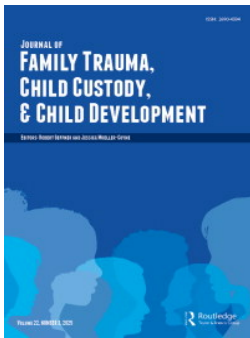


Adverse and positive childhood experiences in parental history and their association with parental reflective functioning and parenting behavior

| | |
|------------------|---|
| Authors | Weistra, Sabrina R.; van Bakel, Hedwig J.A.; Mathijssen, Jolanda J.P. |
| Published in | Journal of Family Trauma, Child Custody & Child Development |
| DOI | 10.1080/26904586.2025.2573964 |
| Publication Date | 2025-10 |
| Document Version | publishersversion |
| Link | https://research.tilburguniversity.edu/en/publications/7dfe2c1a-85c5-46fb-85ec-bff760826bf4 |
| Citation | Weistra, S R, van Bakel, H J A & Mathijssen, J J P 2025, 'Adverse and positive childhood experiences in parental history and their association with parental reflective functioning and parenting behavior', Journal of Family Trauma, Child Custody & Child Development, vol. 22, no. 4, pp. 518-536. https://doi.org/10.1080/26904586.2025.2573964 |
| Download Date | 2026-05-17 12:17:06 |
| Rights | <p>General rights</p> <p>Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.</p> <ul style="list-style-type: none"> - Users may download and print one copy of any publication from the public portal for the purpose of private study or research. - You may not further distribute the material or use it for any profit-making activity or commercial gain - You may freely distribute the URL identifying the publication in the public portal" <p>Take down policy</p> <p>If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.</p> |



Adverse and positive childhood experiences in parental history and their association with parental reflective functioning and parenting behavior

Sabina R. Weistra, Hedwig J. A. van Bakel & Jolanda J. P. Mathijssen

To cite this article: Sabina R. Weistra, Hedwig J. A. van Bakel & Jolanda J. P. Mathijssen (23 Oct 2025): Adverse and positive childhood experiences in parental history and their association with parental reflective functioning and parenting behavior, Journal of Family Trauma, Child Custody & Child Development, DOI: [10.1080/26904586.2025.2573964](https://doi.org/10.1080/26904586.2025.2573964)

To link to this article: <https://doi.org/10.1080/26904586.2025.2573964>



© 2025 The Author(s). Published with license by Taylor & Francis Group, LLC.



Published online: 23 Oct 2025.



Submit your article to this journal [↗](#)



Article views: 67






View related articles [↗](#)



View Crossmark data [↗](#)

Adverse and positive childhood experiences in parental history and their association with parental reflective functioning and parenting behavior

Sabina R. Weistra , Hedwig J. A. van Bakel  and Jolanda J. P. Mathijssen 

Tranzo - Scientific Center for Care and Wellbeing, Tilburg University, Tilburg, The Netherlands

ABSTRACT

This study examined whether Parental Reflective Functioning (PRF) mediated the relationship between adverse childhood experiences (ACEs) and parent-child interaction, focusing on positive and negative parenting behaviors, while accounting for the potentially moderating role of positive childhood experiences (PCEs) on the effect of ACEs on PRF. The study included 110 parent-child dyads from clinical and non-clinical settings, observed during play sessions. Parents completed questionnaires on ACEs and PRF. Results showed that the relationship between ACEs and positive parenting behaviors was mediated by PRF. ACEs had a direct effect on negative parenting behaviors. PCEs neither predicted PRF nor interacted with ACEs. The results corroborate the value of interventions targeting parental reflective functioning to improve parental sensitivity. Negative parenting behaviors, such as intrusiveness, are less likely to be mitigated through improved reflective functioning.

ARTICLE HISTORY



Received 27 January 2025

Accepted 26 September 2025

KEYWORDS

ACEs; negative parenting behavior; parental reflective functioning; parent-child interaction; PCEs; positive parenting behavior

The children of parents with a history of adverse childhood experiences (ACEs) are more likely to experience ACEs as well (Dixon et al., 2005; Narayan et al., 2017). To address this issue, research has sought to identify the elements contributing to the perpetuation of adversity. One significant factor is the impact of childhood adversity in parental history on subsequent parenting behaviors (Lotto et al., 2023; Savage et al., 2019). Parental childhood experiences contribute to the creation of an internal working model that guides parents' responses to their child's signals (Bowlby, 1973; Bretherton, 1990). While the internal working model is influenced by multiple factors, including adult experiences and the child's characteristics, it has been argued that ACEs play a significant role in shaping parents' capacity to respond sensitively to their child's emotional signals (George & Solomon, 2008; Main & Hesse, 1990). Fraiberg et al. (1975) suggested that the child's distress may trigger negative memories and emotions

CONTACT Sabina R. Weistra  S.R.Weistra@tilburguniversity.edu  Tranzo - Scientific Center for Care and Wellbeing of Tilburg University, Prof. Cobbenhagenlaan 125, 5037 DB, Tilburg, the Netherlands.

© 2025 The Author(s). Published with license by Taylor & Francis Group, LLC.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

stemming from the parent's ACEs in the form of "ghosts in the nursery." These "ghosts" can, in turn, lead to the misinterpretation of their infants' cues (Brom et al., 2009). Fraiberg's theory is supported by several empirical studies. Higher rates of ACEs correlate with higher rates of parental hostility (Bailey et al., 2012), lower maternal sensitivity (Pereira et al., 2012; Su et al., 2018), and a lower overall quality of parent-child interaction (Choi et al., 2022; Guyon-Harris et al., 2021; Julian et al., 2019).

PRF and parenting

In recent decades, psychotherapeutic approaches focusing on increasing parents' ability to mentalize about their children's mental states have become increasingly widespread. This development aligns with evidence that a parent's ability to mentalize about their child's inner world promotes attuned parenting behavior (Barlow et al., 2021; Stacks et al., 2014; Suchman et al., 2010). Caregiving requires parents to not only imagine the child's experience, but to also be aware of their own emotions and their impact on the child-parent relationship (Ensink et al., 2016). Parental Reflective Functioning (PRF), a manifestation of mentalizing, is the parent's ability to see and treat the child as its own psychological agent (Fonagy et al., 1991; Sharp et al., 2006). It is increasingly evident that PRF is a multidimensional construct, with instruments evolving from the capture of a single overall score to the measurement of multiple underlying factors (Luyten et al., 2017). Luyten et al. (2017) identified three aspects of PRF: pre-mentalizing modes (PM) reflect a tendency to attribute negative intentions to the child's behavior; certainty of mental states (CMS) reflects the parent's awareness that they cannot be entirely certain about their child's inner world; and interest and curiosity in mental states (IC) indicates an appropriate level of interest in the child's inner states.

