood adversity and PCEs are somewhat independent sets of experiences; many individuals experience both, and the presence of one does not preclude the other. PCEs predict more favorable outcomes independent of childhood adversity more often than they interact with and moderate the effects of adversity on outcomes. Although the literature base is steadily growing, more research on PCEs in diverse and international samples is needed.

Keywords: Positive childhood experiences, benevolent childhood experiences, resilience, childhood adversity, adverse childhood experiences, intergenerational transmission

Introduction

Childhood experiences, both positive and negative, provide the foundation for development across the lifespan (Cicchetti & Toth, 2009; Masten, 2006). Since Felitti and colleagues' (1998) seminal study on adverse childhood experiences (ACEs), more than two decades of research have documented the negative effects of childhood adversity on health and psychosocial outcomes in adulthood and across generations (Folger et al., 2018; Hughes et al., 2017; Kalmakis & Chandler, 2015; Sun et al., 2017). As a result, public health and policy endeavors have largely focused on preventing and mitigating the detrimental effects of childhood adversity [e.g., Centers for Disease Control and Prevention (CDC), 2019; Center for the Study of Social Policy, 2020]. In recent years, a growing body of research has also begun to examine the associations of positive childhood experiences (PCEs) with adaptive and maladaptive outcomes in adults (Bethell et al., 2019; Morris et al., 2021; Narayan et al., 2018). Over the past five years alone, dozens of studies have now examined the dual effects of ACEs and PCEs in predicting adulthood health outcomes. Thus, a systematic review that synthesizes these findings is needed.

Individual and Cumulative PCEs

Children's assets and resources promote competent development and buffer children against the negative consequences of adversity. These assets exist across multiple levels of analysis and are often referred to as the "short list" of resilience factors (Masten, 2001; Wright et al., 2013). For example, extensive research has emphasized the role of stable and supportive home environments, including positive family relationships (e.g., healthy parent-child attachment, positive parenting practices) and predictable routines; positive relationships at school, including favorable relationships with peers, teachers, and other mentors; and positive experiences in the community (e.g., good relationships with neighbors), in addition to positive

internal assets (positive core beliefs and self-esteem). These positive relationships and experiences rarely occur in isolation and instead, tend to accumulate across multiple levels of ecology with cumulative benefits on positive adjustment and adaptation (Evans et al., 2013; Masten et al., 2021; Narayan et al., 2021). Accordingly, many investigators have drawn on concepts from the “short list” of resilience factors to develop instruments that measure cumulative PCEs (Ungar & Liebenberg, 2011; Morris et al., 2018; Narayan et al., 2018). This review aligns with the resilience literature and synthesizes how dimensions and measurement of PCEs associate with more favorable adult outcomes.

The Growth and Current State of PCEs Research

While early studies on PCEs and adult outcomes began over a decade ago (Chung et al., 2008; Skodol et al., 2007), research on this topic has rapidly grown over the last five years. This movement was largely propelled by the development and validation of the Benevolent Childhood Experiences (BCEs) scale (Narayan et al., 2018), which is used globally, and an influential paper showing the association of PCEs with current psychosocial functioning above and beyond the effects of ACEs in a large state-wide adult sample (Bethell et al., 2019). Higher PCEs, a set of seven items adapted from the 28-item Child and Youth Resilience Measure (CYRM-28; Ungar & Liebenberg, 2011), predicted better adult mental and relational health, even in individuals with four or more ACEs and after controlling for adults’ current social support (Bethell et al., 2019).

Like the ACEs scale (Felitti et al., 1998), the BCEs scale assesses the extent to which adults had specific experiences from birth to age 18 (Narayan et al., 2018). Importantly, the BCEs scale is intended to assess adults’ retrospective reports of favorable childhood experiences (including resources and relationships), which is an important distinction from other well-validated measures that assess positive experiences for current children via parent-report or child

self-reports (e.g., CYRM; Ungar & Liebenberg, 2011). The initial psychometric study of the BCEs scale found that higher levels of BCEs predicted lower levels of PTSD symptoms and fewer stressful life events in pregnant women after accounting for women's ACEs, and began to offset the effects of ACEs on negative outcomes even when ACEs were high (Narayan et al., 2018). Research conducted in the United States and internationally has shown that BCEs predict a variety of adult outcomes (e.g., Almeida et al., 2021; Crandall et al., 2019; Doom et al., 2021; Gunay Oge et al., 2020b). The Protective and Compensatory Experiences (PACES) scale (Morris et al., 2018) and the PCEs index with seven items adapted from the CYRM (Bethell et al., 2019) are also retrospective instruments about childhood resources that have advanced PCEs research in adults (e.g., Crandall et al., 2021; Morris et al., 2021; Yu et al., 2022).

Examples of adult outcomes linked to earlier PCEs include indicators of mental and physical health (Bethell et al., 2019; Narayan et al., 2018; Slopen et al., 2017), health behaviors such as sleep health and quality (Geng et al., 2021a; Nevarez-Brewster et al., 2022), psychosocial functioning (Crandall et al., 2019, 2020, 2021), and perceived stress (Doom et al., 2021; Merrick et al., 2019). Accumulating evidence on PCEs indicates that it may be an equally important childhood construct to childhood adversity in predicting long-term health and wellbeing, echoing long-standing findings that both favorable and adverse experiences during childhood have enduring and formative effects (Narayan et al., 2021; Masten 2006; Wright et al., 2013). This dual emphasis on capturing how negative and positive childhood experiences coexist and operate in the context of one another has encouraged many researchers to consider accounting for both PCEs and ACEs in studies of lifespan health (Narayan et al., 2021).

As evidence for PCEs grows, there is a need to understand the breadth and implications of this research. There has yet to be a systematic examination of the most common correlates of

PCEs, both before and after accounting for childhood adversity. Furthermore, greater clarity is needed in regard to resilience processes, including the promotive versus protective functions by which PCEs relate to more adaptive outcomes, particularly within the context of childhood adversity. While some researchers have conceptualized PCEs as a promotive factor that directly predicts better outcomes independent of the effects of adversity (Bethell et al., 2019; Narayan et al., 2018), others have provided preliminary evidence for protective effects of PCEs such that the influence of childhood adversity on outcomes is weakened in the context of higher PCEs (Morris et al., 2021). Therefore, this review provides a synthesis of extant research on PCEs and adult outcomes and identifies how PCEs may operate in the context of childhood adversity.

Theoretical Frameworks

This review draws upon the developmental psychopathology (DP) perspective, a multidisciplinary framework for understanding normative and non-normative development across the lifespan that has informed current understanding of risk and resilience pathways (Cicchetti & Toth, 2009; Masten, 2006; Masten et al., 2021). Central to this review, the developmental and lifespan principles of DP emphasize the enduring impact of both early life and cumulative experiences on subsequent development (Cicchetti & Toth, 2009). While the DP literature often focuses on the detrimental effects of cumulative risk, cumulative resource models often also lead to positive outcomes (Evans et al., 2013; Masten et al., 2021; Narayan, 2015).

The systems principle of DP posits that development is shaped by dynamic interactions among individuals and the many systems in which they are embedded (Masten, 2006; Masten et al., 2021). In line with this multisystem perspective, resilience is often defined as the capacity of a dynamic system, rather than an individual state or trait, to successfully adapt to significant risks or threats to healthy adaptation (Masten et al., 2021). Measurement efforts to identify PCEs, such

as the BCEs and PACEs instruments, have aligned with DP to include multisystem positive childhood experiences (e.g., those within the family, as well as with peers, teachers, neighbors, and the broader community; Morris et al., 2018; Narayan et al., 2018, in press). Items on the BCEs and PACEs scales reflect the collective influence of factors that often work in concert with one another within a developing child's ecology to promote competence and resilience (Wright et al., 2013). This review similarly examined composite, multisystem measures of PCEs.

Finally, the DP perspective also emphasizes that resilience processes, such as promotive versus protective factors, underlie children's positive adaptation in contexts of heightened threat (Masten, 2006; Narayan et al., 2021). Promotive factors are directly associated with more favorable outcomes (e.g., lower depressive symptoms, higher life satisfaction) regardless of risk levels and are believed to be assets or strengths that would universally help most children thrive (Masten et al., 2021; Narayan, 2015; Wright et al., 2013). In contrast, protective factors operate by directly reducing or buffering against the negative effects of adversity and are therefore particularly beneficial within high-risk contexts. Statistically, promotive factors are most clearly evident by direct, main effects, while protective factors are commonly measured via interaction effects whereby a positive factor moderates the effects of a risk factor for better outcomes (Masten et al., 2021; Narayan, 2015). Some factors, such as warm and supportive parenting, may be promotive factors for most children regardless of risk, but may become protective factors and buffer children against negative outcomes in adverse contexts (Masten, 2001; Narayan, 2015; Narayan et al., 2021). This review distinguished between promotive and protective effects of PCEs to inform how PCEs operate in various ways for better adult outcomes.

The Current Review

The purpose of this review was to systematically review and synthesize associations between PCEs and adult outcomes. The first aim was to identify the different types of adult outcomes (e.g., mental health, physical health, other psychosocial outcomes) that have been studied with PCEs. The second aim was to examine the extent to which PCEs and childhood adversity are independent experiences by examining their associations with one another. Based on previous research showing only modest associations between BCEs and ACEs (e.g., Merrick et al., 2019; Narayan et al., 2018), we hypothesized that PCEs would only be modestly associated with childhood adversity across studies, reflecting partial independence. The third aim was to understand the processes by which PCEs were associated with adult outcomes in the context of childhood adversity, by examining whether PCEs showed main (promotive) effects on outcomes versus interactive (protective) effects with adversity for outcomes. We hypothesized that there would be evidence for both promotive and protective effects of PCEs.

