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Relationship of maternal childhood maltreatment and children's emotional-behavioral problems: parental reflection functioning and social support's role

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Abstract

Childhood maltreatment has profound and long-lasting effects, not only on the victims but also on their offspring when they become parents later in life. This study aimed to investigate the role of two key mediating factors—parental reflective functioning and perceived social support—in the relationship between maternal childhood maltreatment and children's emotional and behavioral problems. We conducted a cross-sectional study in Iran from March to June 2024. Mothers of preschool children (4–6 years old) with emotional or behavioral problems ($N = 222$; Mean age = 34.06 ± 4.2 years) completed measures of Childhood maltreatment Questionnaire (CTQ), Parental Reflective Functioning Questionnaire (PRFQ), Perceived Social Support (PSS), and children's emotional and behavioral outcomes, as assessed using the Strengths and Difficulties Questionnaire (SDQ). The SDQ includes subscales for emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behavior. Structural equation modeling (SEM) was used to assess the conceptual model. The results revealed that childhood maltreatment had no direct association with children's emotional and behavioral problems. However, childhood maltreatment was positively and indirectly related to children's emotional and behavioral problems (including emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems) and negatively and indirectly related to children's prosocial behavior. These associations were mediated through pre-mentalizing modes of parental reflective functioning. Additionally, the analysis revealed no significant mediating role of perceived social support in this relationship. The findings highlight the significant indirect association between childhood maltreatment and various aspects of children's emotional and behavioral problems through pre-mentalizing modes of parental reflective functioning. This underscores the critical role of enhancing parental reflective abilities to mitigate the adverse outcomes of childhood maltreatment on children's emotional regulation and behavioral adjustment.

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Highlights

- This study addresses a significant gap in understanding the nuanced relationship between maternal childhood maltreatment and children's emotional and behavioral problems, focusing on mediating factors such as parental reflective functioning and perceived social support.
- Maternal childhood maltreatment is found to have an indirect but significant association with various aspects of children's emotional and behavioral problems, including emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship difficulties, and prosocial behavior, through pre-mentalizing modes of parental reflective functioning. This indirect pathway underscores the complexity of familial influences on child development.
- The indirect association of maternal childhood maltreatment with children's emotional and behavioral problems through the sequential pathway of perceived social support and parental reflective functioning was not significant.
- The findings emphasize the critical importance of interventions aimed at enhancing parental reflective abilities. These interventions have the potential to mitigate the adverse associations of maternal childhood maltreatment with children's emotional regulation and behavioral adjustment, offering valuable insights for both clinical practices and policy initiatives.

Keywords Childhood trauma, Children's emotional problems, Children's behavioral problems, Mentalization, Perceived social support

Childhood maltreatment (CM) is a widespread global issue, encompassing all forms of abuse and neglect of children under 18 by parents or caregivers. Prevalence rates vary between regions and types of CM, ranging from 6.5% to 54.8% [1]. Parental CM has the potential to impact the development and future health of their offspring [2]. Exposure to CM may affect parents in ways that influence the overall family dynamics and the experiences of their children [2]. However, the role of mothers in the offspring's life is significant, especially in Eastern countries such as Iran, where motherhood is considered a social and cultural commitment [3]. Research has indicated that maternal childhood adversity, assessed retrospectively in adulthood, affects the behavioral and emotional problems of their offspring [4–8]. Harris et al. [9] showed how maternal CM impacts child behavior from the toddler years through preschool [9]. Their findings revealed that children whose mothers had experienced CM exhibited more behavioral problems during their early childhood years. Additionally, the study by Airikka et al. [4] offered deeper insights into the mechanisms of this intergenerational transmission [4]. Their study revealed that maternal lifetime mental and behavioral disorders, along with lower educational attainment, partially mediated the relationship between maternal CM and the mental health outcomes of their children. Specifically, maternal mental health disorders accounted for 23.8% of the observed effect, while lower education levels contributed 15.1%.

Children's emotional and behavioral challenges encompass a range of disorders and issues that impact their mental health and overall well-being [10]. Emotional problems may manifest as anxiety and depression, while behavioral problems may include disruptive behavior disorders, conduct disorder, attention deficit hyperactivity disorder (ADHD), and conduct disorders [10]. Uy et al. [11] highlighted the intergenerational impact of maternal CM on childhood psychopathology and underscored the importance of maternal factors during pregnancy and after birth [11]. Their study found that maternal CM, experienced during the mother's own childhood, indirectly led to greater internalizing problems in her children through the mother's mental health (anxiety and depressive symptoms) [11]. A cross-sectional study found that children of mothers with two or more different types of adverse childhood experiences (e.g., physical abuse, emotional abuse, physical neglect, emotional neglect, witnessing domestic violence, household substance abuse, household mental illness, incarcerated household member, parental separation or divorce, parental death, bullying, and community violence) had a significantly higher risk of behavioral problems across all dimensions, including conduct problems, learning difficulties, psychosomatic problems, impulsive-hyperactive, anxiety, and hyperactivity [12]. Another study showed that maternal CM was associated with emotional behavior problems (including abnormal emotional behavior, emotional symptoms, conduct problems, hyperactivity, peer problems, and prosocial behaviors) among preschool children [13].

The theoretical concept of the intergenerational transmission of trauma (ITT), rooted in attachment- and trauma-related theories [14–16], suggests that mothers who have experienced trauma are at an elevated risk of transmitting the effects of their traumatic experiences to their children [17], although the transmission of trauma

is not uniform across all individuals [18]. Intergenerational transmission of trauma refers to the phenomenon whereby trauma experienced by one generation, particularly maternal CM, can impact the psychological well-being and behavior of the next generation, specifically children [19]. The mechanisms underlying intergenerational trauma include behavioral modeling, attachment disruptions, and even potential genetic and epigenetic alterations. Behavioral modeling refers to the way children internalize and replicate their parents' responses to stress and emotions, often adopting maladaptive coping strategies observed in their caregivers. Attachment disruptions occur when trauma-exposed mothers struggle with emotional attunement, leading to insecure attachment patterns that shape the child's emotional and relational development. Furthermore, emerging research suggests that trauma may induce genetic and epigenetic modifications, altering gene expression related to stress regulation, such as cortisol, serotonin, and dopamine pathways [20]. The concept of ITT is supported by research showing an increased risk for emotional and behavioral problems in offspring of traumatized mothers [21–23]. However, the underlying mechanisms driving this association remain inadequately explored. Identifying mediating factors that can explain the relationship between maternal CM and children's behavioral and emotional problems is crucial for preventing and treating these issues. Two factors that we propose to mediate in the relationship between maternal CM and children's behavioral and emotional problems are Parental Reflective Functioning (PRF) and Perceived Social Support (PSS).

Iranian families, like those in many Eastern cultures, place significant emphasis on the well-being and upbringing of their children, viewing it as a central component of both familial and societal values. Parenting in these contexts is deeply rooted in cultural norms, with parents expected to take an active and nurturing role in their children's lives. This cultural framework often prioritizes responsiveness to children's emotional and behavioral needs, alongside an implicit expectation of parental self-sacrifice to ensure their children's well-being. However, these same cultural values may also obscure or minimize the long-term impact of parents' own childhood experiences, particularly CM, on their parenting practices and child development. In the Iranian context, where maintaining family harmony and fulfilling traditional parenting roles are highly esteemed, parents who have experienced CM may encounter unique challenges. Such experiences can disrupt their ability to fully engage with their children's needs, potentially resulting in emotional and behavioral difficulties in the next generation. Exploring how unresolved maltreatment relates to parenting within this cultural framework is vital for understanding the complex interplay between cultural expectations and individual psychological processes.