To date, research has predominantly focused on the relationship between PRF and positive parenting behavior, despite the fact that positive and negative behaviors can be regarded as separate constructs (Dallaire et al., 2006; Thomson et al., 2014). While higher PRF has consistently been associated with greater parental sensitivity (Berthelot et al., 2015; Camoirano, 2017; Kelly et al., 2005; Stacks et al., 2014; Suchman et al., 2010), its association with negative parenting behaviors is less clear. Some evidence indicates that low PRF is uniquely associated with interactions characterized by intrusiveness, withdrawal, and negativity (Kelly et al., 2005). Although a more developed ability to mentalize about a child's inner world might be expected to inhibit negative parenting behaviors, the few studies that examined this link produced mixed results (Ensink et al., 2019; Stuhmann et al., 2022).

Research shows that abuse and neglect during childhood can result in an impaired ability to understand one's own and others' mental states, i.e. the ability to mentalize (San Cristobal et al., 2017). Berthelot et al. (2019) found that childhood maltreatment is associated with hypomentalization, a heightened tendency to avoid thinking about mental states, among adults expecting a child. Studies among mothers with a history of childhood abuse (Moser et al., 2019) and neglect (San Cristobal et al., 2017) found that they displayed a reduced ability to mentalize.

Positive childhood experiences (PCEs)

Insights from the field of developmental psychology suggest that patterns of continuity and discontinuity of adversity are dynamic and contingent upon the interplay between risk factors and protective influences (Cicchetti & Toth, 2009; Masten & Obradovic, 2006). PCEs should be considered alongside ACEs when studying the processes that drive intergenerational patterns of adversity (Narayan & Masten, 2018). As opposed to “ghosts in the nursery” (Fraiberg et al., 1975), “angels in the nursery” are positive self- and relational experiences that occur in childhood (Lieberman et al., 2005). While ACEs have been the subject of research since Felitti et al. (1998) seminal work thirty years ago, it has only been a decade since PCEs drew attention for their hypothesized potential to promote favorable outcomes and offset adversity. The promotive effects of PCEs on an array of individual outcomes, while controlling for ACEs, have been investigated, with positive results for mental health outcomes (e.g. Kuhar & Zager Kocjan, 2021; Rodriguez et al., 2021) and psychosocial functioning and stress (e.g. Shaw et al., 2023; Xu et al., 2022). However, findings are mixed with regard to parenting-related outcomes.

PCEs were found to have a positive effect on parental self-efficacy and role satisfaction (Chasson & Taubman- Ben-Ari, 2024), nurturing parenting attitudes (Morris et al., 2021), and parental reflective functioning (Håkansson et al., 2018), while no positive effects were found for harsh parenting (Morris et al., 2021). Studying the protective effects of PCEs is particularly relevant in the pursuit of factors that mitigate the negative consequences of ACEs. Few studies have investigated whether PCEs attenuate the relationship between ACEs and negative parenting outcomes (Han et al., 2023). What research exists was conducted in the US using community samples (Morris et al., 2021; Narayan et al., 2018), which constrains generalizability across different populations and cultural contexts. Because community samples may lack sufficient baseline adversity to detect meaningful protective effects, studies based on such samples could underestimate true buffering capacity of PCEs. Determining whether PCEs offset risk requires investigation using varied samples that include high-adversity participants,

drawn from e.g. clinical populations. Populations exposed to high-risk circumstances not only provide the necessary risk variance to detect these effects but also enable findings more directly applicable to therapeutic settings, where such interventions would be most needed and impactful. This gap in the literature is significant, given the important implications of the parenting pathway for breaking cycles of adversity (Narayan et al., 2021). If PCEs can buffer ACEs' negative effects on parenting, their effect could mitigate the intergenerational transmission of adversity.

Current study

We explored the mediating role of PRF in the relationship between parental ACEs and positive and negative parenting behaviors. Furthermore, we investigated whether parental PCEs moderated the relationship between ACEs and mentalization (PRF). First, we hypothesized that the effect of parental ACEs on the quality of parent-child interaction was mediated by Parental Reflective Functioning (PRF). Considering the scarcity of literature on the differential relationship between PRF and positive versus negative parenting behaviors (Stuhrmann et al., 2022), we separated the two types of behaviors. Second, we hypothesized that PCEs would have a moderating (protective) effect on the relationship between ACEs and PRF (see Figure 1).

Materials and methods

Study description

This study was part of a joint research collaboration between Tilburg University and a Dutch center specializing in mental health care for children and families. Health care professionals working at the center in the provinces of North and South Holland invited parents to participate. Information flyers were placed in the center's waiting rooms. Participants were encouraged to spread word of the study, both by sharing flyers and through word of mouth; interested individuals could contact the research team for more information or to apply. Before enrollment, participants were informed that the research was about parental childhood experiences and parenting.

The inclusion criteria were as follows. The participating parent was required to a) be aged 18 or older, b) not be suffering from a severe psychiatric disorder such as severe psychosis, severe substance abuse, or a disorder requiring hospitalization, c) speak Dutch or English fluently, and d) have a participating child aged between 3 months and 7 years. Of the 126 parents who expressed interest in the study, 16 dyads were excluded for the following reasons: incomplete data (7); child was too young (3); consent form could not be obtained (2); participant stopped replying after the first contact (2); inability to plan an appointment because of

participant's time constraints (2). Ultimately, 110 parents were observed with their child during a parent-child play episode and were asked to fill out a set of questionnaires. The study was approved by the ethical committee of the involved mental health clinic (Commissie Wetenschappelijk Onderzoek Youz - Onderzoeksdoosier 2021, p. 64) and the ethical review board of the Tilburg School of Social and Behavioral Sciences (Reference: RP470).

Measures

Adverse childhood experiences (ACEs)

The questionnaire used in this study was a Dutch translation of the original ACEs questionnaire (Felitti et al., 1998). The items measured parental exposure to adversity before the age of 18: abuse (physical, emotional, and sexual); neglect (physical and emotional); and household challenges (witnessing family violence; divorce; as well as substance abuse, incarceration and mental illness of a family member). Responses were coded as “did experience” (1) or “did not experience” (0). The total score was calculated by summing the experienced ACEs.

Positive childhood experiences (PCEs)

PCEs were assessed using a Dutch translation of the Benevolent Childhood Experiences (BCEs) scale (Narayan et al., 2018). The BCEs scale was developed to assess PCEs before the age of 18 years. The scale begins with the sentence “When you were growing up, during your first 18 years of life...” and lists ten items, e.g. whether the respondent had at least one caregiver with whom they felt safe, and whether they had at least one good friend. Responses were categorized as either “did experience” (1) or “did not experience” (0). The total score was calculated by summing all the items that the participant reported as having experienced.