Method

Search Strategy

The protocol for this review was pre-registered with PROSPERO and is available at: https://www.crd.york.ac.uk/prospERO/display_record.php?ID=CRD42022332591. This review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021; See Figure 1). The first search was conducted in May 2022 on PubMed and PsycINFO databases using the following keywords: "positive childhood experiences" OR "benevolent childhood experiences" OR "counter-ACEs" OR "advantageous childhood experiences" OR "protective and compensatory experiences." These search terms were based on terminology in papers known to the authors and terms identified through citations from those papers. In August 2022, reference lists of included papers

were scanned, resulting in three additional studies, and a second search using the same keywords was conducted to identify any recently published studies. In December 2022, four studies were identified from Google Scholar alerts and three studies were identified via author collaborations. During the revision stage of this paper (May 2023), one final database search was conducted and one paper was identified via author collaborations, resulting in 12 additional included studies.

Eligibility Criteria

Included studies were: 1) peer-reviewed articles and dissertations that reported findings from 2) empirical studies with humans, 3) written in English, and 4) those that measured and examined the influence of PCEs (two or more experiences) during childhood (0-18 years) on at least one outcome in adulthood (18+ years). Studies were excluded if they: 1) did not analyze data (e.g., chapters, review papers), 2) only focused on one type of positive childhood experience (e.g. secure attachment, solely measuring dyadic relationships with caregivers), 3) assessed concurrent positive experiences in children or offspring, rather than in adults, with no assessment of adult outcomes, or 4) examined the concurrent influence of PCEs on outcomes in childhood.

Review Strategy

All studies were imported into Covidence (2022) systematic review software for screening and data extraction. After removing duplicates, two independent reviewers screened the abstracts of 131 records and reviewed the full text of the 73 studies that remained after the screening phase. Inter-rater reliability was 94.7% and 94.5% for abstracts and full-text review, respectively, and disagreements were resolved through reviewer discussion. One of the senior authors also reviewed 23.3% ($n = 17$) of the articles included after the full-text review for quality check. During the abstract screening stage ($n = 131$), the main reason for exclusion was that the record was not an empirical study ($n = 28$). Additionally, 21 studies were excluded because they

examined associations between concurrent PCEs and child outcomes, six studies did not assess associations between PCEs and any outcomes (e.g., they only measured prevalence of PCEs), and three studies focused only on one type of PCE. During the full-text stage ($n = 73$), one study was excluded because they examined associations between concurrent PCEs and child outcomes, two studies did not assess associations between PCEs and any outcomes, 11 studies focused only on one type of PCE, and one study included PCEs in a composite score so PCEs could not be isolated from other variables. The remaining 58 studies (53 peer-reviewed publications and 5 dissertations) were included in the final review. One dissertation (Abbott, 2021) included three separate studies, but we count this as one study and report findings from these studies together. The reviewers who screened studies extracted all relevant information from included studies, and disagreements were resolved through discussion with input from senior authors as needed.

Results

Results from the 58 studies include study and sample characteristics, measures of PCEs and childhood adversity, type of outcome, correlations between PCEs and childhood adversity measures, and associations between PCEs and outcomes, including information on main and/or interaction effects of PCEs with childhood adversity for outcomes.

Descriptive Information

Study characteristics. While the earliest study dated back to 2004, the majority of studies ($n = 54$) were published or became available between 2017 and 2023, highlighting recent growth in research on PCEs and adult outcomes. More than half of the studies were conducted in the United States only ($n = 34$), 22 studies were conducted in other countries, most commonly in China ($n = 10$) and Turkey ($n = 3$), and two studies used samples from a large, multi-national study (i.e., United States, United Kingdom, Canada, and Australia). Almost all studies were

classified as cross-sectional (i.e., assessed retrospective PCEs and contemporaneous outcomes at the same timepoint). Only three longitudinal studies measured PCEs prospectively during childhood and outcomes during adulthood.

Sample characteristics. Sample sizes of included studies ranged from $n = 43$ to 9,468 participants ($M = 1,467$; $SD = 2,390$). Participant characteristics across studies included college or university students ($n = 11$), community samples of parents or other primary caregivers ($n = 9$), and community samples of pregnant people ($n = 4$). There were also studies specific to low-income pregnant people ($n = 4$), homeless parents ($n = 2$), low-income adults ($n = 2$), and psychiatric patients ($n = 2$). Almost all study samples were restricted to individuals 18 years and older except two studies that included pregnant individuals as young as 14 to 16 years (Chung et al., 2008; Anderson, 2021) and another study that included college or university students as young as 17 years (Hou et al., 2022). Three studies also examined parent-reported outcomes of children in the next generation (Reese et al., 2022; Johnson et al., 2022; Zhu et al., 2023).

PCEs measures. Most studies ($n = 39$; 67.2%) measured PCEs via the BCEs scale (Original and Revised versions, Narayan et al., 2018, in press), whereas 19 studies used other measures of PCEs. Nine of these studies used other established questionnaires, including the PACEs scale (Morris et al., 2018; $n = 3$), the safety and competence domains from the Traumatic Antecedents Questionnaire (TAQ; Van der Kolk et al., 1995; $n = 2$), Resilience Questionnaire (Rains & McClinn, 2013; $n = 1$), Positive Childhood Experiences scale (Dogan & Aydin, 2020; $n = 1$), Childhood Experiences Questionnaire-Revised (CEQ-R; Zannarini et al., 1989; $n = 1$), and the Childhood Caregiving Environment Scale (Abbott & Slack, 2021; $n = 1$). After Bethell et al. (2019) published a set of seven items adapted from the CYRM (Ungar & Liebenberg, 2011), seven additional studies used either the entirety or parts of this set of seven items, including five

studies that combined items from this index with BCEs or self-constructed items. Five studies constructed their own measures of PCEs based on their survey items.

Childhood adversity measures. Most studies ($n = 50$; 86.2%) measured childhood adversity in addition to PCEs. Thirty-five studies used a version of the ACEs scale (Felitti et al., 1998; Schmidt et al., 2019). Nine studies used other questionnaires, including the Childhood Trauma Questionnaire (Bernstein et al., 2003; $n = 6$), the TAQ ($n = 2$), and the CEQ-R ($n = 1$). Six studies constructed their own measures of childhood adversity based on their survey items.

Outcomes. Mental health problems were the most common outcome ($n = 34$; Table 1), followed by psychosocial functioning ($n = 28$; Supplemental Table A) and psychosocial stress ($n = 12$; Supplemental Table A), and physical health outcomes and behaviors ($n = 16$; Supplemental Table B). Studies measured an array of mental health outcomes, including depression or depressive symptoms ($n = 26$), anxiety or anxiety symptoms ($n = 10$), posttraumatic stress disorder (PTSD) symptoms ($n = 9$), suicidal ideation or attempts ($n = 5$), and other psychiatric symptoms or disorders ($n = 6$). Physical health and health behaviors included substance use ($n = 11$), physical activity ($n = 4$), sleep ($n = 3$), risky sexual behaviors ($n = 3$), consumption of fruits and vegetables ($n = 2$), and the presence of chronic health conditions ($n = 2$). Other physical health indicators included body mass index (BMI), obesity, and cardiovascular health.

For this review, “psychosocial functioning” refers to non-clinical psychological factors (e.g., self-esteem, gratitude) and external resources (e.g., social support, family health) that influence individuals’ well-being and ability to function within their social environments. The psychosocial functioning domain included family-related outcomes ($n = 5$), social support ($n = 3$), life satisfaction or meaning ($n = 3$), and shame ($n = 3$), as well as well-being indicators that only occurred once, such as self-esteem, loneliness, and gratitude, among others. “Psychosocial

stress” refers to experiences of mental or emotional distress that may stem from either internal perceptions (e.g., perceived stress) or environmental factors (e.g., job loss). Psychosocial stress was most commonly measured via general perceived or psychological distress ($n = 9$). In addition, three studies measured “uncertainty stress,” which is stress caused by being unsure about someone or something (future or current). One study measured stress specific to parenting.

Three additional outcome domains were identified during the review process because they appeared in multiple studies: stressful life events ($n = 6$), parenting-related outcomes ($n = 8$), and executive functioning skills ($n = 4$; Supplemental Table C). The life events domain included traumatic events, prenatal stressful events, intimate partner violence, and adverse family experiences. Parenting-related outcomes included self-reported parental reflective functioning, beliefs and attitudes about parenting, aggression and neglect toward the child, confidence and self-efficacy, role satisfaction, disintegrative responses (emotional arousal), and parenting quality. One dissertation study also examined parenting behaviors through observational measures of parent-child interactions (Huffer, 2018). Finally, Hawk (2022) examined grade point average as an outcome, which did not fit into any other categories.

Correlations Between PCEs and Childhood Adversity

Of the 50 studies that measured childhood adversity in addition to PCEs, 26 studies examined correlations between total PCEs and cumulative childhood adversity measures. All correlation coefficients were statistically significant in the negative direction and small to moderate in strength, ranging from $r = -.26$ to $r = -.62$.

Main Effects of PCEs Only (Promotive Effects)

Fifteen studies investigated main effects of PCEs with adult outcomes, without including measures of childhood adversity in the same model. Findings from these studies are reported

below by outcome domain and reflect statistically significant results after accounting for all covariates. Results regarding mental health outcomes are reported in Table 1, and results regarding all other outcomes are reported in Supplemental Tables A-C. In these studies, higher PCEs predicted better mental health, reflected primarily by lower depressive symptoms (Zhang et al., 2021), including during pregnancy and the postpartum period (Cárdenas et al., 2022), as well as lower odds of major depressive disorder (Slopen et al., 2017). Higher PCEs were also associated with lower odds of being diagnosed with personality disorders (Saleptsi et al., 2004) and lower severity of psychiatric symptoms (Gunay Oge et al., 2020a). In terms of physical health and health behaviors, higher levels of PCEs predicted better cardiovascular health (Slopen et al., 2017) and more physical exercise (Kosterman et al., 2011). Graupensperger et al. (2022) found that higher levels of PCEs predicted less cigarette use and higher likelihood of any drinking in the past month. However, among those who consumed alcohol, higher levels of PCEs predicted lower quantities of alcohol use and less risky drinking patterns. Higher levels of PCEs predicted more positive psychosocial functioning, including higher self-esteem and psychological resilience (Kocatürk & Çiçek, 2021), prosocial behaviors (Kosterman et al., 2011), social support and education (Slopen et al., 2017), and flourishing (Woodward et al., 2023). However, higher PCEs predicted higher narcissism (Starbird & Story, 2020) and PCEs were not associated with family-level adaptation to the COVID-19 pandemic (Prime et al., 2022). While higher levels of PCEs were associated with lower general perceived stress (Marshall, 2020; Merrick et al., 2019) and lower uncertainty stress (Zhang et al., 2021; Pei et al., 2022), PCEs did not predict parenting stress (Merrick et al., 2019). For parenting outcomes, Abbott (2021) found that higher PCEs predicted more positive self-reported parenting behaviors (i.e., lower

psychological and physical aggression, lower neglect towards child), but not parenting attitudes (i.e., spanking and affection beliefs, parenting confidence).