PRF, or Parental mentalization, pertains to a parent's ability to comprehend and interpret both their own and their children's actions within the context of conceivable mental states [24]. PRF subscales, as described by Luyten et al. (2017), encompass pre-mentalization (PM) (characterized by an inability to engage in mentalizing, often leading to attributing malevolent or developmentally insensitive attributions to a child's behavior), certainty regarding mental states (CM) (marked by an overconfidence in understanding the child's mental states, leading to over-mentalizing, or a lack of certainty, resulting in under-mentalizing), and interest and curiosity (IC) (reflecting an active curiosity and willingness to understand the child's mental states, with high scores indicating over-mentalizing and low scores showing a lack of interest) [25]. The ability of parents to understand their child's behaviors and internal experiences (e.g., distress, fear) through emotionally attuned parenting practices is well-established in the literature [26], CM can significantly influence a mother's Reflective Functioning (RF) [27]. Becoming a parent can activate memories of attachment linked to one's own early experiences of childhood adversity [28]. If the parent (generation 1) encountered adversities and trauma like maltreatment or lack of care during their own childhood, this transition may lead to challenges in forming a strong connection with their child (generation 2) [29]. Experiences of relational maltreatment during childhood can result in parents exhibiting uncertain and unstable patterns of relational functioning and mentalizing [30]. Parents who have experienced CM in the past may perceive their child's cues as threatening or overwhelming, hindering their ability to offer suitable and responsive care to meet the child's needs [31]. However, it is not certain evidence that PRF is routinely disrupted in parents with CM experience which indicates the need for more research in this context [32]. In addition, studies have shown a direct relationship between PRF and children's emotional and behavioral problems [33–35]. A study found that low parental PRF at a 1-year follow-up mediated the relationship between parental attachment dimensions and children's social-emotional development. Paternal attachment avoidance and anxiety were indirectly linked to children's emotional and behavioral problems, as well as adaptive outcomes like emotional competence, through increased levels of prementalizing modes. Specifically in mothers, prementalizing modes partially mediated the negative association between attachment anxiety and child competence [36]. Research has also shown that maternal CM influences offspring development through RF [37]. Choi [38]

demonstrated that maternal mentalization and emotional socialization partially mediated the relationship between maternal self-reported emotional maltreatment and children's problem behaviors, as reported by mothers [38]. Specifically, the study highlighted a significant indirect effect of maternal emotional maltreatment on children's problem behaviors via hypomentalization (i.e., a reduced ability to understand or reflect on the child's mental states [39] and nonsupportive reactions. Few studies have investigated the role of maternal RF in children's emotional and behavioral problems, particularly in the context of maternal traumatic childhood experiences [40–42]. Shohrati and Nemattavosi [40] explored how maternal reflective functioning mediates the relationship between maternal traumatic childhood experiences and children's emotional and behavioral problems [40]. While their study focused on mothers in secured housing, the present research examines these relationships in mothers of preschool-aged children, incorporating PSS as an additional mediator. Additionally, this study employs structural equation modeling to offer a more nuanced understanding of the indirect effects of maternal CM on various dimensions of children's emotional and behavioral outcomes. Despite these contributions, there is a paucity of research on this topic. Further studies are needed to validate the mediating role of reflective functioning, particularly across diverse populations and developmental stages.

In the current study, PSS is examined as a mediating variable between CM and children's emotional and behavioral problems. Social support refers to the assistance and emotional backing an individual perceives or receives from family, friends, and the community, particularly in social and psychological contexts [43]. PSS is the belief or perception that support will be available when needed [44]. Research indicates that mothers who have experienced CM often struggle to form and maintain supportive relationships, which can adversely affect their PSS [27, 45]. CM, which predominantly occurs within the home and in close relationships (typically with parents), disrupts the very bonds that should provide support during parenthood. For example, maternal CM has been linked to lower perceived closeness with aging mothers [46]. These early disruptions may deprive mothers of essential social support during parenthood. Previous research has explored the role of social support in this dynamic. For instance, Dehghan Manshadi et al. [27] identified social support as a mediator in this relationship [27], while Hatch et al. [45] examined it as a moderator [45]. Mothers with a history of CM often perceive lower levels of social support due to potential trust issues, difficulties in forming secure attachments [47], and challenges in seeking help from others [27]. This lack of PSS can negatively affect children's psychological well-being [48].

Some studies have highlighted the mechanistic role of social support in the relationship between parental CM experiences and children's behavioral problems. For example, maternal family social support was found to moderate the link between maternal adverse childhood experiences and children's externalizing behaviors. Specifically, children of mothers who reported high levels of adverse childhood experiences but also had moderate to high family social support did not exhibit increased externalizing behaviors. However, this protective effect was not observed for internalizing behaviors [45]. Schiff et al. [49] emphasized that maternal rejection, maternal depression, and social support are critical factors influencing children's behavioral problems within the context of multiple traumatic events. Maternal PSS was identified as a mediator between children's exposure to multiple traumatic events and their behavioral problems [49]. Their study found that experiencing multiple traumatic events was associated with reduced levels of maternal PSS, which, in turn, correlated with increased behavioral problems in children. Ultimately, social support was shown to play a mediating role in the relationship between exposure to traumatic events and children's behavioral outcomes [49].

In this study, parental reflective functioning (PRF) and perceived social support (PSS) were selected as key variables due to their distinct yet interrelated contributions to the parent–child dynamic. PRF refers to a parent's capacity to understand their child's emotional states and intentions, directly shaping parenting practices [24] and influencing children's emotional and behavioral development [50]. In contrast, PSS provides an external source of support, which may mitigate the adverse effects of maternal CM by fostering a more supportive environment [27]. Integrating PRF and PSS within the same model enables a comprehensive examination of how internal cognitive-emotional processes (PRF) interact with external contextual factors (PSS) to influence parenting and child outcomes. By studying these variables together, this research aims to illuminate the pathways through which maternal CM contributes to children's emotional and behavioral problems, while also identifying protective mechanisms that could inform intervention strategies. This dual approach, considering both reflective functioning and social support within the same framework, strengthens the study's rationale and provides a nuanced understanding of how these mechanisms collaboratively shape parenting practices and child development.

While previous studies have explored these variables independently [27, 38, 40, 49], the novelty of this study lies in examining them concurrently within an Iranian

context, where cultural norms and family dynamics may shape these mechanisms differently. This cross-cultural perspective is particularly valuable, as both PRF and PSS may exhibit cultural variations that influence their effectiveness in mitigating the associations of maternal CM. By focusing on these variables within Iranian families, this study provides unique insights into how cultural factors are linked to parenting processes and child development.

Current study

In Iranian culture, women are often viewed as emotionally attuned and child-centered, with a strong cultural emphasis on fulfilling maternal roles effectively, which is seen as crucial in facilitating the parenting process [51]. The transition to motherhood is considered a significant developmental milestone, marked by emotional stress, vulnerability, physical changes, and the adoption of new responsibilities [3]. Early childhood represents a formative period in a child's development, and understanding how maternal experiences of childhood maltreatment relate to their preschool-aged children's emotional and behavioral well-being is essential. Investigating this relationship can help identify potential risk factors contributing to emotional and behavioral problems in young children, informing early intervention strategies.

Exploring the mediating role of PRF in the context of maternal CM and preschool children's outcomes is vital for understanding how maternal mentalization abilities are linked to children's emotional and behavioral development. Additionally, investigating the mediating role of PSS in this relationship is crucial for identifying protective factors that can mitigate the negative effects of maternal CM on preschool children's emotional and behavioral issues. Furthermore, examining how maternal CM may influence PRF, which in turn affects preschool children's emotional and behavioral outcomes, can provide valuable insights into mechanisms for targeted interventions aimed at enhancing parent–child relationships. Ultimately, understanding this sequential pathway of mediation can offer important guidance for developing interventions that address both maternal and child needs, thereby improving emotional and behavioral problems for children affected by maternal CM.

Iranian families place significant importance on children's well-being, with parenting practices deeply influenced by cultural values and norms [52]. Within this context, understanding the relationship between maternal CM and children's emotional and behavioral problems is crucial. This study explores how maternal CM is associated with parenting practices, focusing on the mediating roles of PRF and PSS. By examining these mechanisms, the research aims to inform interventions and support programs designed to enhance parenting skills and foster healthier parent–child relationships. Addressing the unique challenges faced by Iranian parents with a history of childhood maltreatment can contribute to improving parenting practices and promoting the well-being of preschool-aged children.