Parental reflective functioning (PRF)

The Dutch version of the Parental Reflective Functioning Questionnaire (PRFQ; Luyten et al., 2017) consists of 18 self-report items assessed on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). It assesses three aspects of mentalization, each with six items: pre-mentalizing modes (PM) assesses a non-mentalizing stance, often associated with malevolent attributions about the child's behavior; certainty of mental states (CMS) assesses the parent's ability to recognize the opacity of mental states, and ranges from excessive certainty (hypermentalizing) to insufficient certainty (hypomentalizing); interest and curiosity in mental

states (IC) reflects curiosity and willingness to understand the mental states of the child (Luyten et al., 2017). The internal consistency for the PRFQ scales in this sample expressed as Cronbach's alpha coefficient was $\alpha = .59$ for PM, $\alpha = .64$ for CMS, $\alpha = .71$ for IC.

Observed parent-child interactions

The quality of the parent-child interactions was assessed using video-recorded play observations. Parents were instructed to play with their child as they would normally do for 10 to 15 min using a variety of toys appropriate for children of different ages. Their interactions were assessed using Dutch translations of scales developed by Erickson et al. (1985) and by researchers of the NICHD study (NICHD Early Child Care Research Network, 1999). Each scale ranged from 1 (very low) to 7 (very high). The domains measured were parental sensitivity, positive regard, encouragement of the child's development, intrusiveness, negativity/hostility and the child's involvement of the parent, positive affect, and negativity. Like other instruments, such as the Emotional Availability Scales (Biringen et al., 2014), our scales are dyadic. The scores encompass not only the parent's behavior toward the child but also incorporate the child's reciprocal response to the parent. If a parent consistently reacts in a sensitive and responsive way, the child's involvement of the parent and positive affect are likely to be high in response. Similarly, if a parent shows signs of intrusiveness, the child's positive affect diminishes, and negativity increases. Because the focus is on the parent's behaviors, we named our scales "positive parenting behaviors" and "negative parenting behaviors".

Positive parenting behaviors encompass the scores on the parental dimensions of sensitivity, positive regard, and encouragement of the child's development and the child's dimensions of involving the parent and positive affect. The Cronbach's α for this scale was .88. *Negative parenting behaviors* were conceptualized as the sum of the parental dimensions of intrusiveness and negativity/hostility, as well as the child's own negativity. The Cronbach's for this scale was $\alpha = .64$. Videotapes were coded by the first and second authors with the support of psychologists working in the clinics where the data was collected. To establish inter-rater reliability, 15% of the videos were compared and discussed until consensus was reached.

Sociodemographics

A questionnaire was used to gather demographic data, including the age and sex of both parents and children, family composition, and parents' educational levels. Information about possible mental health conditions was collected by inquiring whether the child or the parent had been

diagnosed with any disorder listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM). [Table 1](#) presents the demographic characteristics of the sample. Both parents from each household were invited to participate in the study. The majority (64%) of the respondents consisted of one parent engaging with their child while the remaining 36% included both parents of one household playing separately with their child.

Analysis plan

Data analyses were performed using SPSS software, version 29 (IBM Corp., 2023). Preliminary analyses were conducted to calculate the descriptive and correlation statistics for the main variables. To test for mediation and moderated mediation, we used a conditional process analysis in PROCESS Version 4.2 (Hayes, 2022) in SPSS. We controlled for parental psychopathology.

Results

The prevalence of parental ACEs and PCEs among our participants varied: 28% of the sample reported no exposure to adversity, whereas 30% reported experiencing more than four ACEs. The prevalence of PCEs was relatively high, with 72% of participants having experienced more than six PCEs. [Table 2](#) provides the correlations among the study variables.

The mediating role of parental reflective functioning

With these analyses, we aimed to examine the association between ACEs and positive and negative parenting behaviors mediated by PRF. A parallel mediation analysis was conducted with the three dimensions of PRF. The first step showed that only the effect of ACEs on pre-mentalizing modes

Table 1. Descriptive statistics of the sample.

| Variable | M | SD | N | % |
|-----------------------------------|------|-----|----|------|
| Child's age in years | 3.60 | 1.7 | | |
| Child: boy | | | 75 | 69.4 |
| Child with a DSM classification | | | 8 | 7.3 |
| Mothers | | | 71 | 64.5 |
| Mother's age | 35.1 | 5.1 | | |
| Father's age | 37.3 | 5 | | |
| Parents with a DSM classification | | | 42 | 38.5 |
| Family status | | | | |
| Married or co-habiting | | | 76 | 69.7 |
| Living with new partner | | | 5 | 4.6 |
| Single parent | | | 23 | 21.1 |
| Other | | | 5 | 4.6 |
| Educational level | | | | |
| Elementary school | | | 4 | 3.7 |
| High school | | | 10 | 9.2 |
| Secondary vocational education | | | 36 | 33 |
| Higher education | | | 59 | 54.1 |

(PM) was significant ($\beta = 0.22$, $p < .05$), suggesting that a higher number of ACEs was associated with a non-mentalizing stance. There was no significant relationship between parental ACEs and the dimensions of CMS and IC. Therefore, only the PM scale was considered in further analyses.

Positive parenting behaviors

The second step of our analysis showed that the effect of PM on positive parenting behaviors was also significant ($\beta = -0.23$), indicating a small negative effect of pre-mentalizing modes on positive parenting behavior. The direct effect, after accounting for mediation and controlling for the presence of parental psychopathology, was not significant ($\beta = -0.13$, $p = .22$). These findings are summarized in [Figure 2](#).

Negative behaviors

The effect of PM on negative parenting behaviors was not significant ($\beta = .01$, $p = .90$). The relationship between ACEs and negative parenting behaviors was not mediated by pre-mentalizing modes. The direct effect

Table 2. Bivariate correlations.

| | M (SD) | 1 | 2 | 3 | 4 | 5 | 6 |
|------------------------------------|-------------|---------|---------|---------|-------|-------|---------|
| 1. ACEs | 2.50 (2.53) | | | | | | |
| 2. PCEs | 7.83 (1.88) | −0.58** | | | | | |
| 3. PRFQ_Pre-mentalizing modes | 2.16 (0.87) | .27** | −0.30** | | | | |
| 4. PRFQ_Certainty of mental states | 4.33 (0.86) | .06 | −0.04 | −0.29** | | | |
| 5. PRFQ_Interest and curiosity | 5.77 (0.83) | .03 | −0.00 | −0.30** | .19* | | |
| 6. Positive parenting behaviors | 4.53 (1.41) | −0.18 | .11 | −0.26** | .03 | .27** | |
| 7. Negative parenting behaviors | 1.73 (.93) | .29** | −0.19* | .09 | −0.04 | .03 | −0.60** |

$N = 110$

** $p < .01$; * $p < .05$

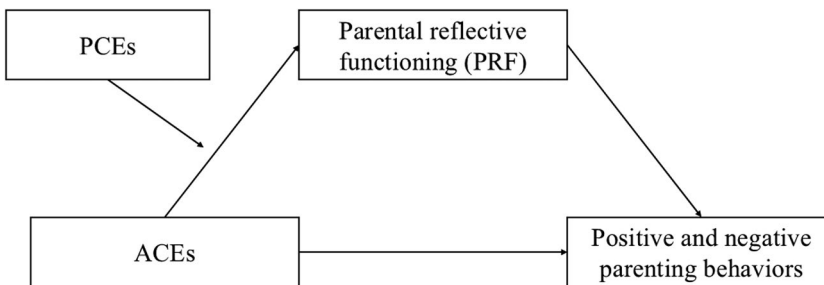


Figure 1. Conceptual model of the moderated mediation.