Main Effects of PCEs After Controlling for Childhood Adversity (Promotive Effects)

A total of 42 studies examined whether PCEs predicted adult outcomes after controlling for childhood adversity. Findings from these studies are reported below by outcome domain and reflect statistically significant results after accounting for all covariates, including childhood adversity. Results regarding mental health outcomes are reported in Table 1, and results regarding all other outcomes are reported in Supplemental Tables A-C.

Mental health outcomes. Most studies ($n = 24$) reported that higher PCEs predicted better mental health outcomes even after controlling for childhood adversity. Higher PCEs most commonly predicted lower depressive ($n = 15$), anxiety ($n = 6$), and PTSD ($n = 5$) symptoms, and lower odds of depressive or anxiety disorders (Kuhar & Kocjan, 2021). Bethell et al. (2019) also found that higher PCEs predicted lower odds of depression/poor mental health. Other mental health outcomes included lower suicidal ideation and attempts (Crandall et al., 2021; Kuhar & Kocjan, 2021; Tang et al., 2023; Narayan et al., 2023a), lower symptoms of and higher remission from personality disorders (Gunay-Oge et al., 2020b; Skodol et al., 2007), lower disturbances from complex PTSD symptoms (Karatzias et al., 2020), lower severity of global mental health symptoms (Rodriguez et al., 2021), and higher self-ratings of mental health (Kuhar & Kocjan, 2021). Higher PCEs were also linked to lower prenatal psychopathology, including lower thought problems, detachment, and disinhibited externalizing behaviors (Clark et al., 2023).

Not all studies on mental health outcomes reported that higher PCEs predicted mental health outcomes after controlling for childhood adversity. Merrick et al. (2020) found that higher levels of PCEs did not predict prenatal depressive symptoms before or after accounting for

childhood adversity. Furthermore, two studies found that higher PCEs significantly predicted lower prenatal depressive symptoms, but this relation became null after controlling for childhood adversity (Chung et al., 2008; Narayan et al., 2018). Multiple studies found that higher PCEs did not predict anxiety symptoms (Crandall et al., 2020; Doom et al., 2021) or PTSD symptoms (Karatzias et al., 2020; Merrick et al., 2020; Vogeler et al., 2020) when accounting for childhood adversity. Clark et al. (2021) found that higher PCEs were linked to internalizing symptoms and antagonistic externalizing behaviors before, but not after, accounting for childhood adversity.

Physical health outcomes and behaviors. Findings were mixed regarding whether higher PCEs predicted physical health indicators and health-related behaviors when accounting for childhood adversity. Higher PCEs predicted fewer sleep problems (Crandall et al., 2019; Geng et al., 2021a) and better sleep quality during pregnancy (Nevarez-Brewster et al., 2022). Higher PCEs also predicted less risky sexual behaviors (e.g., having sex with someone you do not know or trust; Crandall et al., 2020) and reproductive planning (i.e., teenage, unwanted, or currently unplanned pregnancy; Merrick et al., 2020), but did not predict timing of sexual initiation (Xu et al., 2022). Higher PCEs predicted lower substance use in some studies (Crandall et al., 2020; Novilla et al., 2022), but not in others (Crandall et al., 2019, 2021; Kuhar & Zager Kocjan, 2021; Miller et al., 2020; Rollins & Crandall, 2021; Xu et al., 2022; Anderson, 2021). Findings were also mixed on whether PCEs predict fruit and vegetable consumption (Crandall et al., 2019, 2021) or physical activity (Crandall et al., 2019, 2021; Kuhar & Zager Kocjan, 2021). PCEs did not predict BMI or multimorbidity (Crandall et al., 2019; Xu et al., 2022).

Psychosocial functioning and stress. Higher PCEs consistently predicted more positive psychosocial functioning and lower psychosocial stress, even after accounting for childhood adversity. Specifically, higher PCEs significantly predicted less loneliness (Doom et al., 2021;

Xu et al., 2022); less shame (Novilla et al., 2022; Rollins & Crandall, 2021); lower affective lability (Almeida et al., 2023); less aggressive behavior (Narayan et al., 2023a); more positive body image (Crandall et al., 2020); higher locus of control, forgiveness, gratitude, and familial closeness (Crandall et al., 2019); greater family health (Daines et al., 2021; Reese et al., 2022); higher social support (Bethell et al., 2019; Daines et al., 2021); higher thriving (Hanson et al., 2022) and flourishing (Yu et al., 2022); better self-regulation (Hanson et al., 2022; Rollins & Crandall, 2021); greater wellbeing and mental toughness (Shaw et al., 2022); greater life satisfaction and meaning (Xu et al., 2022); more prosocial behaviors (Zhan et al., 2021); more elaborate positive memories with childhood caregivers (Narayan et al., 2020); more secure and less ambivalent attachment styles (Anderson, 2021); and higher self-compassion (Chasson & Taubman-Ben-Ari, 2022). Zhu et al. (2023) also found that higher parental PCEs predicted lower difficulties and prosocial problems in their children. Higher PCEs predicted less perceived stress, even after accounting for childhood adversity (Crandall et al., 2019; Doom et al., 2021; Miller et al., 2020; Novilla et al., 2022). While Narayan et al. (2018) found that higher PCEs predicted less perceived stress during pregnancy, this relation became null after controlling for adversity.

Other outcomes. Although higher PCEs predicted higher executive functioning in adults after controlling for childhood adversity (Crandall et al., 2019; Hanson et al., 2022; Miller et al., 2020), findings were mixed for the life events and parenting-related domains. Higher PCEs predicted lower stressful life events during pregnancy (Merrick et al., 2020; Narayan et al., 2018) and higher parental PCEs predicted lower adverse family experiences for their children (Reese et al., 2022). However, Almeida et al. (2021) found that while higher PCEs predicted less adulthood adversity and victimization, this relationship became null after controlling for childhood adversity. Further, PCEs did not predict total number of lifetime traumatic life events

(Karatzias et al., 2020) or incidents of intimate partner violence (Anderson, 2021). For parenting, higher PCEs significantly predicted higher positive parental reflective functioning (Håkansson et al., 2018; Anderson, 2021), greater self-efficacy and role satisfaction (Chasson & Taubman-Ben-Ari, 2022), nurturing parenting attitudes (Morris et al., 2021), and increased mind-minded commenting during parent-child interactions, which reflects parents' attunement to their infant (Huffer, 2018). However, PCEs did not predict less harsh parenting attitudes (Morris et al., 2021) or observed synchrony and intrusiveness during parent-child interactions (Huffer, 2018).

Interactive Effects of PCEs (Protective Effects)

Ten studies directly tested statistical interactions between childhood adversity and PCEs (See Supplemental Table D). None of these studies reported evidence for a classic protective effect whereby higher PCEs attenuated the association between childhood adversity and negative outcomes. Four studies reported a significant interaction whereby in individuals with high PCEs, the association between adversity and negative outcomes was stronger than for individuals with moderate or low PCEs (Narayan et al., in press; Rodriguez et al., 2021; Yu et al., 2022; Zhan et al., 2021). The remaining studies reported non-significant interactions between PCEs and childhood adversity for depressive and anxiety symptoms, loneliness, perceived stress (Doom et al., 2021); prenatal sleep quality (Nevarez-Brewster et al., 2022); nurturing or harsh parenting attitudes toward the child (Morris et al., 2021); affective lability (Almeida et al., 2023); and grade point average (Hawk, 2022). Finally, one study examined whether childhood adversity moderated the positive effects of PCEs on insomnia severity and reported that higher levels of childhood adversity weakened the benefits of PCEs (Geng et al., 2021a).

Thirteen studies used other analytic methods to examine potential protective effects rather than testing a statistical interaction between childhood adversity and PCEs in regression

models (see Supplemental Table E). Using subgroup analyses, five studies examined the association between childhood adversity and outcomes in the context of high and low PCEs. Two studies provided evidence for a protective effect such that the association between childhood adversity and negative outcomes was weaker in the context of higher PCEs (Morris et al., 2021; Novilla et al., 2022). The other three studies found the opposite result such that childhood adversity more strongly predicted worse outcomes in the context of higher PCEs (Xu et al., 2022; Crandall et al., 2019; Zhu et al., 2023). Five studies examined the association between PCEs and adult outcomes in the context of high and low levels of childhood adversity (Bethell et al., 2019; Xu et al., 2022; Kuhar & Zager Kocjan, 2021; Crandall et al., 2019; Zhu et al., 2023). Findings were mixed such that PCEs more strongly predicted some favorable outcomes in the context of low adversity (e.g., 0 to 1 ACE) and others in the context of high adversity (e.g., 4 or more ACEs). Finally, six studies compared outcomes across groups or clusters characterized by different levels of PCEs and childhood adversity. Across most studies, groups with high levels of PCEs reported better outcomes than groups with low levels of PCEs, even when they also experienced high levels of childhood adversity (Hou et al., 2022; Narayan et al., 2018, in press; Abbott, 2021; Almeida et al., 2021). In contrast, Johnson et al. (2022) found that groups with moderate-to-high levels of childhood adversity reported increased risk of parent, child, and family dysfunction during the COVID-19 pandemic, regardless of their PCEs levels.