In conclusion, investigating the relationship between maternal CM and preschool children's emotional and behavioral problems, with an emphasis on PRF and PSS, holds significant practical implications for early intervention programs and policy initiatives. Insights from this research can guide the development of targeted interventions that enhance parental mentalization skills and strengthen social support networks for at-risk families. By emphasizing the importance of these factors during early childhood, this study advocates for policies prioritizing early intervention and family support services to address the impact of maternal maltreatment. Accordingly, the current study examines the direct and indirect associations between maternal CM experiences and children's emotional and behavioral problems, mediated by mothers' RF and PSS within an Iranian context. Based on these objectives, the following hypotheses are proposed:

> Hypothesis 1: PRF and PSS mediate the relationship between maternal CM and children's emotional and behavioral problems among mothers of preschool children (Fig. 1).
>
> Hypothesis 2: PRF and PSS mediate the relationship between maternal CM and specific subdomains of children's emotional and behavioral problems, including emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship difficulties, and prosocial behavior, among mothers of preschool children.
>
> Hypothesis 1: The relationship between maternal CM and children's emotional and behavioral problems is mediated through the sequential pathway of PSS influencing PRF among mothers of preschool children (Fig. 2).

Methods

Participants

Participants ($N=222$) were mothers of preschool children aged 4–6 years, recruited from psychology clinics in Shiraz City, Iran, between March 12 and June 26, 2024. Inclusion criteria were: (i) while not all children in the study were formally diagnosed with a psychological disorder, all were evaluated by an experienced child psychologist and identified as having emotional or behavioral problems; (ii) children aged between 4 and 6 years; (iii) mothers with a minimum of a primary school education. Exclusion criteria were: (i)

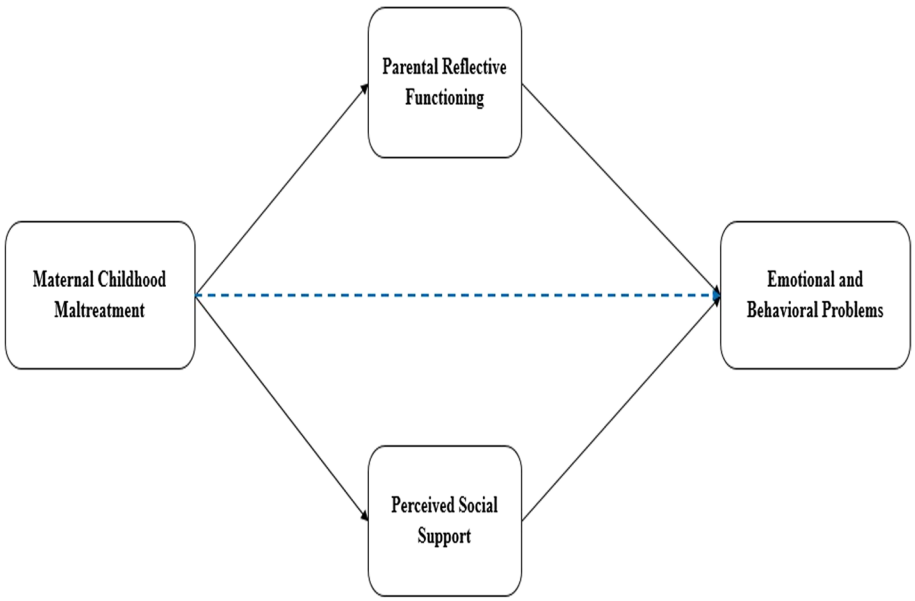

Fig. 1 Conceptual model of associations between maternal childhood maltreatment and children's emotional and behavioral problems: the mediate role of parental reflective function and perceived social support

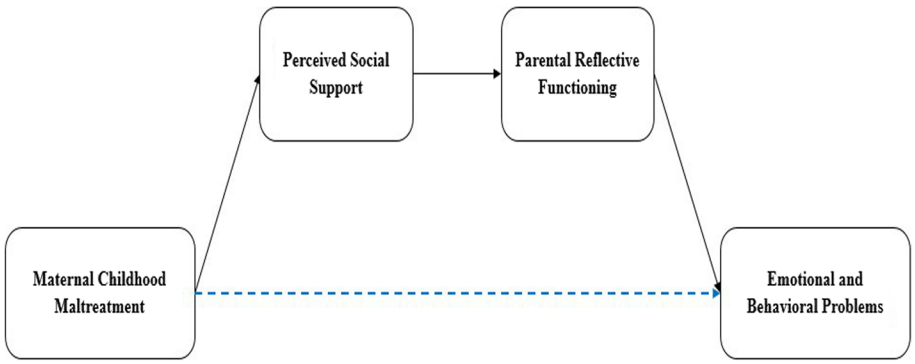

Fig. 2 Conceptual model of associations between maternal childhood maltreatment and children's emotional and behavioral problems through a sequential mediation pathway: first via perceived social support and subsequently through parental reflective function

mothers diagnosed with mental disorders or severe physical illnesses, to avoid confounding effects on the study's primary focus on child outcomes; (ii) drug or alcohol dependence; (iii) children with developmental delays, chronic physical problems (defined as illnesses or impairments that interfere with daily functioning), and/or undergoing psychiatric drug treatment, as diagnosed by an experienced psychiatrist and child psychologist. Children with these conditions were excluded to focus on emotional and behavioral issues and reduce potential confounding factors; and (iv) neurological or organic injury of children. The minimum R-squared method was used to estimate the required sample size. Using a power of 80%, a maximum of 10 arrows pointing at a latent variable, a minimal $R^2 = 0.1$, and $\alpha = 0.05$, the sample size was calculated as 189 [53]. To ensure this estimate was met, we aimed to recruit 250 mothers of preschool-aged children. Questionnaires were completed under the researcher's supervision. If participants encountered difficulties or left items unanswered, they were guided to complete the questionnaires appropriately, ensuring no missing data in the final dataset. Participants who were unwilling to fully complete the questionnaires, even after reminders, or provided unreliable responses were excluded, along with those who did not meet the eligibility criteria. This process resulted in a final sample size of 222 mothers.

Procedure

Participants were clients of three child psychologists, each with over five years of experience. After the child psychologists confirmed the presence of emotional or behavioral problems in the children and obtained informed written consent from the mothers, the research questionnaires were administered. All scales used in this study were well-established and validated instruments, widely utilized in previous psychological research. The measures were parent-reported, with mothers providing self-reports about their children's emotional and behavioral problems. Mothers were briefed on the study's purpose, the confidentiality of their responses, and the voluntary nature of their participation. All participants engaged in the survey voluntarily and had the option to withdraw at any point. The average time taken to complete the questionnaires was approximately 30 min. No compensation was provided for participation, but upon completion of the study, a specialist conducted a complimentary parenting workshop comprising 6 sessions as a gesture of appreciation to the mothers.

Childhood maltreatment Questionnaire (CTQ)

Bernstein et al. [54] developed the Childhood Maltreatment Questionnaire (CTQ), a 28-item self-report tool designed to assess adults' history of childhood maltreatment retrospectively [54]. The CTQ includes five subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Responses are rated on a 5-point Likert scale, ranging from "1-never true" to "5-always true," with higher scores indicating more severe maltreatment. The CTQ has demonstrated good validity across various clinical and general populations. In the original study by Bernstein et al. [54], Cronbach's α coefficients were 0.71 for the total score and ranged from 0.65 to 0.91 for the subscales: 0.77 for emotional abuse, 0.78 for physical abuse, 0.91 for sexual abuse, 0.85 for emotional neglect, and 0.65 for physical neglect [54]. The adapted Farsi version of the CTQ showed strong reliability (test–retest coefficient = 0.9, internal consistency coefficients ranging from 0.60 to 0.85) and satisfactory validity, including convergent validity with the General Health Questionnaire-12 (r = 0.42) [55]. In this study, the Cronbach's α coefficients were as follows: 0.76 for emotional abuse, 0.75 for physical abuse, 0.91 for sexual abuse, 0.85 for emotional neglect, and 0.75 for physical neglect.