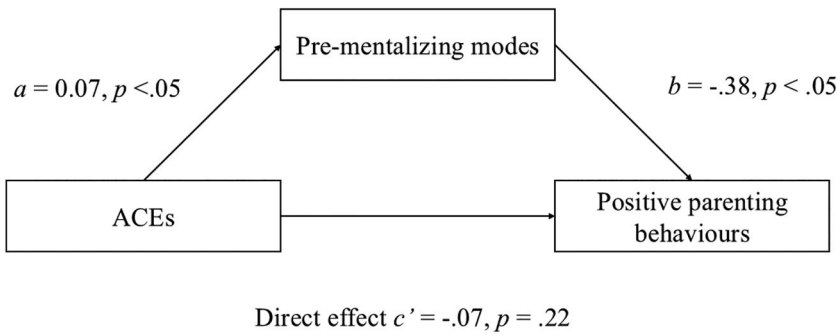


Figure 2. Effect of ACEs on positive parenting behaviors mediated by PM.

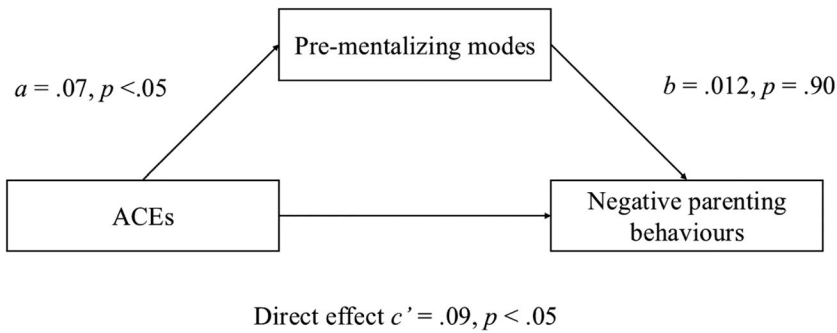


Figure 3. Effect of ACEs on negative parenting behaviors mediated by PM.

was statistically significant. The standardized coefficient ($\beta = .24$), accounting for the presence of parental psychopathology, indicated a small positive direct effect of ACEs on negative parenting behaviors. These findings are summarized in Figure 3.

The moderating role of PCEs in mediation

To test whether PCEs moderated the effect of ACEs on pre-mentalizing modes, we performed a moderated mediation, while controlling for the presence of parental psychopathology. The analyses showed that the a-path from ACEs to PM was not significant ($b = .037, p = .38$) and that PCEs neither significantly interacted with ACEs nor significantly predicted pre-mentalizing modes. The index of moderated mediation was not significant ($b = .004, 95\%$ percentile CI $[-.019, 014]$).

Discussion

This study aimed to examine whether parental reflective functioning—assessed across the dimensions of pre-mentalizing modes, certainty of mental states, and interest and curiosity—mediated the relationship between

parental ACEs and the quality of parent-child interaction. More specifically, we set out to study how parenting behaviors were affected by ACEs *via* mentalization, and whether positive and negative behaviors were affected differently. We also investigated whether the effect of ACEs on parental mentalization was moderated by parental PCEs. Our analyses showed that ACEs were related only to pre-mentalizing modes of PRF. Parental ACEs were not significantly associated with the PRF dimensions “interest and curiosity” and “certainty of mental states”. PM was a significant mediator for the effect of ACEs on positive parenting behaviors, but did not mediate the effect of ACEs on negative parenting behaviors. Finally, contrary to our hypothesis, PCEs did not moderate the relationship between parental ACEs and mentalizing.

In line with a review by Stuhmann et al. (2022), our study corroborates previous findings that PRF is related to parenting behaviors. Our results add to the existing body of evidence that PRF is linked to sensitive parenting (Berthelot et al., 2015; Kelly et al., 2005; Stacks et al., 2014) and that targeting parental reflective functioning can positively impact such behaviors (Suchman et al., 2010). Our finding that pre-mentalizing modes, in particular, mediated the association between parental ACEs and positive behaviors confirms that parents who struggle to accurately interpret their child’s cues exhibit lower sensitivity. The results from our mixed-risk sample corroborate Krink et al. (2018) finding, based on a clinical sample, that a non-mentalizing stance adversely affects parental positive behaviors. Considering that pre-mentalizing is a symptom of a parent’s difficulty in understanding their child’s inner world, the finding that pre-mentalizing modes were not related to negative parenting behaviors was unexpected. The ability to mentalize has been linked to reduced intrusive, negative, and aggressive parenting behaviors (Ensink et al., 2019); in contrast, a non-mentalizing stance has been linked to increased abusive parenting behaviors (Dixon et al., 2005). Our finding indicates that parental ACEs relate to negative behaviors independently of the parents’ ability to mentalize about their child’s inner states, suggesting that another mechanism might be at play. This finding could be interpreted in light of recent studies (Ensink et al., 2019; Guyon-Harris et al., 2021) suggesting that the ability to mentalize about one’s own traumatic past could be the underlying factor in this relationship. These studies hypothesize that only unresolved traumatic experiences lead to intrusive and negative parenting. A traumatic childhood experience which has not been mentalized, and therefore lacks a coherent narrative, makes parents vulnerable to intense emotions such as fear, helplessness, and anger, especially when their child is in distress (Fonagy, 1993), and this can lead to increased negative parenting behaviors. Given that reflective functioning concerning trauma was not specifically

measured in this study, we recommend further investigation of this hypothesis. Finally, our free-play, relatively low-stress observational setting might explain the absence of association between PRF and negative parenting behaviors. The relationship between reflective functioning and parental negative behavior could be more pronounced in an observational setting meant to elicit the child's negative affect, in contrast to free-play situations (Kelly et al., 2005).