Discussion

This review found that overall, higher PCEs were associated with better mental health and psychosocial outcomes. However, findings regarding physical health, life events, and parenting were more mixed. While most studies reported promotive effects of PCEs, there was little evidence for classic linear protective effects of PCEs against childhood adversity.

PCEs and Common Adult Outcomes

The first aim identified the most common adult outcomes associated with PCEs. Higher PCEs consistently predicted more favorable mental health outcomes, reflected primarily by lower depression or depressive symptoms, followed by lower anxiety and PTSD symptoms. While PCEs predicted a range of other mental health and psychosocial outcomes, additional research needs to replicate and clarify these associations given the small number of studies for certain outcomes. Findings were mixed for almost all indicators of physical health and health behaviors, as well as for parenting and life events. However, these outcomes were less frequently studied, and further evidence is needed to make more reliable conclusions.

Independent Effects of PCEs and Childhood Adversity

The second aim was to examine the extent to which PCEs and childhood adversity are independent versus overlapping constructs. Correlational findings indicated that PCEs were significantly inversely associated with childhood adversity, and correlation coefficients were low to moderate in magnitude. These patterns indicate that PCEs and childhood adversity are at least partially distinct sets of experiences rather than opposite ends of a single spectrum of childhood experiences. That is, the presence of childhood adversity does not prevent PCEs from occurring, although they are often somewhat related. Higher levels of adversity may relate to the lower likelihood of PCEs, particularly if the source of adversity and PCE stem from the same people or sources. Indeed, multiple studies identified groups characterized by both high PCEs and childhood adversity (e.g., Hou et al., 2022; Narayan et al., 2018, in press). This distinction is further supported by research that BCEs and ACEs items were better modeled by a two-factor versus one-factor latent model (Zhang et al., 2021). PCEs and childhood adversity are semi-independent constructs that should be considered in tandem in research on lifespan development.

Promotive Versus Protective Effects of PCEs

The final aim clarified the nature of associations between PCEs and adult outcomes, particularly within the context of childhood adversity. Most studies found promotive effects of PCEs, whereby higher PCEs were associated with more favorable outcomes even after accounting for childhood adversity. In contrast, only two studies found evidence for classic protective effects of PCEs (Morris et al., 2021; Novilla et al., 2022). Unexpectedly, multiple studies showed that the association between adversity and negative outcomes was stronger for individuals with high PCEs compared to low or moderate PCEs (e.g., Narayan et al., in press; Rodriguez et al., 2021; Yu et al., 2022), even though individuals with high PCEs usually showed better adult outcomes when PCEs were modeled as direct effects.

Findings from person-oriented analyses that examined how distinct subgroups of individuals clustered based on similar levels of PCEs and childhood adversity further clarified these unexpected interaction findings. For instance, while the linear regression in Narayan and colleagues' (in press) study showed unexpected interaction results (i.e., the association between childhood adversity and PTSD symptoms was strongest for individuals with the highest levels of PCEs), cluster analyses revealed more nuanced results in the expected direction. For instance, individuals with high BCEs and high childhood maltreatment reported: 1) higher PTSD symptoms than individuals with only moderate BCEs but no maltreatment, but 2) lower PTSD symptoms than individuals with low BCEs and high maltreatment. These findings illustrate that PCEs and childhood adversity do not exist in linear association with one another, and many individuals have distinct combinations of both that uniquely relate to adult outcomes. In sum, PCEs may remain beneficial for those who have experienced childhood adversity and may even begin to offset the negative effects of adversity on development, but there may also be risks that

are not completely offset by PCEs (e.g., Johnson et al., 2022). More research should use person-oriented methods to examine the unique interplay between PCEs and childhood adversity.

Limitations of the Current Review

There was substantial geographic and demographic diversity across samples. Because of the relatively small number of included studies, however, this review did not analyze subgroups at the level of racial, ethnic, sexual, gender minority, or socioeconomic status differences, which is a much-needed future direction. Given the small number of studies and heterogeneity of outcomes across studies, a meta-analysis was not possible but should be considered in the future.

Future Directions

This review highlights several gaps in the existing PCEs literature and directions for future research. The evidence base for PCEs can be strengthened with the inclusion of more diverse samples. Slightly more than half of all studies were conducted within the U.S. ($n = 34$, 58.6%), and only six studies focused on low-income adults, limiting the generalizability of this research. About a quarter of all studies ($n = 16$; 27.6%) had majority female samples. Future studies should strive for more balanced samples by including a higher proportion of men and gender-nonconforming individuals. Given that there has been some focus on pregnant samples ($n = 8$), it would also be helpful to focus on PCEs and adjustment of non-gestational caregivers during the perinatal period, a particularly important developmental transition during which childhood experiences may influence expectant adults' mental health, relationships, prenatal attributions, caregiving expectations (Narayan et al., 2020). Future studies should also examine PCEs as resilience factors across generations, especially in the context of childhood adversity.

Most included studies were cross-sectional and focused on adults' retrospective reports of childhood experiences. Research on retrospective reports suggests these methods are valid but

often benefit from corrections to control for potential inflated associations between childhood and adulthood variables if reported by the same informant (Reuben et al., 2016). Accordingly, future PCEs studies might benefit from implementing corrections when examining associations between childhood experiences and adult outcomes (Narayan et al., in press). When possible, studies should also use prospective, longitudinal study designs that examine how positive experiences documented during childhood associate with outcomes measured in adulthood. Here, adult outcomes were mostly assessed via self-reports, so future research should incorporate multi-method outcomes (e.g., observed couple or parent-child interactions, laboratory assessment of health or executive functioning). Finally, researchers should use PCEs instruments, such as the PACEs and BCEs scales (Original and Revised versions; Narayan et al., in press) that have strong psychometric properties and were developed and validated as full stand-alone instruments.

Future research should clarify the mechanisms by which PCEs contribute to more positive adjustment, including mediators and moderators of associations. For example, higher PCEs have been shown to predict better mental health in adults via lower shame (Rollins & Crandall, 2021; Novilla et al., 2022). Further, future research should identify which PCEs are particularly salient for certain outcomes, similar to how the childhood adversity literature has documented that maltreatment-specific adversity is particularly harmful for long-term adaptation (Narayan et al., in press). In addition, the developmental timing and personal salience of specific PCEs would be important to investigate. For example, a child might place higher importance on family relationships but lower importance on friend or teacher relationships across various developmental stages. Finally, currently no experimental evidence exists that increasing cumulative PCEs as defined by these measurement tools improves adult outcomes. Although correlational findings are strong, we cannot make causal claims with this evidence.

Implications and Conclusions

PCEs are an important target for promoting resilience in adults, including those with high levels of childhood adversity. For instance, encouraging adults and parents to reflect on their PCEs may in turn elicit positive childhood memories that could facilitate intergenerational transmission of PCEs to children (Narayan et al., 2020). Studies suggested that parental PCEs may also have intergenerational benefits (Reese et al., 2022; Narayan et al., 2020; Zhu et al., 2023). Thus, in translational and clinical settings, it is important to screen adults for PCEs alongside childhood adversity (Merrick & Narayan, 2020). Screening adults for ACEs illuminates the extent of their adversity but does not provide insight into the extent of assets or resources that they had (or lacked). Screening adults and parents for PCEs illuminates what favorable experiences or assets were present, and also sheds light on the absence of resources. This practice informs understanding of whether childhood environments were characterized by resources and deprivation. Evidence-based interventions that target one domain of functioning (e.g., parenting) may further benefit from creative ways to help parents recreate their PCEs for children. Policymakers could increase policies that promote cumulative resources for children, such as supportive parents, teachers, and communities, and multisystem connectedness.

This review underscores the importance of PCEs in promoting lifespan health and well-being and offsetting the negative effects of childhood adversity on long-term outcomes. Because PCEs and childhood adversity tend to be partially independent experiences, empirical, clinical, public health, and policy efforts that only assess and prevent childhood adversity will be missing half the story if they do not also assess and promote PCEs. Researchers need to extend effects of PCEs on multi-domain outcomes, conduct international PCEs research, clarify mechanisms involving PCEs and risk factors, and examine intergenerational effects of PCEs.