The strengths and difficulties questionnaire (SDQ)—patent version

The SDQ, developed by Robert Goodman in 1997, includes five scales, each with five items [56]. These scales assess emotional symptoms, conduct problems, hyperactivity/inattention, peer relationships, and prosocial behavior. Responses are given on a three-point Likert scale: 'not true,' 'somewhat true,' or 'certainly true.' Negative items are scored from 0 to 2, while positive items are scored inversely from 2 to 0, with higher scores indicating more problematic attributes. Subscores for each subscale range from 0 to 10. The prosocial behavior subscale is assessed independently and is not included in the total score for emotional and behavioral problems. Goodman [56] reported satisfactory internal consistency for all subscales (α = 0.72 to 0.76), except for the peer relationship scale (α = 0.58) [57]. The Persian version of the SDQ demonstrated good reliability and validity, with a Cronbach's α of 0.73 for parent total scores [58]. Significant correlations ($p < 0.01$) between the SDQ and Child Behavior Checklist (CBCL) subscales support the SDQ's convergent validity [58].

Parental Reflective Functioning Questionnaire (PRFQ)

The PRFQ, developed by Luyten et al. in 2017, is an 18-item self-report questionnaire consisting of three subscales: Pre-mentalizing modes (PM), Certainty about mental states (CMS), and Interest and curiosity in mental states (IC) [25]. PM reflects the tendency to make malevolent or developmentally insensitive attributions about the child's mental states, CMS indicates either excessive certainty about or a lack of acknowledgment of the opacity of the child's mental states, and IC represents active curiosity and a willingness to understand the child's mental states. Responses are provided on a 7-point Likert scale. Higher scores on the PRFQ Pre-mentalizing subscale indicate lower levels of parental RF [25]. However, interpreting scores on the PRFQ-CMS and PRFQ-IC subscales to predict high or low levels of RF is less straightforward. Literature suggests that high scores may indicate high RF, but both low and very high scores may indicate lower RF, with more optimal levels often being average. This ambiguity suggests that moderate scores on these subscales may be more adaptive, while very low or very high scores may reflect dysfunction [59]. Rutherford et al. [60] conducted both exploratory and confirmatory factor analyses on the three-factor structure of the PRFQ in samples of mothers and fathers, demonstrating good internal consistency: α = 0.7 for Pre-Mentalizing, α = 0.82 for Certainty about Mental States, and α = 0.74 for Interest and Curiosity in Mental States [60]. The Persian version of the PRFQ demonstrated good reliability, with Cronbach's α values of.71 for PM, 0.71 for CMS, and 0.59 for IC [27].

Perceived Social Support Scale (PSSS)

The PSSS, developed by Procidano & Heller [61], is a self-report measure that assesses individuals'

perception of available social support from family and friends [61]. The PSSS includes two subscales: a 20-item Family subscale (PSS-FAM) and a 20-item Friend subscale (PSS-FRI). Responses are given as "Yes," "No," or "Do not know," with "No" indicating no perceived support (scored 0), and "Yes" indicating perceived support (scored + 1). The total score ranges from 0 to 20, with higher scores reflecting greater perceived support. The PSSS has demonstrated acceptable validity and reliability. In the study by Evans et al. [62], the coefficient alpha was 0.91 for PSS-FAM and 0.90 for PSS-FRI [62]. In prior research [63], has also affirmed the validity and reliability of the Persian version of the scale.

Data analyses

Descriptive statistics were computed using SPSS-22. The conceptual models were assessed through structural equation modeling (SEM) with Smart PLS-3 (Figs. 1 and 2). Initially, we tested for normality and conducted Pearson correlations for all variables. Mediating effects were evaluated using bootstrapping (1000 bootstrap draws) with 95% confidence intervals [64]. During assumption testing, we observed that the variables did not follow a normal distribution (see Supplemental Table 1). As a result, Partial Least Squares regression (PLS) was used to analyze the model, as it is not influenced by normality assumptions or sample size [65]. The Variance Inflation Factor (VIF) analysis did not reveal significant multicollinearity (see Supplemental Table 1). Importantly, no missing data were present in the final dataset. The questionnaires were completed under the supervision of the researcher, and if any participant failed to understand or left an item unanswered, they were guided to complete it appropriately, ensuring no missing data in the final dataset.

The first step in applying PLS-SEM is evaluating the measurement model. This includes assessing reliability—internal consistency reliability, Composite Reliability (CR), and Homogeneous Reliability Ratio (Rho_A)—and construct validity, which encompasses both convergent and discriminant validity. Convergent validity indicates the extent to which the indicators of a specific construct are correlated and measure the intended construct accurately. In PLS-SEM, convergent validity is assessed using Average Variance Extracted (AVE) [65]. Discriminant validity ensures that the constructs in the model are distinct and that the indicators of one construct have low correlations with indicators of other constructs. Methods to assess discriminant validity include the Fornell-Larcker criterion (FL), Heterotrait-Monotrait Ratio (HTMT), and cross-loading [66].

Results

Participant characteristics

The mean age of the mothers was 34.06 years (SD = 4.2), and the mean age of their children was 4.99 years (SD = 0.85). Detailed demographic characteristics and descriptive variables were summarized in Tables 1 and 2.

Validity of measurement models

The standardized root mean square residual (SRMR), which represents the root mean square discrepancy between the observed correlations and the model-implied correlations, was 0.09 for the first model (total emotional-behavioral problems) and 0.09 for the second model (subscales of the strengths and difficulties). Both values are below the acceptable threshold of 0.1, indicating a good fit for both models [67].

All constructs demonstrated good internal consistency, with Cronbach's alpha exceeding 0.7 [68], CR > 0.6, and Rho_A > 0.7 [69]. Furthermore, convergent validity criteria were met, as all constructs had AVE > 0.5 [69] (Supplemental Table 2). Discriminant validity was confirmed using the FL, where the square root of AVE for each construct exceeded its correlations with other constructs. Additionally, the HTMT values were below 0.9, further supporting divergent validity [70]. These findings indicate

Table 1 Demographic Characteristics of the Study Sample ($n = 222$)

variables	(%)
Mother's education	
Less than high school	3 (1.4%)
Diploma	21 (9.5%)
More than diploma	198 (89.2%)
Mother's employment	
Yes	78 (35.1%)
No	144 (64.9%)
Civil status	
Married	220 (99.1%)
Divorced	2 (.9%)
Ethnicity	
Fars	168 (75.7%)
Turkish	17 (7.7%)
Lor	18 (8.1%)
Other	19 (8.6%)
Religion	
Shiite (Muslims)	207 (93.2%)
Sunni (Muslims)	10 (4.5%)
Other	5 (2.3%)
Children's sex	
Girl	105 (47.3%)
Boy	117 (52.7%)

Table 2 Descriptive statistics and correlations of variables related to childhood maltreatment, parental reflective functioning, and children's emotional and behavioral problems

variables		Mean±SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Childhood maltreatment	1. Emotional abuse	8.42±3.76	-															
	2. Emotional neglect	11.2±4.41	.54**	-														
	3. Physical abuse	6.39±2.53	.63**	.45**	-													
	4. Physical neglect	7.94±3.35	.66**	.62**	.58**	-												
	5. Sexual abuse	7.12±3.51	.37**	.26**	.53**	.36**	-											
6. Total childhood maltreatment		51.38±12.55	.82**	.72**	.81**	.82**	.66**	-										
Parental reflective functioning	7. PRFQ-CM	25.67±6.41	-.08	-.21**	-.05	-.11	-.01	-.12	-									
	8. PRFQ-IC	34.75±5.38	-.13	-.18**	-.25**	-.26**	-.18**	-.27**	.38**	-								
	9. PRFQ-PM	14.71±6.39	.21**	.09	.21**	.23**	.25**	.27**	-.15*	-.41**	-							
10. Perceived social support		55.67±13.6	-.18**	-.14*	-.07	-.19**	-.11	-.18**	.42**	.31**	-.5**	-						
Children's emotional and behavioral problems	11. Emotional symptoms	6.19±2.21	.04	.05	.12	.08	.1	.11	-.12	-.21**	-.36**	-.36**	-					
	12. Conduct problems	3.03±1.56	.02	-.02	.004	.06	.008	.01	-.05	.05	-.24**	-.24**	.38**	-				
	13. Hyperactivity/inattention	5.51±1.79	-.03	-.04	-.02	-.03	-.04	-.03	.09	.1	.38**	-.03	.2*	.12*	-			
	14. Peer relationship .problems	3.54±1.52	.08	.06	.04	.08	.007	.07	-.1	-.16*	.28**	-.31**	.38**	.28**	.11**	-		
	15. Prosocial behavior	2.61±2.16	-.07	-.16*	-.02	-.005	-.03	-.07	.24**	.14*	-.16**	.13	-.14*	-.22*	-.38**	-.37*	-	
16. Total emotional-behavioral		18.26±4.36	.01	-.02	.02	.07	-.008	.03	.03	-.02	.17**	-.26**	.61**	.59**	.58**	.55**	.53**	-