In line with a review by Han et al. (2023), our findings suggest that PCEs in and of themselves may not be sufficient to mitigate the long-lasting impact of ACEs on parenting. Although a previous study concluded that PCEs promoted parental reflective functioning (Håkansson et al., 2018), we found no evidence that PCEs had a protective effect on PRF in our mixed-risk population. We may be missing important nuances by focusing only on the number of PCEs participants experienced. The age at which positive experiences occur and their personal significance may be more important than the absolute quantity of PCEs alone; this could provide valuable insights into how PCEs interact with ACEs (Han et al., 2023). An alternative hypothesis is that PCEs increase the potential for more resilient outcomes (Narayan et al., 2018), which contribute to the development of skills that subsequently moderate the negative effect of ACEs on PRF. One factor warranting further investigation is the ability to regulate stress, as multiple studies have shown that it plays a role in the association between ACEs and parenting behaviors (Coe et al., 2021; Gonzalez et al., 2012; Pereira et al., 2012).

Limitations and implications

The contributions of this study must be interpreted alongside its limitations. Regarding our assessment of the parent-child interaction, we should note that the internal consistency of the negative parenting behaviors scale was only moderate. This could indicate that not all dimensions currently grouped together reflected the same construct. Luyten et al. (2017) found that hostility and intrusiveness were differentially related to PRF dimensions, suggesting that distinguishing between these two types of negative behaviors could improve our understanding of their relationship to PRF. Furthermore, our sample had relatively low rates of observed negative interaction, which could be due to the artificial setting of the observation (Thomson et al., 2014). We also note that the internal consistency of our pre-mentalizing scale was only moderate, which might have biased the estimates downwards (VanderWeele et al., 2012). The mediating effect of pre-mentalizing on positive parenting behaviors may therefore be stronger in actuality than we found in our study.

The small effect sizes we found indicate that the direct effect of ACEs on negative parenting behaviors and their mediated effect *via* pre-mentalizing on positive parenting behaviors are but two of many factors involved in these relationships. It is important to note that the extent of ACEs and how individuals cope with these experiences can vary significantly (Weems et al., 2021). However, considering the detrimental impact of parental negative behaviors on child outcomes (Kelly et al., 2005; Shi et al., 2012), it is imperative to continue investigating the mechanisms by which parental ACEs affect negative parenting behaviors. We suggest that it would be valuable to examine whether the impact of ACEs on negative parenting behaviors is mediated by the mentalization of unresolved traumatic “ghost” memories.

Our findings suggest that pre-mentalizing influenced positive parenting behaviors independently of parental psychopathology. However, prior research has consistently linked difficulties in reflective functioning to poorer mental health outcomes, particularly with conditions such as Borderline Personality Disorder (Ballespí et al., 2018). Since this study did not assess specific psychiatric diagnoses, we were unable to determine whether particular disorders might intensify the association between reflective functioning and parenting behaviors. Future research should include detailed assessments of parental mental health to explore how different conditions uniquely affect parental reflective functioning (PRF) and parent–child interactions. Clinicians need to be aware that PRF, mental illness, and ACEs are interrelated and should address these factors through an integrated, individualized intervention plan.

Finally, the finding that PCEs did not interact with ACEs in affecting PRF should be interpreted with caution, considering the relatively small sample size and the fact that the number of PCEs in our sample was relatively high. These factors may have reduced our study’s statistical power to detect interaction effects and the potential buffering influences of PCEs on the relationship between ACEs and parenting behaviors. Although most participating dyads were recruited from a mental health clinic where the children had been referred, our sample was relatively heterogenous in terms of parental and child characteristics. The participants’ exposure to ACEs was sufficiently diverse to enable examination of the relationship between adversity and parenting. Most participants (87.1%) had post-secondary education, which may limit the generalizability of our findings to more educated populations. Additionally, although we collected information on participants’ educational attainment as an indicator of socioeconomic status, we did not gather comprehensive data on SES. Given that socioeconomic disadvantage is a well-established risk factor for ACE exposure (Walsh et al., 2019), our inability to control for SES means that some

observed associations may be partially attributable to unmeasured socioeconomic variables. However, a meta-analysis by Savage et al. (2019) showed that the association between ACEs and parenting remains significant even when SES is accounted for. While including both mothers and fathers as research participants was a strength of our study, we were not able to run separate analyses because of the relatively small number of fathers. There is evidence that PRF differs according to gender: for example, Pazzagli et al. (2018) found that mothers in a community sample displayed more interest and curiosity in interaction with their children than fathers. To better understand how aspects of PRF differ according to parental gender and subsequently affect parenting behaviors, adapting recruitment strategies to also include fathers is recommended (Stover et al., 2023).

Screening for parental ACEs with a trauma-focused approach can enable timely interventions for the parent-child dyad. While mentalization-based interventions can effectively support the development of positive parenting behaviors by enhancing parents' ability to attune to their children's signals and inner states, clinicians should consider alternative approaches when negative behaviors prominently shape the parent-child interaction. Interventions using video feedback, such as Modified Interaction Guidance (MIG), can be more effective for parents with limited introspective capacity who therefore benefit from more direct education and feedback (Madigan et al., 2006).

Conclusion

The present study contributes to the existing literature by providing evidence that parental reflective functioning is an important mechanism in the relationship between ACEs and positive behaviors within the parent-child interaction. The results thus support the validity of mentalization-based interventions to enhance positive parenting behaviors. This study underscores the importance of adapting interventions to specific parenting behaviors. It demonstrates that ACEs directly influence negative parenting behaviors and that interventions targeting parental reflective functioning are less likely to yield a decrease in negative behaviors such as hostility and intrusiveness in parent-child interactions. Future research should explore the concept of mentalizing childhood trauma as a potential mediator between parental ACEs and negative parenting behaviors.

Acknowledgements

We thank the families who participated in the study and acknowledge the valuable efforts and diligent work of the Youz (Parnassia Groep) staff in data collection.

Ethical statement and informed consent

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation [institutional and national] and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

Disclosure statement

The first author was employed as a clinical psychologist at the clinic where data collection took place. The author declares that there were no financial or personal relationships that could have influenced the work reported in this paper. The other two authors have no known conflict of interest to disclose.

Notes on contributors

Sabina R. Weistra, MSc, is a Clinical Psychologist and PhD candidate at Tilburg University.

Hedwig J.A. van Bakel is a Clinical Psychologist and Full Professor at the Department of Clinical Psychology at the Open Universiteit in Heerlen, the Netherlands.

Jolanda J.P. Mathijssen is Full Professor at the Department of Social and Behavioral Sciences at Tilburg University.