Figure 1. PRISMA flow diagram

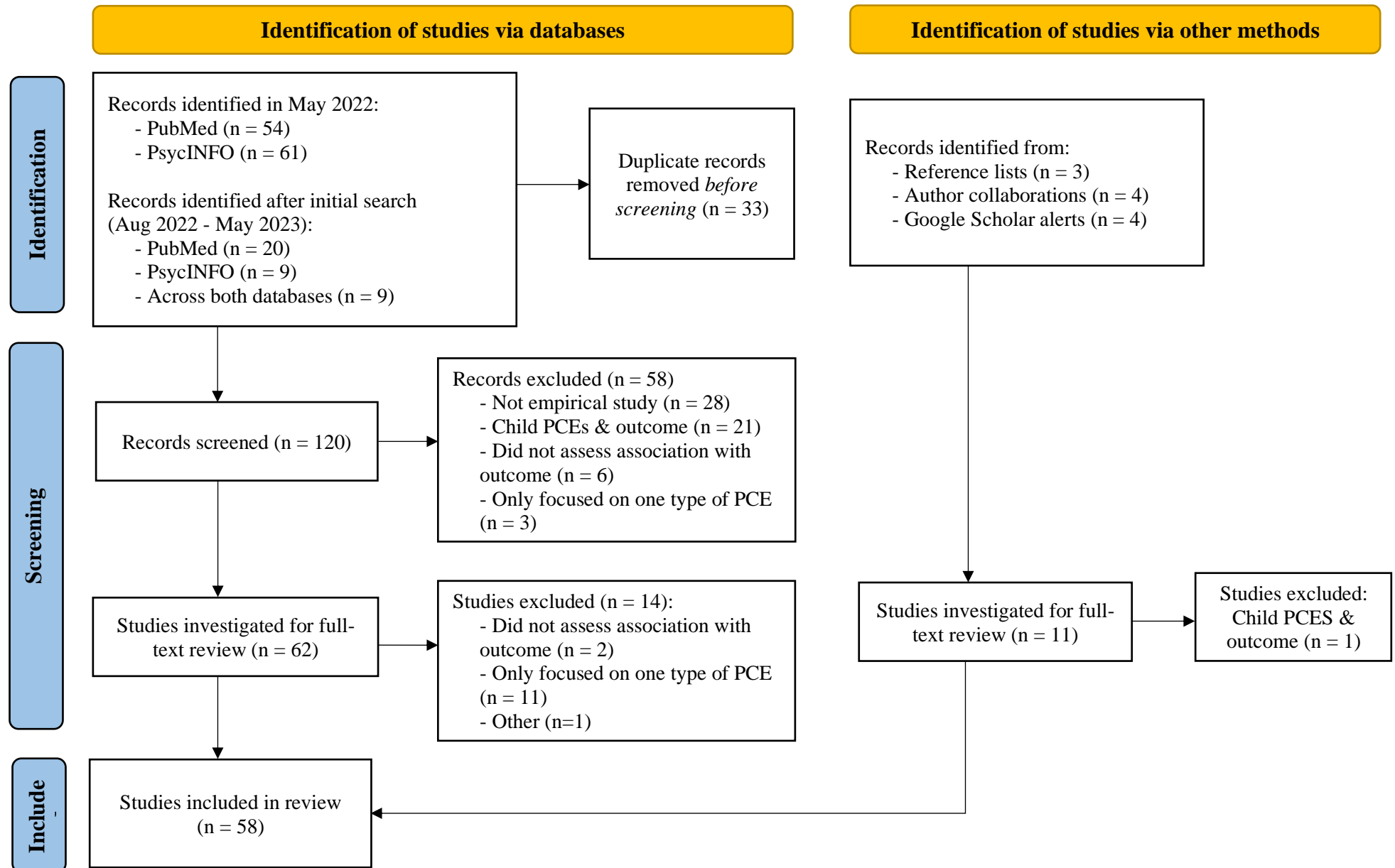


Table 1. Main effects of positive childhood experiences (PCEs) for MENTAL HEALTH PROBLEMS, with and without childhood adversity (CA)

Study	Sample	PCEs measure	CA measure	Outcome(s)	Findings	Direction
Mental health problems						
Abbott (2021)	618 parents	CCES	Self-constructed	Depressive symptoms	Higher PCEs predicted lower depressive symptoms, even after accounting for CA.	+
Bethell et al. (2019)	6,188 adults	Self-constructed, adapted from CYRM	ACEs	Depressive disorder/poor mental health	After controlling for CA, the adjusted odds of depression/poor mental health were 72% lower for adults with highest (6-7) vs. lowest (0-2) PCEs scores and 50% lower for those reporting intermediate (3-5) PCEs scores.	+
Cárdenas et al. (2022)	208 pregnant people	BCEs	CTQ-Short Form*	Prenatal and postpartum depressive symptoms	Higher PCEs were associated with lower depressive symptoms across pregnancy and lower postpartum depression.	+
Chung et al. (2008)	1,476 low-income pregnant people	Self-constructed	Self-constructed	Prenatal depressive symptoms	Higher PCEs were associated with lower rates of depressive symptoms before, but not after, accounting for CA.	+ / Null
Clark et al. (2023)	292 pregnant people	BCEs	ACEs	General and specific forms of psychopathology	Higher PCEs were linked to latent factors of general psychopathology, thought problems, detachment, and disinhibited externalizing behaviors during pregnancy, even after accounting for CA. Higher PCEs were linked to latent factors of internalizing symptoms and antagonistic externalizing behaviors before, but not after, accounting for CA.	Mixed
Crandall et al. (2019)	246 adults	BCEs	ACEs	Depressive symptoms	Higher PCEs predicted lower depressive symptoms, even after accounting for CA.	+
Crandall et al. (2020)	489 adults	Self-constructed, adapted from BCEs	Self-constructed, adapted from ACEs	Depressive and anxiety symptoms	Higher PCEs predicted lower depressive symptoms, even after accounting for CA, but not anxiety symptoms.	Mixed
Crandall et al. (2021)	206 low-income adults	BCEs + Bethell (2019) index	ACEs	Emotional/cognitive health problems (e.g., depression), suicidal ideation and attempt	Higher PCEs were associated with less suicidal ideation and/or attempts, and less emotional/cognitive health problems (including mild to severe depression ratings), accounting for CA.	+
Doom et al. (2021)	502 university students	BCEs	ACEs	Depressive and anxiety symptoms	Higher PCEs were associated with lower depressive symptoms, but not anxiety symptoms, accounting for CA.	Mixed

Geng et al. (2021a)	7,245 adults	Chinese BCEs	Chinese CTQ	Depressive and PTSD symptoms	Higher PCEs predicted lower PTSD and depressive symptoms, accounting for CA.	+
Geng et al. (2021b)	7,218 adults	Chinese BCEs	Chinese CTQ	PTSD symptoms	Higher PCEs predicted lower risk of PTSD among trauma exposed individuals, accounting for CA.	+
Gunay Oge et al. (2020a)	175 adults	Turkish BCEs	None	Psychiatric symptoms	PCEs were negatively correlated with severity of psychiatric symptoms.	+
Gunay-Oge et al. (2020b)	259 adults	BCEs	Turkish ACEs	Personality disorder symptoms	Higher PCEs were associated with lower symptoms for 11 out of 14 personality disorders, accounting for CA.	+
Hanson et al. (2022)	555 college students	BCEs	ACEs	Depressive and anxiety symptoms	Higher PCEs indirectly predicted lower depressive and anxiety symptoms through greater executive functioning, emotion regulation, and thriving, accounting for CA.	+
Karatzias et al. (2020)	275 trauma-exposed adults	BCEs	ACEs	PTSD and complex PTSD symptoms	Higher PCEs predicted lower complex PTSD symptoms, even after accounting for CA, but did not predict general PTSD symptoms.	Mixed
Kuhar & Zager Kocjan (2021)	4,847 adults	Resilience Questionnaire	Self-constructed	Depression and anxiety disorders, suicide attempts, self-rated general mental health	Higher PCEs predicted greater self-rated mental health, lower risk of depression and anxiety disorders, and less suicide attempts, even after accounting for CA.	+
Merrick et al. (2020)	101 low-income pregnant people	BCEs	ACEs	Prenatal depressive and PTSD symptoms	PCEs at any time period of childhood (early childhood, middle childhood, adolescence) did not predict prenatal depressive or PTSD symptoms.	Null
Miller et al. (2020)	246 adults	BCEs	ACEs	Depressive symptoms	Higher PCEs were associated with lower depressive symptoms, accounting for CA.	+
Narayan et al. (2018)	101 low-income pregnant people	BCEs	ACEs	Prenatal depressive and PTSD symptoms	Higher PCEs predicted lower depressive symptoms before, but not after, accounting for CA. Higher PCEs predicted less PTSD symptoms, even after accounting for CA.	Mixed
Narayan et al. (2023a)	Sample 1: 548 adults; Sample 2: 1,198 adults	BCEs	ACEs	Depressive and anxiety symptoms, suicidal thoughts and behaviors	Higher PCEs predicted lower depressive and anxiety symptoms and suicidal thoughts and behaviors across both samples, accounting for CA.	+
Narayan et al. (in press)	1,746 adults	BCEs (Original & Revised)	ACEs	Depressive, anxiety, and PTSD symptoms	Higher PCEs (using both measures) predicted lower levels of depressive, anxiety, and PTSD symptoms, accounting for CA.	+
Novilla et al. (2022)	206 low-income adults	BCEs + Bethell (2019) index	ACEs	Depression (symptoms above cut-off)	High PCEs were indirectly associated with lower risk of depression through less shame.	+
Rodriguez et al. (2021)	214 university students	BCEs	Self-constructed,	Global mental health symptoms, including	Higher PCEs were associated with lower global mental health symptoms, including depressive and anxiety symptoms, accounting for CA.	+

			adapted from ACEs	depressive and anxiety subscales		
Rollins et al. (2021)	489 adults	Self-constructed	Self-constructed	Depressive and anxiety symptoms	Higher PCEs indirectly predicted lower depressive and anxiety symptoms through less shame and greater self-regulation, respectively, accounting for CA.	+
Saleptsi et al. (2004)	192 psychiatric patients and 63 non-psychiatric controls	TAQ	TAQ*	Psychiatric disorders	Psychiatric patients reported lower PCEs scores compared to controls.	+
Skodol et al. (2007)	520 patients with personality disorders	CEQ-R	CEQ-R	Remission of personality disorder	Higher PCEs predicted greater remission from avoidant and schizotypal personality disorders.	+
Slopen et al. (2017)	1,255 adults	Self-constructed	None	Major depressive disorder (symptoms above cut-off)	Higher PCEs were associated with less risk of major depressive disorder.	+
Tang et al. (2023)	1,816 university students	Chinese BCEs	ACEs*	Depression (symptoms above cut-off), suicidal ideation	Four classes were identified based on BCEs items: 1) Relationship support, 2) low BCEs, 3) high BCEs, and 4) high quality of life. The high BCEs, relationship support, and quality of life groups reported lower odds of depression than the low BCEs class, accounting for CA. The high BCEs and quality of life group reported also less suicidal ideation than the low BCEs class, accounting for CA.	+
Vogeler et al. (2020)	192 partners of sex addicts	BCEs	ACEs	PTSD symptoms and posttraumatic stress related to partner's sexually addictive behaviors	PCEs did not significantly predict PTSD symptoms or posttraumatic stress related to partner's sexually addictive behaviors.	Null
Xu et al. (2022)	332 university students	Chinese BCEs	ACEs	Depressive and anxiety symptoms	Higher PCEs were associated with lower depressive and anxiety symptoms, accounting for CA.	+
Zhan et al. (2021)	6,929 adults	Chinese BCEs	Chinese CTQ	Depressive and PTSD symptoms	Higher PCEs predicted lower PTSD and depressive symptoms, accounting for CA.	+
Zhang et al. (2021)	1,821 university students	BCEs	None	Depressive symptoms	Higher PCEs indirectly predicted lower depressive symptoms through less uncertainty stress.	+

Notes. ACEs = Adverse Childhood Experiences scale. BCEs = Benevolent Childhood Experiences scale. CCES = Childhood Caregiving Environment Scale. CEQ-R = Childhood Experiences Questionnaire-Revised. CTQ = Child Trauma Questionnaire. CYRM = Child & Youth Resilience Measure. PTSD = Posttraumatic stress disorder. TAQ = Traumatic Antecedents Questionnaire. *Indicates childhood adversity was measured but not accounted for in the same model as PCEs. (+) = More favorable outcomes. (+ / Null) = Significant favorable outcome before, but not after, accounting for childhood adversity. Null = No significant associations. Mixed = A mix of favorable and null outcomes.