SD Standard Deviation, *PRFQ-CM* Parental Reflective Functioning Questionnaire -certainty about mental states, *PRFQ-IC* Parental Reflective Functioning Questionnaire -interest and curiosity in mental states, *PRFQ PM* Parental Reflective Functioning Questionnaire-pre-mentalizing modes

* $P < .05$; ** $P < .01$

that the constructs in the model were distinct and appropriately measured. The cross-loading analysis confirmed that all indicators loaded higher on their respective constructs than on any other constructs. For detailed results, including the FL matrix, HTMT values, and individual item factor loadings, please refer to Supplemental Tables 3. and 1. *SD* Standard Deviation, *PRFQ-CM* Parental Reflective Functioning Questionnaire -certainty about mental states; *PRFQ-IC* Parental Reflective Functioning Questionnaire -interest and curiosity in mental states, *PRFQ-PM* Parental Reflective Functioning Questionnaire-pre-mentalizing modes, *PSS* Perceived Social Support.

Mediation structural model

Table 3, Figs. 3 and 4 illustrate the direct and indirect associations of the model. The findings related to the *first and second hypotheses* indicate that the direct associations of maternal CM with PRFQ-IC ($\beta = -0.28$, $p < 0.001$), PRFQ-PM ($\beta = 0.27$, $p < 0.01$), and PSS ($\beta = -0.44$, $p < 0.001$) were significant. Furthermore, the direct association of maternal CM with PRFQ-CM ($\beta = -0.12$, $p = 0.06$) was marginally significant. PRFQ-CM was directly associated with prosocial behavior ($\beta = 0.18$, $p < 0.05$). Moreover, emotional symptoms ($\beta = 0.26$, $p < 0.01$), conduct problems ($\beta = 0.36$, $p < 0.01$), hyperactivity/inattention ($\beta = 0.33$, $p < 0.001$), peer relationship problems ($\beta = 0.27$, $p < 0.01$), and prosocial behavior ($\beta = -0.28$, $p < 0.001$) were all directly associated with PRFQ-PM. Indirect associations of maternal CM via PRFQ-PM were significantly related to total emotional-behavioral problems ($\beta = 0.07$, $p < 0.05$; Fig. 3), emotional symptoms ($\beta = 0.07$, $p = 0.05$; Fig. 4), conduct problems ($\beta = 0.1$, $p < 0.05$; Fig. 4), hyperactivity/inattention ($\beta = 0.09$, $p < 0.05$; Fig. 4), peer relationship problems ($\beta = 0.07$, $p < 0.05$; Fig. 4), and prosocial behavior ($\beta = -0.07$, $p < 0.05$; Fig. 4). Nevertheless, no significant indirect associations were observed between maternal CM and total emotional-behavioral problems or any of the emotional or behavioral outcomes through PSS (all $p > 0.05$).

Regarding the *third hypothesis*, the direct association between maternal CM and emotional-behavioral problems was not significant ($\beta = 0.05$, $p = 0.5$). CM was significantly associated with PSS ($\beta = -0.3$, $p < 0.001$). However, the relationship between PSS and PRF was not significant ($\beta = 0.17$, $p = 0.2$). PRF was significantly associated with emotional-behavioral problems ($\beta = -0.27$, $p < 0.05$). The indirect association of maternal CM with emotional-behavioral problems through the sequential pathway of PSS and PRF was not significant ($\beta = 0.01$, $p = 0.3$) (Table 4, Fig. 5).

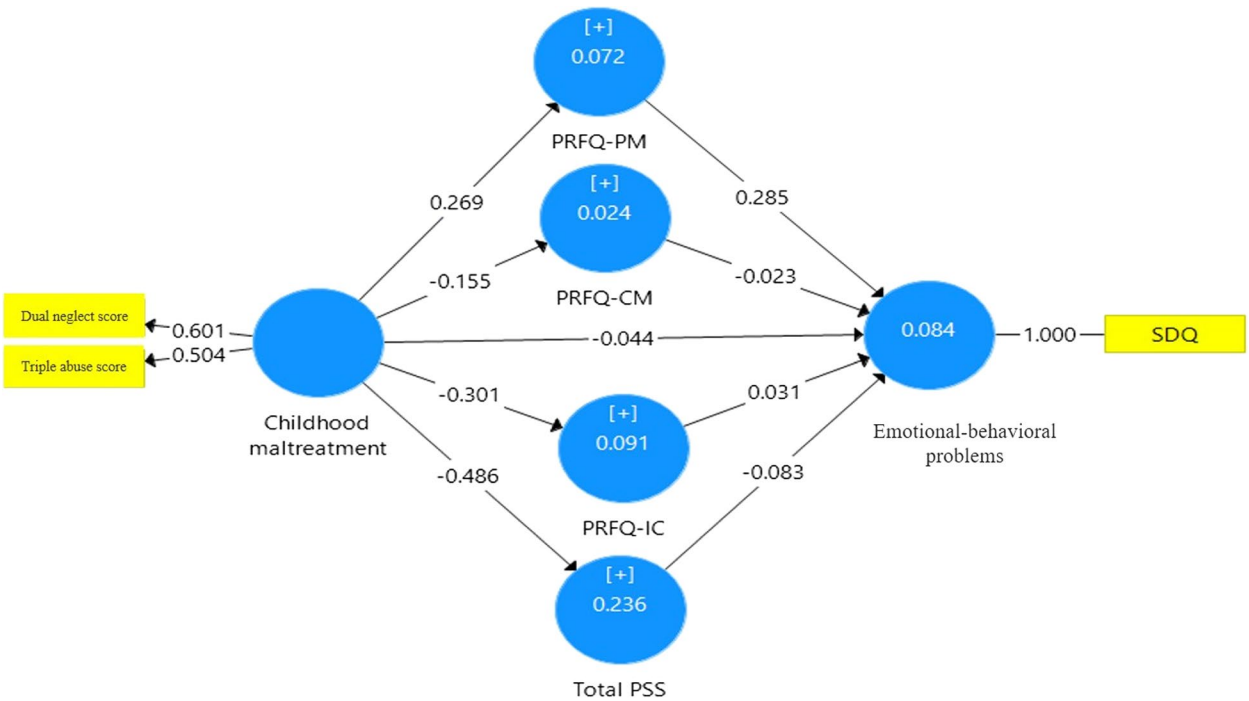

Fig. 3 Standardized estimates of the structural model. Note: The numbers displayed within the blue circles represent the percentage of variance explained by the model for each dependent variable (DV)