ORCID

Sabina R. Weistra  <http://orcid.org/0009-0003-2902-804X>

Hedwig J. A. van Bakel  <http://orcid.org/0000-0002-9224-5261>

Jolanda J. P. Mathijssen  <http://orcid.org/0000-0002-2425-4510>

Data availability statement

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

References

- Bailey, H. N., DeOliveira, C. A., Wolfe, V. V., Evans, E. M., & Hartwick, C. (2012). The impact of childhood maltreatment history on parenting: A comparison of maltreatment types and assessment methods. *Child Abuse & Neglect*, 36(3), 236–246. <https://doi.org/10.1016/j.chiabu.2011.11.005>
- Ballespí, S., Vives, J., Debbané, M., Sharp, C., & Barrantes-Vidal, N. (2018). Beyond diagnosis: Mentalization and mental health from a transdiagnostic point of view in adolescents from non-clinical population. *Psychiatry Research*, 270, 755–763. <https://doi.org/10.1016/j.psychres.2018.10.048>
- Barlow, J., Slead, M., & Midgley, N. (2021). Enhancing parental reflective functioning through early dyadic interventions: A systematic review and meta-analysis. *Infant Mental Health Journal*, 42(1), 21–34. <https://doi.org/10.1002/imhj.21896>

- Berthelot, N., Ensink, K., Bernazzani, O., Normandin, L., Luyten, P., & Fonagy, P. (2015). Intergenerational transmission of attachment in abused and neglected mothers: The role of trauma-specific reflective functioning. *Infant Mental Health Journal*, 36(2), 200–212. <https://doi.org/10.1002/imhj.21499>
- Berthelot, N., Lemieux, R., Garon-Bissonnette, J., Lacharité, C., & Muzik, M. (2019). The protective role of mentalizing: Reflective functioning as a mediator between child maltreatment, psychopathology and parental attitude in expecting parents. *Child Abuse & Neglect*, 95, 104065. <https://doi.org/10.1016/j.chiabu.2019.104065>
- Biringen, Z., Derscheid, D., Vliegen, N., Closson, L., & Easterbrooks, M. A. (2014). Emotional availability (EA): Theoretical background, empirical research using the EA Scales, and clinical applications. *Developmental Review*, 34(2), 114–167. <https://doi.org/10.1016/j.dr.2014.01.002>
- Bowlby, J. (1973). *Attachment and loss. Vol. 2: Separation: Anxiety and anger*. Basic Books.
- Bretherton, I. (1990). Communication patterns, internal working models, and the intergenerational transmission of attachment relationships. *Infant Mental Health Journal*, 11(3), 237–252. [https://doi.org/10.1002/1097-0355\(199023\)11:3<237::AID-IMHJ2280110306>3.0.CO;2-X](https://doi.org/10.1002/1097-0355(199023)11:3<237::AID-IMHJ2280110306>3.0.CO;2-X)
- Brom, D., Pat-Horenczyk, R., & Ford, J. D. (Eds.). (2009). *Treating traumatized children: Risk, resilience, and recovery*. Routledge.
- Camoirano, A. (2017). Mentalizing makes parenting work: A review about parental reflective functioning and clinical interventions to improve it. *Frontiers in Psychology*, 8, 14. <https://doi.org/10.3389/fpsyg.2017.00014>
- Chasson, M., & Taubman- Ben-Ari, O. (2024). Paths from adverse and benevolent childhood experiences to personal growth after childbirth: The role of psychological distress, social support, and self-compassion. *Psychological Trauma: Theory, Research, Practice and Policy*, 16(Suppl 1), S28–S38. <https://doi.org/10.1037/tra0001664>
- Choi, K. W., Denckla, C. A., Hoffman, N., Budree, S., Goddard, L., Zar, H. J., Stern, M., & Stein, D. J. (2022). Influence of maternal childhood trauma on perinatal depression, observed mother–infant interactions, and child growth. *Maternal and Child Health Journal*, 26(8), 1649–1656. <https://doi.org/10.1007/s10995-022-03417-2>
- Cicchetti, D., & Toth, S. L. (2009). The past achievements and future promises of developmental psychopathology: The coming of age of a discipline. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 50(1-2), 16–25. <https://doi.org/10.1111/j.1469-7610.2008.01979.x>
- Coe, J. L., Huffhines, L., Gonzalez, D., Seifer, R., & Parade, S. H. (2021). Cascades of risk linking intimate partner violence and adverse childhood experiences to less sensitive caregiving during infancy. *Child Maltreatment*, 26(4), 409–419. <https://doi.org/10.1177/10775595211000431>
- Dallaire, D. H., Pineda, A. Q., Cole, D. A., Ciesla, J. A., Jacquez, F., LaGrange, B., & Bruce, A. E. (2006). Relation of positive and negative parenting to children's depressive symptoms. *Journal of Clinical Child and Adolescent Psychology: The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, 35(2), 313–322. https://doi.org/10.1207/s15374424jccp3502_15
- Dixon, L., Hamilton-Giachritsis, C., & Browne, K. (2005). Attributions and behaviours of parents abused as children: A mediational analysis of the intergenerational continuity of child maltreatment (Part II). *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 46(1), 58–68. <https://doi.org/10.1111/j.1469-7610.2004.00340.x>
- Ensink, K., Borelli, J. L., Roy, J., Normandin, L., Slade, A., & Fonagy, P. (2019). Costs of not getting to know you: Lower levels of parental reflective functioning confer risk for maternal insensitivity and insecure infant attachment. *Infancy: The Official Journal of*