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Supplemental Table A. Main effects of positive childhood experiences (PCEs) for PSYCHOSOCIAL FUNCTIONING AND STRESS, with and without childhood adversity (CA)

Study	Sample	PCEs measure	CA measure	Outcome(s)	Findings	Direction
Psychosocial functioning and stress						
Anderson (2021)	177 pregnant individuals	PACEs	ACEs	Adult attachment style	PACEs were negatively associated with ambivalent attachment and positively associated with secure attachment, accounting for CA, but not associated with dismissive attachment.	+
Almeida et al. (2023)	424 incarcerated adults	Portuguese BCEs	Portuguese CTQ-Short Form	Affective lability	Higher PCEs predicted lower affective lability, accounting for CA.	+
Bethell et al. (2019)	6,188 adults	Self-constructed, adapted from CYRM	ACEs	Social and emotional support	After controlling for CA, the adjusted odds of greater social and emotional support were 3.53 times higher for adults with the highest (6-7) versus lowest (0-2) PCEs scores. Adjusted odds were not significantly higher for adults with intermediate (3-5) PCEs.	+
Chasson & Taubman - Ben-Ari (2022)	392 postpartum parents	BCEs	ACEs	Self-compassion	Higher PCEs were associated with higher self-compassion, accounting for CA.	+
Crandall et al. (2019)	246 adults	BCEs	ACEs	Perceived stress, internal locus of control, forgiveness of self, gratitude, familial closeness	Higher PCEs predicted lower perceived stress and higher locus of control, forgiveness of self, gratitude, and familial closeness, even after accounting for CA.	+
Crandall et al. (2020)	489 adults	Self-constructed, adapted from BCEs	Self-constructed, adapted from ACEs	Body image	Higher PCEs predicted a more positive body image, even after accounting for CA.	+
Crandall et al. (2021)	206 low-income adults	BCEs + Bethell (2019) index	ACEs	Emotional/cognitive health problems (e.g., Perceived stress, shame)	Higher PCEs were associated with less emotional/cognitive health problems (including perceived stress and shame), accounting for CA.	+
Daines et al. (2021)	1,030 adults	BCEs	ACEs	Family health	PCEs were positively associated with all four domains of family health (social and emotional health processes, healthy lifestyle, health resources, external social supports), even after accounting for CA.	+
Doom et al. (2021)	502 university students	BCEs	ACEs	Perceived stress, loneliness	Higher PCEs were associated with lower perceived stress and less loneliness, accounting for CA.	+

Gunay Oge et al. (2020a)	175 adults	Turkish BCEs	None	Life satisfaction	PCEs were positively correlated with life satisfaction scores.	+
Hanson et al. (2022)	555 college students	BCEs	ACEs	Emotion regulation, thriving	Higher PCEs predicted higher thriving through greater executive functioning and emotion regulation, accounting for CA.	+
Kocatürk & Çiçek (2021)	570 university students	Positive Childhood Experiences Scale	None	Self-esteem, psychological resilience	Higher PCEs indirectly predicted higher psychological resilience through higher self-esteem.	+
Kosterman et al. (2011)	429 rural adults	Self-constructed	None	Civic involvement, productivity and responsibility, interpersonal connection	Higher PCEs predicted increased civic involvement, productivity and responsibility, and interpersonal connection.	+
Marshall (2020)	90 homeless parents	BCEs	ACEs*	Psychological distress	PCEs were negatively correlated with psychological distress scores.	+
Merrick et al. (2019)	50 homeless parents	BCEs	ACEs*	Psychological distress, parenting stress, sociodemographic risk	Higher PCEs predicted lower odds of psychological distress, but not parenting stress or sociodemographic risk.	Mixed
Miller et al. (2020)	246 adults	BCEs	ACEs	Perceived stress	Higher PCEs were associated with lower perceived stress, accounting for CA.	+
Narayan et al. (2018)	101 low-income pregnant people	BCEs	ACEs	Prenatal perceived stress	Higher PCEs predicted less prenatal perceived stress before, but not after, accounting for CA.	Null
Narayan et al. (2023a)	Sample 1: 548 adults; Sample 2: 1,198 adults	BCEs	ACEs	Aggressive behaviors, life satisfaction	Higher PCEs predicted less aggressive behaviors in Sample 2, but not in Sample 1. Higher PCEs predicted higher life satisfaction across both samples, accounting for CA.	+
Novilla et al. (2022)	206 low-income adults	BCEs + Bethell (2019) index	ACEs	Shame, perceived stress	Higher PCEs were indirectly associated with less perceived stress through less shame, accounting for CA.	+
Pei et al. (2022)	1,830 university students	Chinese BCEs	None	Uncertainty stress	Network analysis showed that PCEs were associated with uncertainty stress through a strong negative association between worry about the future (item on uncertainty stress scale) and having a positive self-concept (item on BCEs scale).	+
Prime et al. (2022)	549 parents	BCEs	Revised ACEs*	COVID-Related Family Functioning (family stressors and positive adaptation)	Caregiver-reported PCEs did not significantly differ between groups characterized by different levels of family functioning during COVID-19.	Null
Reese et al. (2022)	482 heterosexual parent dyads	BCEs + Bethell (2019) index	ACEs	Family health	Higher parental PCEs were associated with better family health, accounting for CA.	+

Rollins & Crandall (2021)	489 adults	Self-constructed	Self-constructed	Self-regulation (behavioral/emotional), shame	Higher PCEs predicted less shame and higher self-regulation, accounting for CA.	+
Shaw et al. (2022)	311 adults	Bethell (2019) index	ACEs	Mental toughness, psychological wellbeing	Higher PCEs indirectly predicted higher wellbeing through greater mental toughness, accounting for CA.	+
Slopin et al. (2017)	1255 adults	Self-constructed	None	Social support	Higher PCEs were associated with greater social support.	+
Starbird & Story (2020)	344 adults	BCEs	None	Narcissism	Higher PCEs predicted higher narcissism.	-
Woodward et al. (2023)	9,468 university students	Bethell (2019) index + Self-constructed	Chinese ACEs*	Flourishing	Higher PCEs were associated with greater flourishing.	+
Xu et al. (2022)	332 university students	Chinese BCEs	ACEs	Life satisfaction, life meaning, loneliness	Higher PCEs were associated with lower loneliness and higher life satisfaction and meaning in life, accounting for CA.	+
Yu et al. (2022)	9,468 adults	Bethell (2019) index + Self-constructed	Chinese ACEs	Flourishing	Higher PCEs were associated with greater flourishing, accounting for CA.	+
Zhan et al. (2021)	6,929 adults	Chinese BCEs	Chinese CTQ	Prosocial behaviors	Higher PCEs were associated with more prosocial behaviors, accounting for CA.	+
Zhang et al. (2021)	1,821 university students	BCEs	None	Uncertainty stress	Higher PCEs predicted lower uncertainty stress.	+
Zhu et al. (2023)	2,587 mother-child dyads	Chinese BCEs	Chinese ACEs	Offspring difficulties and prosocial problems	Children whose mothers reported high PCEs scores were less likely to have total difficulties and prosocial problems than children whose mothers reported low PCEs scores, even after accounting for CA.	+

Notes. ACEs = Adverse Childhood Experiences scale. BCEs = Benevolent Childhood Experiences scale. CTQ = Child Trauma Questionnaire. CYRM = Child & Youth Resilience Measure. PCEs = Protective and Compensatory Experiences scale. *Indicates childhood adversity was measured but not accounted for in the same model as PCEs. (+) = More favorable outcomes. (-) = Worse outcomes. Null = No significant associations. Mixed = A mix of favorable and null outcomes.

Supplemental Table B. Main effects of positive childhood experiences (PCEs) for PHYSICAL HEALTH OUTCOMES & BEHAVIORS, with and without childhood adversity (CA)

Study	Sample	PCEs measure	CA measure	Outcome(s)	Findings	Direction
Physical health outcomes and behaviors						
Anderson (2021)	177 pregnant individuals	PACEs	ACEs	Substance use (alcohol, tobacco, or other drugs)	PCEs did not predict alcohol, tobacco, or drug use.	Null
Crandall et al. (2019)	246 adults	BCEs	ACEs	BMI, fruit/vegetable consumption, physical exercise, sleep difficulties, substance use (smoking)	Higher PCEs were associated with lower sleep difficulties and more fruit and vegetable consumption, even after accounting for CA, but not with BMI, physical exercise, or smoking history.	Mixed
Crandall et al. (2020)	489 adults	Self-constructed, adapted from BCEs	Self-constructed, adapted from ACEs	Substance use (tobacco, drugs, binge drinking), risky sexual behaviors	Higher PCEs predicted less risky sexual behaviors and less substance abuse, even after accounting for CA.	+
Crandall et al. (2021)	206 low-income adults	BCEs + Bethell (2019) index	ACEs	Substance use (tobacco), fruit/vegetable consumption, vigorous physical activity	PCEs were not associated with tobacco use, fruit and vegetable consumption, or physical activity.	Null
Geng et al. (2021a)	7,245 adults	Chinese BCEs	Chinese CTQ	Insomnia severity	Higher PCEs indirectly predicted less insomnia severity through PTSD and depressive symptoms, accounting for CA.	+
Graupensperger et al. (2022)	6,495 adults	Bethell (2019) index	None	Substance use (smoking, alcohol)	PCEs were inversely associated with lifetime and current cigarette use. PCEs were positively associated with any drinking in the past 30 days but among those who did use alcohol, PCEs were significantly associated with lower quantities of alcohol use and less risky drinking patterns.	+
Kosterman et al. (2011)	429 rural adults	Self-constructed	None	Physical exercise	Higher PCEs predicted greater physical exercise.	+
Kuhar & Zager Kocjan (2021)	4,847 adults	Resilience Questionnaire	Self-constructed	Diagnoses of chronic illness, self-ratings of physical health, substance use (smoking, alcohol, illicit drugs), physical inactivity, obesity diagnosis	Participants with above median PCEs were at lower risk of poor self-rated health and lower physical inactivity than participants with below median PCEs, even after accounting for CA. Higher PCEs were associated with less illicit drug consumption, physical inactivity, and obesity before, but not after, accounting for CA.	Mixed