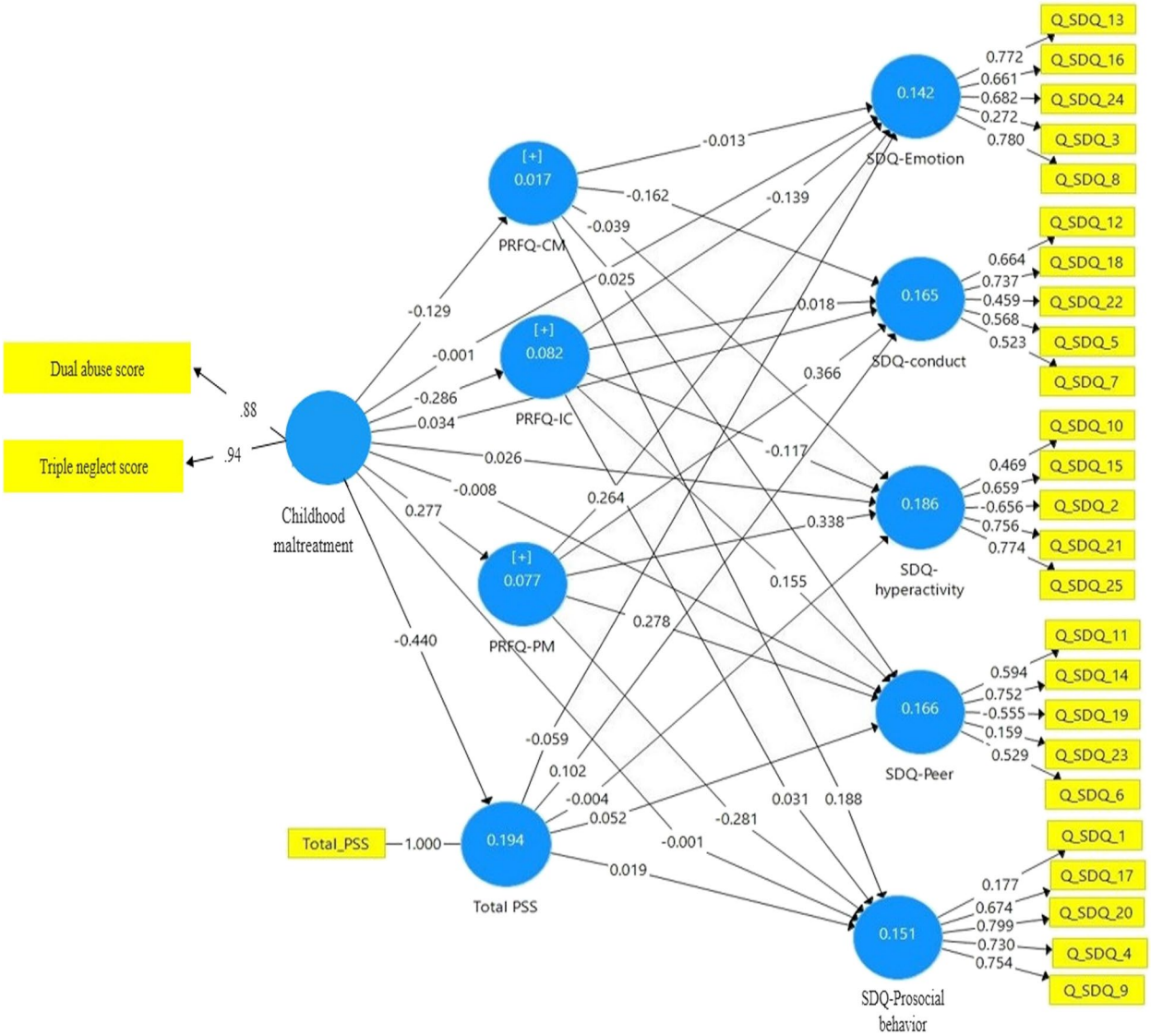

Fig. 4 Standardized estimates of the structural model. Note: The numbers displayed within the blue circles represent the percentage of variance explained by the model for each dependent variable (DV)

Discussion

This study investigated how parental reflective functioning (PRF) and perceived social support (PSS) mediated the relationship between maternal childhood maltreatment (CM) and children's emotional and behavioral problems among mothers of preschool children in Iran. The results, based on Structural Equation Modeling (SEM) analysis, were intriguing, showing that maternal CM was not directly related to children's emotional and behavioral problems. Instead, the relationship was indirect, mediated through Pre-Mentalizing (PM) modes. Furthermore, the indirect association of maternal CM with emotional and behavioral problems through the sequential pathway of PSS and PRF was not significant.

The role of PRF and PSS in associations between maternal CM and children's emotional and behavioral problems

As the experimental model of the research indicates, maternal CM did not mediate preschool children's total emotional-behavioral problems (a composite score including emotional symptoms, conduct problems, peer relationship problems, and hyperactivity/inattention) through PRF or PSS. These results aligned with prior studies, which identified mediating variables such as maternal depression/anxiety symptoms, parenting

Table 3 Summary of first and second tested hypotheses and findings

	Beta (β)	SD	t value	*p* value	Results
Childhood maltreatment > PRFQ-CM	**-.12**	**.07**	**1.81**	**.06**	**Marginally Accepted**
Childhood maltreatment > PRFQ-IC	**-.28**	**.07**	**3.86**	**< .001**	**Accepted**
Childhood maltreatment > PRFQ-PM	**.27**	**.08**	**3.33**	**< .01**	**Accepted**
Childhood maltreatment > PSS	**-.44**	**.05**	**7.83**	**< .001**	**Accepted**
Childhood maltreatment > Emotional symptoms	-.001	.09	0.01	.9	Not accepted
Childhood maltreatment > Conduct problems	.03	.12	0.27	.7	Not accepted
Childhood maltreatment > Hyperactivity/inattention	.02	.08	0.31	.7	Not accepted
Childhood maltreatment > Peer relationship problems	-.008	.09	0.08	.9	Not accepted
Childhood maltreatment > Prosocial behavior	-.001	.09	0.01	.9	Not accepted
Childhood maltreatment > Emotional-behavioral problems	-.04	.08	0.5	.6	Not accepted
PRFQ-CM > Emotional symptoms	-.01	.08	0.15	.8	Not accepted
PRFQ-CM > Conduct problems	-.16	.1	1.6	.1	Not accepted
PRFQ-CM > Hyperactivity/inattention	-.03	.08	0.48	.6	Not accepted
PRFQ-CM > Peer relationship problems	.02	.09	0.26	.7	Not accepted
PRFQ-CM > Prosocial behavior	**.18**	**.08**	**2.19**	**.02**	**Accepted**
PRFQ-CM > Emotional-behavioral problems	-.02	.12	0.17	.8	Not accepted
PRFQ-IC > Emotional symptoms	-.13	.11	1.21	.2	Not accepted
PRFQ-IC > Conduct problems	.01	.14	0.12	.9	Not accepted
PRFQ-IC > Hyperactivity/inattention	-.11	.08	1.38	.1	Not accepted
PRFQ-IC > Peer relationship problems	.15	.1	1.54	.1	Not accepted
PRFQ-IC > Prosocial behavior	.03	.09	0.33	.7	Not accepted
PRFQ-IC > Emotional-behavioral problems	.03	.12	.24	.8	Not accepted
PRFQ-PM > Emotional symptoms	**.26**	**.1**	**2.63**	**.008**	**Accepted**
PRFQ- PM > Conduct problems	**.36**	**.14**	**2.61**	**.009**	**Accepted**
PRFQ- PM > Hyperactivity/inattention	**.33**	**.07**	**4.53**	**< .001**	**Accepted**
PRFQ- PM > Peer relationship problems	**.27**	**.08**	**3.2**	**.001**	**Accepted**
PRFQ- PM > Prosocial behavior	**-.28**	**.07**	**3.59**	**< .001**	**Accepted**
PRFQ- PM > Emotional-behavioral problems	**.28**	**.1**	**2.74**	**.006**	**Accepted**
PSS > Emotional symptoms	-.05	.07	0.77	.4	Not accepted
PSS > Conduct problems	.1	.07	1.31	.1	Not accepted
PSS > Hyperactivity/inattention	-.004	.07	0.05	.9	Not accepted
PSS > Peer relationship problems	.01	.08	0.23	.8	Not accepted
PSS > Prosocial behavior	.05	.08	0.6	.5	Not accepted
PSS > Emotional-behavioral problems	-.08	.06	1.26	.2	Not accepted
Childhood maltreatment > PRFQ-CM > Emotional symptoms	.002	.01	0.13	.8	Not accepted
Childhood maltreatment > PRFQ-CM > Conduct problems	.02	.01	1.15	.2	Not accepted
Childhood maltreatment > PRFQ-CM > Hyperactivity/inattention	.005	.01	0.4	.6	Not accepted
Childhood maltreatment > PRFQ-CM > Peer relationship problems	-.003	.01	0.22	.8	Not accepted
Childhood maltreatment > PRFQ-CM > Prosocial behavior	-.02	.01	1.27	.2	Not accepted
Childhood maltreatment > PRFQ-CM > Emotional-behavioral problems	-.003	.02	0.16	.8	Not accepted
Childhood maltreatment > PRFQ-IC > Emotional symptoms	.04	.03	1.11	.2	Not accepted
Childhood maltreatment > PRFQ-IC > Conduct problems	-.005	.04	0.11	.9	Not accepted
Childhood maltreatment > PRFQ-IC > Hyperactivity/inattention	.03	.02	1.25	.2	Not accepted
Childhood maltreatment > PRFQ-IC > Peer relationship problems	-.04	.03	1.34	.1	Not accepted
Childhood maltreatment > PRFQ-IC > Prosocial behavior	-.009	.02	0.31	.7	Not accepted
Childhood maltreatment > PRFQ-IC > Emotional-behavioral problems	-.009	.04	.22	.8	Not accepted
Childhood maltreatment > PRFQ-PM > Emotional symptoms	**.07**	**.03**	**1.92**	**.05**	**Accepted**
Childhood maltreatment > PRFQ- PM > Conduct problems	**.1**	**.05**	**2.03**	**.04**	**Accepted**
Childhood maltreatment > PRFQ- PM > Hyperactivity/inattention	**.09**	**.03**	**2.43**	**.01**	**Accepted**