- the International Society on Infant Studies*, 24(2), 210–227. <https://doi.org/10.1111/inf.12263>
- Ensink, K., Normandin, L., Plamondon, A., Berthelot, N., & Fonagy, P. (2016). Intergenerational pathways from reflective functioning to infant attachment through parenting. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences du Comportement*, 48(1), 9–18. <https://doi.org/10.1037/cbs0000030>
- Erickson, M. F., Sroufe, L. A., & Egeland, B. (1985). The relationship between quality of attachment and behavior problems in preschool in a high-risk sample. *Monographs of the Society for Research in Child Development*, 50(1/2), 147. <https://doi.org/10.2307/3333831>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine*, 14(4), 245–258. [https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8)
- Fonagy, P. (1993). Psychoanalytic and empirical approaches to developmental psychopathology: Can they be usefully integrated? *Journal of the Royal Society of Medicine*, 86(10), 577–581. <https://doi.org/10.1177/014107689308601011>
- Fonagy, P., Steele, M., Steele, H., Moran, G. S., & Higgitt, A. C. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment: infant mental health journal. *Infant Mental Health Journal*, 12(3), 201–218. [https://doi.org/10.1002/1097-0355\(199123\)12:3<201::AID-IMH-J2280120307>3.0.CO;2-7](https://doi.org/10.1002/1097-0355(199123)12:3<201::AID-IMH-J2280120307>3.0.CO;2-7)
- Fraiberg, S., Adelson, E., & Shapiro, V. (1975). Ghosts in the nursery: A psychoanalytic approach to the problems of impaired infant-mother relationships. *Journal of the American Academy of Child Psychiatry*, 14(3), 387–421. [https://doi.org/10.1016/S0002-7138\(09\)61442-4](https://doi.org/10.1016/S0002-7138(09)61442-4)
- George, C., & Solomon, J. (2008). The caregiving system: A behavioral systems approach to parenting. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and Clinical applications* (pp. 833–856) (2nd ed.). The Guilford Press.
- Gonzalez, A., Jenkins, J. M., Steiner, M., & Fleming, A. S. (2012). Maternal early life experiences and parenting: The mediating role of cortisol and executive function. *Journal of the American Academy of Child and Adolescent Psychiatry*, 51(7), 673–682. <https://doi.org/10.1016/j.jaac.2012.04.003>
- Guyon-Harris, K. L., Madigan, S., Bronfman, E., Romero, G., & Huth-Bocks, A. C. (2021). Using latent profiles of childhood maltreatment. *Journal of Interpersonal Violence*, 36, 23–24.
- Håkansson, U., Watten, R., Söderström, K., Skårderud, F., & Øie, M. G. (2018). Adverse and adaptive childhood experiences are associated with parental reflective functioning in mothers with substance use disorder. *Child Abuse & Neglect*, 81, 259–273. <https://doi.org/10.1016/j.chiabu.2018.05.007>
- Han, D., Dieujuste, N., Doom, J. R., & Narayan, A. J. (2023). A systematic review of positive childhood experiences and adult outcomes: Promotive and protective processes for resilience in the context of childhood adversity. *Child Abuse & Neglect*, 144, 106346. <https://doi.org/10.1016/j.chiabu.2023.106346>
- Harris, M., MacMillan, H., Andrews, K., Atkinson, L., Kimber, M., England-Mason, G., & Gonzalez, A. (2021). Maternal adverse childhood experiences, executive function & emotional availability in mother-child dyads. *Child Abuse & Neglect*, 111, 104830. <https://doi.org/10.1016/j.chiabu.2020.104830>
- Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. 3rd ed. Guilford Publications.

- IBM Corp (2023). *IBM SPSS Statistics for Windows, (Version 29.0.2.0) [Computer software]*.
- Julian, M. M., King, A. P., Bocknek, E. L., Mantha, B., Beeghly, M., Rosenblum, K. L., & Muzik, M. (2019). Associations between oxytocin receptor gene (OXTR) polymorphisms, childhood trauma, and parenting behavior. *Developmental Psychology, 55*(10), 2135–2146. <https://doi.org/10.1037/dev0000783>
- Kelly, K., Slade, A., & Grienenberger, J. F. (2005). Maternal reflective functioning, mother–infant affective communication, and infant attachment: Exploring the link between mental states and observed caregiving behavior in the intergenerational transmission of attachment. *Attachment & Human Development, 7*(3), 299–311. <https://doi.org/10.1080/14616730500245963>
- Krink, S., Muehlhan, C., Luyten, P., Romer, G., & Ramsauer, B. (2018). Parental reflective functioning affects sensitivity to distress in mothers with postpartum depression. *Journal of Child and Family Studies, 27*(5), 1671–1681. <https://doi.org/10.1007/s10826-017-1000-5>
- Kuhar, M., & Zager Kocjan, G. (2021). Associations of adverse and positive childhood experiences with adult physical and mental health and risk behaviours in Slovenia. *European Journal of Psychotraumatology, 12*(1), 1924953. <https://doi.org/10.1080/2008198.2021.1924953>
- Lieberman, A. F., Padrón, E., Van Horn, P., & Harris, W. W. (2005). Angels in the nursery: The intergenerational transmission of benevolent parental influences. *Infant Mental Health Journal, 26*(6), 504–520. <https://doi.org/10.1002/imhj.20071>
- Lotto, C. R., Altafim, E. R. P., & Linhares, M. B. M. (2023). Maternal history of childhood adversities and later negative parenting: A systematic review. *Trauma, Violence & Abuse, 24*(2), 662–683. <https://doi.org/10.1177/152483802111036076>
- Luyten, P., Mayes, L. C., Nijssens, L., & Fonagy, P. (2017). The parental reflective functioning questionnaire: Development and preliminary validation. *PLoS One, 12*(5), e0176218. <https://doi.org/10.1371/journal.pone.0176218>
- Luyten, P., Nijssens, L., Fonagy, P., & Mayes, L. C. (2017). Parental reflective functioning: Theory, research, and clinical applications. *The Psychoanalytic Study of the Child, 70*(1), 174–199. <https://doi.org/10.1080/00797308.2016.1277901>
- Madigan, S., Hawkins, E., Goldberg, S., & Benoit, D. (2006). Reduction of disrupted caregiver behavior using modified interaction guidance. *Infant Mental Health Journal, 27*(5), 509–527. <https://doi.org/10.1002/imhj.20102>
- Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In *Attachment in the preschool years: Theory, research, and intervention*. (pp. 161–182). The University of Chicago Press.
- Masten, A. S., & Obradovic, J. (2006). Competence and resilience in development. *Annals of the New York Academy of Sciences, 1094*(1), 13–27. <https://doi.org/10.1196/annals.1376.003>
- Morris, A. S., Hays-Grudo, J., Zapata, M. I., Treat, A., & Kerr, K. L. (2021). Adverse and protective childhood experiences and parenting attitudes: The role of cumulative protection in understanding resilience. *Adversity and Resilience Science, 2*(3), 181–192. <https://doi.org/10.1007/s42844-021-00036-8>
- Moser, D. A., Suardi, F., Rossignol, A. S., Vital, M., Manini, A., Serpa, S. R., & Schechter, D. S. (2019). Parental reflective functioning correlates to brain activation in response to video-stimuli of mother–child dyads: Links to maternal trauma history and PTSD. *Psychiatry Research. Neuroimaging, 293*, 110985. <https://doi.org/10.1016/j.psychres.2019.09.005>