Merrick et al. (2020)	101 low-income pregnant people	BCEs	ACEs	Risky reproductive planning	Higher PCEs in early childhood and adolescence, but not middle childhood, predicted lower levels of risky reproductive planning, even after accounting for CA.	+
Miller et al. (2020)	246 adults	BCEs	ACEs	Substance use (smoking)	PCEs were not associated with past smoking habits.	Null
Nevarez-Brewster et al. (2022)	164 pregnant people	BCEs	ACEs	Prenatal sleep quality	Higher PCEs predicted better sleep quality throughout pregnancy, even after accounting for CA.	+
Novilla et al. (2022)	206 low-income adults	BCEs + Bethell (2019) index	ACEs	Substance use (tobacco)	Higher PCEs were associated with less tobacco use, accounting for CA.	+
Rollins & Crandall (2021)	489 adults	Self-constructed	Self-constructed	Substance use (tobacco, drugs, binge drinking)	PCEs did not significantly predict substance abuse.	Null
Slopen et al. (2017)	1,255 adults	Self-constructed	None	Cardiovascular health indicators (smoking, physical activity, diet, BMI, cholesterol, blood pressure, Hemoglobin A1c)	Higher PCEs were associated with more indicators of ideal cardiovascular health through higher education, absence of major depression, and greater social support.	+
Xu et al. (2022)	332 university students	Chinese BCEs	ACEs	Multimorbidity of chronic conditions, substance use (smoking, binge drinking), early sexual initiation, self-rated overall health	Higher PCEs were associated with better self-ratings of overall health, accounting for CA, but not multimorbidity, ever smoking, ever binge drinking, or early sexual initiation.	Mixed

Notes. ACEs = Adverse Childhood Experiences scale. BCEs = Benevolent Childhood Experiences scale. CTQ = Child Trauma Questionnaire. PACEs = Protective and Compensatory Experiences scale. (+) = More favorable outcomes. Null = No significant associations. Mixed = A mix of favorable and null outcomes.

Supplemental Table C. Main effects of positive childhood experiences (PCEs) for OTHER OUTCOMES, with and without childhood adversity (CA)

Study	Sample	PCEs measure	CA measure	Outcome(s)	Findings	Direction
Parenting						
Abbott (2021)	706 caregivers reported to Child Protective Services	Condensed CCES	Self-constructed*	Parenting behaviors (psychological aggression, physical aggression, neglect)	Individuals with high PCEs reported less psychological and physical aggression and less neglect toward the child than those with low PCEs.	+
Abbott (2021)	481 parents	Expanded CCES	None	Parenting beliefs (spanking, affection beliefs, parenting confidence)	PCEs were not associated with parents' beliefs about spanking and affection, or parenting confidence.	Null
Anderson (2021)	177 pregnant individuals	PACEs	ACEs	Parental reflective functioning	PACEs were positively associated with interest and curiosity in mental states, accounting for CA, but not with certainty of mental states or pre- or non-mentalizing modes.	Mixed
Chasson & Taubman - Ben-Ari (2022)	392 parents	BCEs	ACEs	Parental self-efficacy, role satisfaction, disintegrative responses (intrusive thoughts, dissociative experiences)	Higher PCEs were associated with higher self-efficacy and role satisfaction via higher self-compassion and lower dissociative experiences, accounting for CA. PCEs did not predict intrusive thoughts.	+
Håkansson et al. (2018)	43 parents with substance use disorder	TAQ	TAQ	Parental reflective functioning	Higher PCEs were associated with higher positive parental reflective functioning, accounting for CA.	+
Huffer (2018)	45 parent-infant dyads	PACEs	ACEs	Parent-child interactions (Dyadic synchrony, intrusiveness, and mind-minded comments)	Higher maternal PCEs predicted more appropriate mind-minded commenting during parent-child interactions, accounting for CA, but not intrusiveness or synchrony during those interactions.	Mixed
Morris et al. (2021)	109 parents	PACEs	ACEs	Nurturing and harsh parenting attitudes	Higher PCEs predicted more nurturing parenting attitudes, accounting for CA, but not less harsh parenting attitudes.	Mixed
Executive functioning						
Crandall et al. (2019)	246 adults	BCEs	ACEs	Executive functioning	Higher PCEs predicted higher executive functioning, even after accounting for CA.	+

Crandall et al. (2021)	206 low-income adults	BCEs + Bethell (2019) index	ACEs	Executive functioning	Higher PCEs were associated with less emotional/cognitive health problems (including executive functioning deficits), accounting for CA.	+
Hanson et al. (2022)	555 college students	BCEs	ACEs	Executive functioning	Higher PCEs predicted higher executive functioning, accounting for CA.	+
Miller et al. (2020)	246 adults	BCEs	ACEs	Executive functioning	Higher PCEs were associated with higher executive functioning, accounting for CA.	+
Life events						
Almeida et al. (2021)	1,886 adults	Portuguese BCEs	Portuguese CTQ	Traumatic events and victimization	Higher PCEs scores predicted fewer adverse experiences and victimization in the last 3 years before, but not after, accounting for CA.	+ / Null
Anderson (2021)	177 pregnant individuals	PACEs	ACEs	Intimate partner violence	PACEs did not predict incidents of intimate partner violence.	Null
Karatzias et al. (2020)	275 trauma-exposed adults	BCEs	ACEs	Traumatic life events	PCEs did not predict lifetime trauma exposure.	Null
Merrick et al. (2020)	101 low-income pregnant people	BCEs	ACEs	Prenatal stressful life events	Higher PCEs at each time period of childhood (early childhood, middle childhood, adolescence) predicted lower prenatal stressful life events, accounting for CA.	+
Narayan et al. (2018)	101 low-income pregnant people	BCEs	ACEs	Prenatal stressful life events	Higher PCEs predicted less prenatal stressful life events, even after accounting for CA.	+
Reese et al. (2022)	482 heterosexual parent dyads	BCEs + Bethell (2019) index	ACEs	Adverse family experiences for child of parent	Higher parental PCEs were associated with lower adverse family experiences for their children through better family health, accounting for CA.	+
Other: Academic						
Hawk (2022)	136 community college students	BCEs	ACEs	Grade point average	PCEs did not predict GPA.	Null

Notes. ACEs = Adverse Childhood Experiences scale. BCEs = Benevolent Childhood Experiences scale. CTQ = Child Trauma Questionnaire. PACEs = Protective and Compensatory Experiences scale. TAQ = Traumatic Antecedents Questionnaire. *Indicates childhood adversity was measured but not accounted for in the same model as PCEs. (+) = More favorable outcomes. (+ / Null) = Significant favorable outcome before, but not after, accounting for childhood adversity. Null = No significant associations. Mixed = A mix of favorable and null outcomes.

Supplemental Table D. DIRECT INTERACTIONS: Findings from studies that included a statistical interaction term between positive childhood experiences (PCEs) and childhood adversity (CA)

Study	Sample	PCEs measure	CA measure	Outcome	Findings	Direction
Almeida et al. (2023)	424 incarcerated adults	Portuguese BCEs	Portuguese CTQ-Short Form	Affective lability	PCEs did not significantly moderate the association between CA and affective lability.	Null
Doom et al. (2021)	502 university students	BCEs	ACEs	Depressive and anxiety symptoms, perceived stress, loneliness	PCEs did not significantly moderate the association between CA and any of the outcomes.	Null
Geng et al. (2021a)	7,245 adults	BCEs	CTQ	Insomnia severity	The association between higher PCEs and less insomnia was weaker for participants with higher CA than those with lower CA.	Sig.
Hawk (2022)	136 community college students	BCEs	ACEs	Grade point average	PCEs did not significantly moderate the association between CA and grade point average.	Null
Morris et al. (2021)	109 parents	PACEs	ACEs	Nurturing and harsh parenting attitudes	PCEs did not significantly moderate the association between CA and nurturing or harsh parenting attitudes.	Null
Narayan et al. (in press)	1,746 adults	BCEs (Original & Revised)	ACEs	Depressive, anxiety, and PTSD symptoms	The association between higher CA and greater severity of PTSD symptoms was slightly stronger in participants with higher PCEs than those with lower PCEs. PCEs did not significantly moderate the association between CA and depressive or anxiety symptoms.	Mixed
Nevarez-Brewster et al. (2022)	164 pregnant people	BCEs	ACEs	Prenatal sleep quality	PCEs did not significantly moderate the association between CA and prenatal sleep quality.	Null
Rodriguez et al. (2021)	214 university students	BCEs	Self-constructed, adapted from ACEs	Global mental health symptoms, including depressive and anxiety subscales	The association between higher CA and greater severity of mental health symptoms was stronger in participants with higher PCEs than those with lower PCEs.	Sig.
Yu et al. (2022)	9,468 adults	Bethell (2019) index + Self-constructed	Chinese ACEs	Flourishing	The association between higher CA and lower flourishing was stronger for participants with higher PCEs than those with lower PCEs.	Sig.
Zhan et al. (2021)	6,929 adults	Chinese BCEs	Chinese CTQ	Prosocial behaviors, depressive and PTSD symptoms	The association between higher CA and lower prosocial behaviors was stronger for participants with higher PCEs than those with lower PCEs. PCEs did not significantly moderate the association between CA and depressive or PTSD symptoms.	Mixed

Notes. ACEs = Adverse Childhood Experiences scale. BCEs = Benevolent Childhood Experiences scale. CTQ = Child Trauma Questionnaire. PACEs = Protective and Compensatory Experiences Scale. Sig. = Significant interaction. Null = No significant interactions. Mixed = A mix of significant and null interactions.