Table 3 (continued)

	Beta (β)	SD	t value	*p* value	Results
Childhood maltreatment > PRFQ- PM > Peer relationship problems	**.07**	**.03**	**2.26**	**.02**	**Accepted**
Childhood maltreatment > PRFQ- PM > Prosocial behavior	**-.07**	**.03**	**2.48**	**.01**	**Accepted**
Childhood maltreatment > PRFQ- PM > Emotional-behavioral problems	**.07**	**.03**	**2.1**	**.03**	**Accepted**
Childhood maltreatment > PSS > Emotional symptoms	.02	.03	0.76	.4	Not accepted
Childhood maltreatment > PSS > Conduct problems	-.04	.03	1.25	.2	Not accepted
Childhood maltreatment > PSS > Hyperactivity/inattention	.002	.03	0.05	.9	Not accepted
Childhood maltreatment > PSS > Peer relationship problems	-.02	.03	0.59	.5	Not accepted
Childhood maltreatment > PSS > Prosocial behavior	-.008	.03	0.23	.8	Not accepted
Childhood maltreatment > PSS > Emotional-behavioral problems	.04	.03	1.21	.2	Not accepted

SD Standard Deviation, *PRFQ-CM* Parental Reflective Functioning Questionnaire -certainty about mental states, *PRFQ-IC* Parental Reflective Functioning Questionnaire -interest and curiosity in mental states, *PRFQ-PM* Parental Reflective Functioning Questionnaire-pre-mentalizing modes, *PSS* Perceived Social Support

Table 4 Summary of third tested hypothesis and findings

	Beta (β)	SD	t value	*p* value	Results
Childhood maltreatment > Emotional-behavioral problems	.05	.09	.56	.5	Not accepted
Childhood maltreatment > PSS	**-.3**	**.06**	**5.4**	**< .001**	**Accepted**
PSS > PRF	.17	.07	1.12	.2	Not accepted
PRF > Emotional-behavioral problems	**-.27**	**0.28**	**2.4**	**< .05**	**Accepted**
Childhood maltreatment > PSS > PRF > Emotional-behavioral problems	.01	.01	.9	.3	Not accepted

SD Standard Deviation, *PRF* Parental Reflective Functioning, *PSS* Perceived Social Support

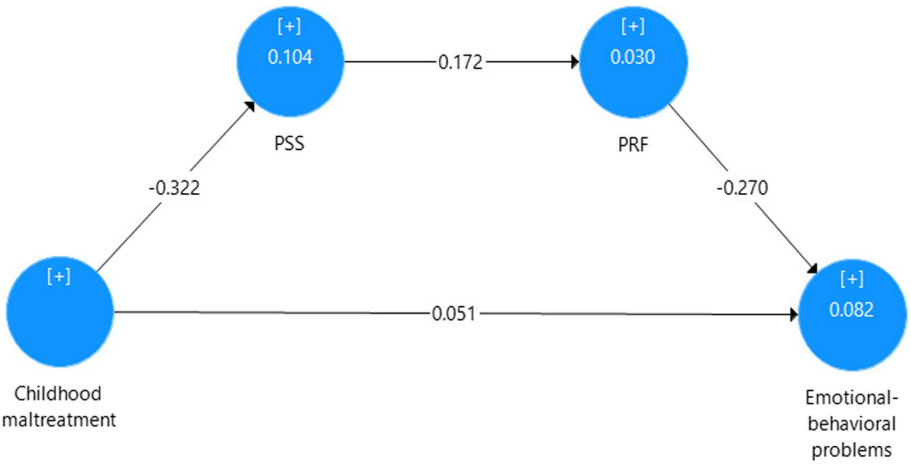

Fig. 5 Standardized estimates of the structural model. Note: The numbers displayed within the blue circles represent the percentage of variance explained by the model for each dependent variable (DV)

behavior, maternal mental health, child traumatic experiences, maternal parenting styles of rejection, and maternal-child attachment, emphasizing the complexity of the CM–children's behavior relationship [7, 9, 12, 71–73]. Similarly, Shohrati & Nemattavosi [40] showed the importance of reflective functioning in understanding this relationship [40]. However, while their study identified direct associations between CM and children's problems, our findings highlight the crucial role of pre-mentalizing modes in the mediation process, and that social support did not have a significant indirect effect in this context. The findings of this study may be due to

the composite nature of the emotional-behavioral problems, which combines diverse dimensions like emotional symptoms, conduct issues, and hyperactivity/inattention. When these dimensions are aggregated into a single score, distinct relationships with PRF or PSS become obscured, suggesting that examining each dimension separately may provide clearer pathways. Specifically, the pre-mentalization (PM) aspect of PRF, which involves misinterpreting a child's actions as intentional, may be more directly influential in shaping certain behavioral outcomes, such as hyperactivity/inattention and peer relationship problems. The role of PM as a mediator underscores the importance of considering indirect pathways in understanding how CM impacts children's emotional and behavioral outcomes.

The role of PRF and PSS in associations between maternal CM and specific subdomains of children's emotional and behavioral problems

Our study demonstrated that maternal CM is indirectly related to emotional symptoms through PM modes. CM often develops immature defensive mechanisms [74] aimed at shielding individuals from emotional pain and vulnerability [75]. Mothers who have experienced CM may develop heightened sensitivity to perceived threats [76], perhaps interpreting their children's behavior through a lens of harm or malicious intent. These defensive mechanisms function as protective strategies to cope with past emotional distress [77]. For example, a mother with elevated pre-mentalization may view a child's normal emotional reactions, such as crying or frustration, as deliberate acts of defiance or disrespect. As a result, mothers with pre-mentalizing may misinterpret their child's emotional needs [33], which can lead to inappropriate responses and, in turn, contribute to behavioral and emotional problems in their child.

In further support of the third finding, the results showed that maternal CM is indirectly related to children's conduct problems and hyperactivity/inattention problems through PM modes. Maternal CM often results in long-lasting emotional and psychological effects that impair a mother's ability to mentalize, or understand and respond to their child's mental states [27]. These mothers may default to PM modes, characterized by a lack of reflection on their own and their child's thoughts and feelings, leading to less empathetic and more reactive parenting [78]. Children in such environments are more likely to develop conduct problems, as they may emulate the reactive and unempathetic behaviors observed in their caregivers, a phenomenon supported by Bandura's theory [79].