- Narayan, A. J., Kalstabakken, A. W., Labella, M. H., Nerenberg, L. S., Monn, A. R., & Masten, A. S. (2017). Intergenerational continuity of adverse childhood experiences in homeless families: Unpacking exposure to maltreatment versus family dysfunction. *The American Journal of Orthopsychiatry*, 87(1), 3–14. <https://doi.org/10.1037/ort0000133>
- Narayan, A. J., Lieberman, A. F., & Masten, A. S. (2021). Intergenerational transmission and prevention of adverse childhood experiences (ACEs). *Clinical Psychology Review*, 85, 101997. <https://doi.org/10.1016/j.cpr.2021.101997>
- Narayan, A. J., & Masten, A. S. (2018). Resilience in the context of violence and trauma: Promotive and protective processes of positive caregiving. In J. D. Osofsky & B. M. Groves (Eds.), *Violence and trauma in the lives of children: Prevention and intervention* (pp. 25–49). Praeger/ABC-CLIO.
- Narayan, A. J., Rivera, L. M., Bernstein, R. E., Harris, W. W., & Lieberman, A. F. (2018). Positive childhood experiences predict less psychopathology and stress in pregnant women with childhood adversity: A pilot study of the benevolent childhood experiences (BCEs) scale. *Child Abuse & Neglect*, 78, 19–30. <https://doi.org/10.1016/j.chiabu.2017.09.022>
- NICHD Early Child Care Research Network. (1999). Child care and mother–child interaction in the first three years of life. *Developmental Psychology*, 35(6), 1399–1413. <https://doi.org/10.1037/0012-1649.35.6.1399>
- Pazzagli, C., Delvecchio, E., Raspa, V., Mazzeschi, C., & Luyten, P. (2018). The parental reflective functioning questionnaire in mothers and fathers of school-aged children. *Journal of Child and Family Studies*, 27(1), 80–90. <https://doi.org/10.1007/s10826-017-0856-8>
- Pereira, J., Vickers, K., Atkinson, L., Gonzalez, A., Wekerle, C., & Levitan, R. (2012). Parenting stress mediates between maternal maltreatment history and maternal sensitivity in a community sample. *Child Abuse & Neglect*, 36(5), 433–437. <https://doi.org/10.1016/j.chiabu.2012.01.006>
- Rodriguez, K. E., McDonald, S. E., & Brown, S. M. (2021). Relationships among early adversity, positive human and animal interactions, and mental health in young adults. *Behavioral Sciences (Basel, Switzerland)*, 11(12), 178. <https://doi.org/10.3390/bs11120178>
- San Cristobal, P., Santelices, M. P., & Miranda Fuenzalida, D. A. (2017). Manifestation of trauma: The effect of early traumatic experiences and adult attachment on parental reflective functioning. *Frontiers in Psychology*, 8, 449. <https://doi.org/10.3389/fpsyg.2017.00449>
- Savage, L.-É., Tarabulsy, G. M., Pearson, J., Collin-Vézina, D., & Gagné, L.-M. (2019). Maternal history of childhood maltreatment and later parenting behavior: A meta-analysis. *Development and Psychopathology*, 31(1), 9–21. <https://doi.org/10.1017/S0954579418001542>
- Sharp, C., Fonagy, P., & Goodyer, I. M. (2006). Imagining your child's mind: Psychosocial adjustment and mothers' ability to predict their children's attributional response styles. *British Journal of Developmental Psychology*, 24(1), 197–214. <https://doi.org/10.1348/026151005X82569>
- Shaw, L., Hansen, H., & St Clair-Thompson, H. (2023). Mental toughness is a mediator of the relationship between positive childhood experiences and wellbeing. *European Journal of Developmental Psychology*, 20(1), 130–146. <https://doi.org/10.1080/17405629.2022.2058485>
- Shi, Z., Bureau, J.-F., Easterbrooks, M. A., Zhao, X., & Lyons-Ruth, K. (2012). Childhood maltreatment and prospectively observed quality of early care as predictors of antisocial personality disorder features. *Infant Mental Health Journal*, 33(1), 55–96. <https://doi.org/10.1002/imhj.20295>

- Stacks, A. M., Muzik, M., Wong, K., Beeghly, M., Huth-Bocks, A., Irwin, J. L., & Rosenblum, K. L. (2014). Maternal reflective functioning among mothers with childhood maltreatment histories: Links to sensitive parenting and infant attachment security. *Attachment & Human Development, 16*(5), 515–533. <https://doi.org/10.1080/14616734.2014.935452>
- Stover, C. S., Farren, A., Campbell, R., Day, M. J., & Sernyak, Z. (2023). Self-reported reflective functioning and father–child interactions in a sample of fathers who have used intimate partner violence. *Infant Mental Health Journal, 44*(2), 255–267. <https://doi.org/10.1002/imhj.22044>
- Stuhrmann, L. Y., Göbel, A., Bindt, C., & Mudra, S. (2022). Parental reflective functioning and its association with parenting behaviors in infancy and early childhood: A systematic review. *Frontiers in Psychology, 13*, 765312. <https://doi.org/10.3389/fpsyg.2022.765312>
- Su, J., Leerkes, E. M., & Augustine, M. E. (2018). DRD4 interacts with adverse life events in predicting maternal sensitivity via emotion regulation. *Journal of Family Psychology: JFP: Journal of the Division of Family Psychology of the American Psychological Association (Division 43), 32*(6), 783–792. <https://doi.org/10.1037/fam0000454>
- Suchman, N. E., DeCoste, C., Castiglioni, N., McMahon, T. J., Rounsaville, B., & Mayes, L. (2010). The Mothers and Toddlers Program, an attachment-based parenting intervention for substance using women: Post-treatment results from a randomized clinical pilot. *Attachment & Human Development, 12*(5), 483–504. <https://doi.org/10.1080/14616734.2010.501983>
- Thomson, R. M., Allely, C. S., Purves, D., Puckering, C., McConnachie, A., Johnson, P. C., Golding, J., Gillberg, C., & Wilson, P. (2014). Predictors of positive and negative parenting behaviours: Evidence from the ALSPAC cohort. *BMC Pediatrics, 14*(1), 247. <https://doi.org/10.1186/1471-2431-14-247>
- VanderWeele, T. J., Valeri, L., & Ogburn, E. L. (2012). The role of measurement error and misclassification in mediation analysis. *Epidemiology (Cambridge, Mass.), 23*(4), 561–564. <https://doi.org/10.1097/EDE.0b013e318258f5e4>
- Walsh, D., McCartney, G., Smith, M., & Armour, G. (2019). Relationship between childhood socioeconomic position and adverse childhood experiences (ACEs): A systematic review. *Journal of Epidemiology and Community Health, 73*(12), 1087–1093. <https://doi.org/10.1136/jech-2019-212738>
- Weems, C. F., Russell, J. D., Herringa, R. J., & Carrion, V. G. (2021). Translating the neuroscience of adverse childhood experiences to inform policy and foster population-level resilience. *The American Psychologist, 76*(2), 188–202. <https://doi.org/10.1037/amp0000780>
- Xu, Z., Zhang, D., Ding, H., Zheng, X., Lee, R. C.-M., Yang, Z., Mo, P. K.-H., Lee, E. K.-P., & Wong, S. Y.-S. (2022). Association of positive and adverse childhood experiences with risky behaviours and mental health indicators among Chinese university students in Hong Kong: An exploratory study. *European Journal of Psychotraumatology, 13*(1), 2065429. <https://doi.org/10.1080/20008198.2022.2065429>