Supplemental Table E. PRELIMINARY INTERACTIONS: Findings from studies that examined interplay between positive childhood experiences (PCEs) and childhood adversity (CA) using methods other than statistical interaction term

Study	Sample	PCEs measure	CA measure	Method & Findings
				Subgroup analyses
Bethell et al. (2019)	6,188 adults	Self-constructed, adapted from CYRM	ACEs	<p>Method: Examined associations between PCEs and outcomes for each CA exposure level (0, 1, 2-3, and 4-8 experiences).</p> <p>Findings:</p> <ul style="list-style-type: none"> • Associations between PCEs and depression/poor mental health were similar in magnitude across adults reporting 1, 2-3, and 4-8 CA experiences, but not significant for adults with 0 CA experiences. • Associations between PCEs and social and emotional support were similar across all CA exposure groups.
Crandall et al. (2019)	246 adults	BCEs	ACEs	<p>Method: Examined associations between PCEs and outcomes among participants with low (0-3) and high (4+) CA experiences. Examined associations between CA and outcomes among participants with low (8 or below) and high (9-10) PCEs.</p> <p>Findings:</p> <ul style="list-style-type: none"> • Higher CA was associated with more outcomes in the context of higher PCEs than in the context of fewer PCEs. • Higher PCEs were associated with more outcomes in the context of lower CA than in the context of higher CA.
Kuhar & Zager Kocjan (2021)	4,847 adults	Resilience Questionnaire	Self-constructed	<p>Method: Examined associations between PCEs and outcomes for each CA exposure level (0, 1, 2-3, and 4+ experiences).</p> <p>Findings:</p> <ul style="list-style-type: none"> • Association between PCEs and self-rated physical and mental health was relatively stable across levels of CA, but somewhat weaker for participants with 2+ CA experiences. • Higher PCEs were associated with lower risk of depression and suicide attempts for those exposed to 2+ CA experiences, and lower risk of anxiety for those with 1 CA experience. • Higher PCEs predicted less physical inactivity in those with 0 or 2+ CA experiences.
Morris et al. (2021)	109 parents	PACEs	ACEs	<p>Method: Examined associations between CA and harsh parenting attitudes at low (1 SD below mean), average (mean), and high (1 SD above mean) levels of PCEs.</p> <p>Findings:</p> <ul style="list-style-type: none"> • Higher CA was associated with more harsh parenting attitudes at lower levels of PCEs, but not significantly associated with harsh parenting attitudes at average or high levels of PCEs.

Novilla et al. (2022)	206 low-income adults	BCEs + Bethell (2019) index	ACEs	<p>Method: Examined associations between CA and outcomes at low (0-10) and high (11-13) levels of PCEs. High and low groups were determined by mean split of PCEs.</p> <p>Findings:</p> <ul style="list-style-type: none"> Higher CA was associated with greater shame and tobacco usage in the context of low PCEs, but CA was not associated with shame, depression, or stress in the context of high PCEs. The relationship between CA and tobacco usage was attenuated in the context of high PCEs.
Xu et al. (2022)	332 university students	BCEs	ACEs	<p>Method: Examined associations between PCEs and outcomes among participants with high (2+) and low (0-1) CA experiences. Examined associations between CA and outcomes among participants with high (2+) and low (0-1) PCEs. High and low groups were determined by median split for each measure.</p> <p>Findings:</p> <ul style="list-style-type: none"> Higher PCEs were associated with lower risk of depression and poor self-rated health in the context of higher CA. Higher PCEs were associated with lower risk of anxiety and multimorbidity of chronic conditions in the context of lower CA. Higher PCEs were associated with lower risk of loneliness, low life satisfaction, and low life meaning across both contexts of high and low CA. Higher CA was associated with higher risk of anxiety, loneliness, and multimorbidity of chronic conditions in the context of high PCEs. Higher CA was associated with greater risk of low life satisfaction) across both contexts of high and low PCEs.
Zhu et al. (2023)	2,587 mother-child dyads	Chinese BCEs	Chinese ACEs	<p>Method: Examined associations between PCEs and outcomes among participants with high (4+) and low (0-3) CA experiences. Examined associations between CA and outcomes among participants with high (10+) and low (0-9) PCEs. High and low groups were determined by mean split for each measure.</p> <p>Findings:</p> <ul style="list-style-type: none"> Higher PCEs were associated with lower risk of child difficulties in the context of low and high CA, but only associated with lower risk of prosocial problems in the context of low CA. Higher CA was associated with higher risk of total child difficulties in the context of low and high PCEs, but only associated with higher risk of prosocial problems in the context of high PCEs.
Comparing groups/clusters				
Abbott (2021)	706 caregivers reported to Child Protective Services	CCES	Self-constructed	<p>Method: Compared outcomes across the following groups: (1) Low PCEs and low CA ("Low-Both" group), (2) Low PCEs and high CA ("High-CA" group), (3) High PCEs and low CA ("High-PCEs" group), and (4) High PCEs and high CA ("High-Both" group).</p> <p>Findings:</p> <ul style="list-style-type: none"> High-CA group reported higher psychological and physical aggression than High-PCEs and Low-Both groups.

				<ul style="list-style-type: none"> • Low-Both and High-Both groups also reported higher psychological aggression than High-PCEs group. • Low-Both and High-CA groups were more likely to report neglect than High-PCEs group.
Almeida et al. (2021)	1,886 adults	BCEs	CTQ	<p>Method: Compared outcomes across three identified clusters: (1) Low PCEs and high CA ("Low-PCEs" group), (2) High PCEs and low CA ("High-PCEs" group), and (3) moderate PCEs and moderate CA ("Moderate-PCEs" group).</p> <p>Findings:</p> <ul style="list-style-type: none"> • Low-PCEs cluster demonstrated higher levels of adverse experiences and victimization in the last 3 years, compared to the High-PCEs and Moderate-PCEs clusters.
Hou et al. (2022)	1,816 university students	BCEs	Chinese ACEs scale	<p>Method: Compared outcomes across the following groups: (1) Low PCEs and low CA ("Low-Both" group), (2) Low PCEs and high CA ("High-CA" group), (3) High PCEs and low CA ("High-PCEs" group), and (4) High PCEs and high CA ("High-Both" group).</p> <p>Findings:</p> <ul style="list-style-type: none"> • High-CA group reported the highest incidence of depressive symptoms, suicidal ideation, and uncertainty stress while High-PCEs group reported the lowest incidence. • High-PCEs group was less likely to report depressive symptoms, suicidal ideation, and uncertainty stress than Low-Both group. • High-CA group was more likely to report depressive symptoms, suicidal ideation, and uncertainty stress than Low-Both group. • High-Both group was less likely to report depressive symptoms and uncertainty stress, but not suicidal ideation, than Low-Both group.
Johnson et al. (2022)	547 parents	BCEs	Revised ACEs	<p>Method: Compared outcomes across four identified groups: (1) Low CA and high CA ("low-CA" group), (2) moderate CA and high PCEs (moderate-CA/high-PCEs" group), (3) moderate CA and low PCEs (moderate-CA/low-PCEs" group), and (4) high CA and moderate PCEs ("high-CA" group).</p> <p>Findings:</p> <ul style="list-style-type: none"> • Parent mental health: All three groups characterized by high or moderate CA reported higher parental anxiety, psychological distress, and posttraumatic stress than low-CA group. High-CA group reported higher parental posttraumatic stress than moderate-CA/high-PCEs group. • Parental substance use: High-CA and moderate-CA/high-PCEs group reported higher substance use than low-CA group. • Child anger: Moderate-CA groups reported higher levels of child anger than low-CA group. • Child mental health: High-CA and moderate-CA/high-PCEs groups reported higher levels of child anxiety and depression than low-CA group. Moderate-CA/low-PCEs group reported higher levels of child anxiety than moderate-CA/high-PCEs group. • Child positive coping: No significant differences between groups.

				<ul style="list-style-type: none"> • Family functioning: All three groups characterized by high or moderate CA reported higher levels of family dysfunction than low-CA group. • Parenting quality: No significant differences between groups.
Narayan et al. (2018)	101 low-income pregnant people	BCEs	ACEs	<p>Method: Compared outcomes across three identified clusters: (1) High PCEs with CA absent ("High-PCEs" group), (2) High PCEs with CA present ("High-Both" group), and (3) Moderate PCEs with CA present ("High-CA" group).</p> <p>Findings:</p> <ul style="list-style-type: none"> • High-PCEs and High-Both clusters had lower levels of PTSD symptoms and stressful life events than the High-CA cluster. • High-PCEs cluster had lower perceived stress than High-CA and High-Both clusters. • Depressive symptoms did not differ across clusters.
Narayan et al. (in press)	1,746 adults	BCEs Revised	ACEs	<p>Method: Compared outcomes across five identified clusters: (1) Very high CA-Low PCEs, (2) High CA-Low PCEs, (3) High CA-High PCEs, (4) No CA-Moderates PCEs, and (5) No CA-High PCEs.</p> <p>Findings:</p> <ul style="list-style-type: none"> • Cluster 4 (No CA-Moderate PCEs) reported lower levels of PTSD symptoms than Cluster 3 (High CA-High PCEs). • Cluster 2 (High CA-Low-PCEs) reported higher PTSD symptoms than Cluster 3 (High CA-High PCEs).

Notes. ACEs = Adverse Childhood Experiences scale. BCEs = Benevolent Childhood Experiences scale. CCES = Childhood Caregiving Environment Scale. CTQ = Child Trauma Questionnaire. CYRM = Child & Youth Resilience Measure. PACEs = Protective and Compensatory Experiences scale. *Indicates childhood adversity was measured but not accounted for in the same model as PCEs.