In further support of the forth finding, our results revealed that maternal CM is indirectly related to children's peer relationship problems through PM modes. This means that mothers with a history of CM often exhibit these PM modes, leading to difficulties in social interactions for their children. As a result, children may inherit or learn maladaptive social patterns, complicating their ability to form and maintain peer relationships. Research indicates that PM modes contribute to interpersonal relationship problems, including a strong fear of rejection [80–82]. When this fear of rejection is present in mothers, it can be transmitted to their children through behaviors and attitudes that reflect anxiety and hypervigilance in social interactions. Consequently, children may develop similar fears and anxieties, making them more susceptible to peer relationship problems.

In further support of the fifth finding, the results revealed that maternal CM is indirectly related to children's prosocial behaviors through PM modes. Mothers who have experienced CM may encounter difficulties with PM, which can hinder their ability to understand and respond effectively to their children's emotional needs [83]. PM modes represent specific forms of RF characterized by challenges in accurately interpreting mental states [84]. When a mother operates in PM modes, she may misinterpret or overlook her child's emotional states, potentially exacerbating the child's emotional and behavioral challenges or diminishing their prosocial behaviors. This indirect relationship underscores the intricate ways in which maltreatment can affect subsequent generations.

In further support of the sixth finding, the results showed that mothers' Certainty about Mental States (CMs) did not mediate the relationship between maternal CM and children's emotional-behavioral problems. Mothers with a history of CM often struggle with mentalization, leading to difficulties in interpreting children's emotions. They may lack confidence in recognizing emotional states or attribute exaggerated interpersonal meanings, such as anger, instead of focusing on observable cues [85]. These tendencies, known as under- and over-mentalizing, hinder a balanced understanding of children's mental states. However, certainty regarding mental states does not mediate the link between maternal CM and preschool children's emotional-behavioral problems. This construct mainly relates to interpreting a child's internal emotions [25], whereas children's behavioral problems often stem from parental responses to outward actions (e.g. Raval et al., 2018) [86]. Thus, a mother's level of certainty may not always influence child outcomes. Additionally, in some cultural contexts, such as Iran, parenting practices may prioritize behavioral guidance and discipline over understanding internal emotional states [87]. This emphasis on external behavior rather than internal mental states may further reduce the mediating

role of certainty in shaping children's emotional and behavioral outcomes.

In further support of the seventh finding, the results showed that mothers' Interest and Curiosity (IC) did not mediate the relationship between maternal CM and children's emotional-behavioral problems. Furthermore, CM is associated with a decrease in parents' interest and curiosity about their child's mental states, as it depletes their psychological resources, limiting effective interaction [88]. This can reduce their willingness to explore their child's thoughts and feelings. However, interest and curiosity cannot mediate the relationship between maternal CM and children's emotional-behavioral problems, as this aspect of reflective functioning reflects the parents' tendency to understand the child [25], rather than the quality of that understanding. In other words, while interest and curiosity may reflect parents' attention to their child's mental states, this attention, when free from bias, does not directly affect emotional-behavioral problems. In contrast, PM can act as a mediator, as it directly influences how parents interpret their child's behavior and interact with them.

In further support of the eighth finding, the results demonstrated that PSS did not significantly mediate the relationship between maternal CM and children's emotional and behavioral problems. This suggests that PSS, despite being a relevant factor in maternal CM, may not serve as a bridging mechanism in this specific association. Although the adapted PSS is reliable and culturally relevant in Iranian samples, the dynamics of maternal CM and social support may be influenced by cultural and relational factors In Iranian society, social and familial support systems primarily emphasize practical assistance and collective responsibility [27] rather than emotional support. While families may provide tangible help, such as childcare, they may not offer the emotional validation and psychological resources needed to address the long-term effects of CM. As a result, the type of support perceived by mothers may not be sufficient to influence their children's emotional and behavioral outcomes, explaining the lack of a mediating role for PSS in this relationship.

The role of PSS in influencing PRF as a sequential mediator in the associations between maternal CM and children's emotional and behavioral problems

The finding revealed that the relationship between maternal CM and children's emotional and behavioral problems, mediated sequentially by PSS and PRF, was not statistically significant. Childhood trauma can hinder a mother's ability to form trusting relationships and seek support, ultimately reducing her social connections and diminishing her PSS [89, 90]. However, social support may not significantly impact a mother's reflective functioning, as reflective functioning is primarily influenced by intrapersonal processes. These processes involve an individual's ability to understand and respond to their own emotions and those of others [24], which may operate independently of external influences like social support. Thus, while social support can help mitigate the negative effects of childhood trauma, it cannot alone play a determining role in improving maternal reflective functioning. Moreover, PRF is crucial for recognizing a child's emotional needs and regulating emotional responses accordingly [83]. When a mother is unable to understand and appropriately respond to her child's needs, it can lead to emotional and behavioral problems in the child [33–35]. This underscores that, although childhood trauma may reduce social support, the lack of a significant impact of social support on reflective functioning does not result in a reduction of emotional and behavioral problems in preschool children.

Limitations

The study has several limitations. First, its cross-sectional design restricts the ability to establish causal relationships among maternal childhood maltreatment (CM), parental reflective functioning (PRF), perceived social support (PSS), and children's emotional and behavioral outcomes. Additionally, the limitations inherent in cross-sectional mediation should be acknowledged, as mediation analyses in such designs do not confirm temporal precedence and should be interpreted with caution. Second, reliance on self-reported retrospective measures may introduce recall bias. Third, the exclusion of fathers from the study limits insights into potential gender differences in the examined relationships, so caution is advised when generalizing the findings. Fourth, the use of self-reported measures may lead to shared method variance. Finally, while the study's primary focus was on direct relationships and mediating variables, future research could benefit from considering covariates such as maternal age, socioeconomic status, or education level to further enrich the findings and provide additional context.

Practical implication

The findings suggest that identifying pre-mentalizing modes of parental reflective functioning as a mediator emphasizes the importance of integrating reflective practices into therapeutic interventions for families affected by CM. Therapists and practitioners can focus on enhancing parents' abilities to reflect on their own and their child's mental states, which in turn can promote healthier parent–child relationships and improve children's emotional and behavioral well-being.

Conclusion

This study examined the mediation of PRF and PSS in the relationship between maternal CM and children's emotional and behavioral problems among mothers of preschool children in Iran. The findings revealed that maternal CM is not directly related to children's emotional and behavioral issues. Instead, the relationship is indirect, mediated through PM modes, highlighting the importance of these mediating factors in understanding the association between maternal experiences and children's emotional and behavioral problems. While PRFQ-PM showed significant indirect effects on specific subscales of children's emotional and behavioral problems, such as emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems, no significant indirect relationship was found for the total emotional-behavioral problems scale through either PRF or PSS. Additionally, PSS did not significantly mediate any of the emotional or behavioral outcomes. However, the relationship between maternal CM and children's emotional and behavioral problems, mediated sequentially by PSS and PRF, was not statistically significant.

Our research supports previous studies that emphasize the role of various mediators in the relationship between maternal CM and children's behavioral outcomes. This study strengthens the literature by identifying PM modes as a critical mediator, indicating that maternal experiences with CM may influence their parenting practices and, consequently, their children's emotions and behavior. The findings also underline the complex interplay of maternal reflective functioning, with implications for interventions targeting mentalization abilities, especially PM modes, to mitigate negative parenting patterns and improve children's emotional and behavioral health.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s40359-025-02627-x.

Supplementary Material 1.

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Authors' contributions
Z.D.M. and M.R.S. was involved in the study design, data collection, analysis, and writing of the article. All authors read and approved the final manuscript.

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Data availability
No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate
The study adhered to the guidelines set forth in the Declaration of Helsinki, was approved by the ethical committee at Shiraz University (IR.US.PSYEDU.REC.1403.031). Informed written consent was obtained from the mothers of all participants.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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