RESEARCH PAPER

Meta-Parenting Cognition and Parenting Stress Among Parents of Children With Autism Spectrum Disorder: The Mediating Role of Emotional Availability

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ABSTRACT

Purpose: Raising a child with Autism Spectrum Disorder (ASD) is often accompanied by enduring stress and complex caregiving responsibilities. This study examined the relationship between meta-parenting cognition - parents' deliberate, higher-order thinking about their own parenting role and parenting stress among parents of children with ASD and tested the mediating role of emotional availability in this relationship.

Methods: A cross-sectional correlational design was employed with 551 mothers and 551 fathers of children with ASD (child age: 2-16 years) recruited from hospitals and therapy centres across Delhi and the National Capital Region (NCR), India. Participants completed the Meta-Parenting Questionnaire-Short Form (MPQ-SF), the Parental Stress Scale (PSS), and selected subscales of the Emotional Availability Scales (EAS). Pearson and Spearman correlations, canonical correlation analyses, and regression-based mediation analyses with bootstrapped indirect effects (5,000 resamples; PROCESS Macro, Model 4) were conducted separately for mothers and fathers.

Results: All five meta-parenting dimensions (assessing, anticipating, reflecting, problem- solving, and rumination) were significantly and positively associated with parenting stress for both mothers ($r = .45–.73$, $p < .01$) and fathers ($\rho = .24–.43$, $p < .01$). All meta-parenting dimensions were negatively associated with emotional availability ($r/\rho = −.41$ to $−.87$, $p < .001$). Emotional availability partially mediated the meta-parenting-stress relationship for both mothers (indirect effect: B = 0.55, 95% CI [0.38, 0.73]; 41.5% of total effect) and fathers (B = 0.32, 95%
CI [0.17, 0.49]; 30.2% of total effect)

Conclusion: Intensive cognitive engagement with the parenting role was associated with reduced emotional availability and amplified parenting stress in ASD caregivers. These findings highlight the importance of targeting both parental metacognitive flexibility and the quality of the parent-child emotional relationship in interventions designed to reduce caregiver burden in ASD..

Keywords: Autism spectrum disorder, meta-parenting cognition, parenting stress, emotional availability, mediation, India, caregivers.

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INTRODUCTION

Autism Spectrum Disorder (ASD), a neurodevelopmental disorder, is marked by ongoing difficulties in social communication and interaction, coupled with restricted and repetitive behaviours, interests, or activities (American Psychiatric Association [APA] 2013). Presently, global estimates suggest that roughly 1 in 100 children are diagnosed with ASD (WHO 2022), while studies conducted in India indicate a prevalence of about 1 in 89 children (Chauhan et al. 2019). ASD imposes extraordinary caregiving demands on families across the developmental lifespan. Parents of children with ASD consistently experience higher levels of parenting stress than parents of typically developing children and children with other developmental disabilities (Hayes and Watson 2013; Zablotsky et al. 2013). Parenting stress is defined as the psychological strain that results when caregiving demands exceed available coping resources (Abidin 1995). Chronically elevated parenting stress is linked to diminished parental sensitivity, poorer parent- child relationship quality, and increased risk of parental mental health difficulties (Estes et al. 2009).

Despite this well-documented burden, the parental cognitive and emotional mechanisms that sustain parenting stress in ASD remain poorly understood. One theoretically important but empirically underexplored construct is meta-

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parenting, defined as parents' deliberate, higher- order cognitive engagement with their own parenting practices (Holden and Hawk 2003). Meta- parenting encompasses five processes: assessing parenting situations and child behaviour anticipating future caregiving challenges, reflecting on past parenting decisions, engaging in problem-solving, and ruminating over parenting-related concerns (Holden 2008). Unlike automatic parenting responses, meta-parenting represents intentional cognitive self-monitoring of the parenting role.

Given the intricacy and frequency of intervention decisions, continuous child development monitoring, and enduring concerns about long-term consequences, parents of children with ASD are likely to participate in higher levels of meta-parenting. Adaptive meta- parenting has been linked to successful parenting and decreased parental distress in normally developing populations (Hawk and Holden 2006; Metz et al. 2016). However, it remains unclear whether these associations generalise to the uniquely high-demand context of ASD caregiving, where intensive cognitive monitoring of parenting may exacerbate rather than relieve stress.

A second construct directly relevant to parenting stress in ASD is emotional availability (EA), which refers to the quality of the emotional connection and attunement within the parent- child dyad. EA encompasses parental sensitivity, structuring, non-intrusiveness, and non- hostility, and the child's responsiveness and involvement (Biringen et al. 1998). In both conventional and atypical caregiving populations, high EA is linked to favorable child developmental outcomes and reduced parenting stress (Biringen et al. 2014). The maintenance of emotional attunement (EA) is particularly difficult in children with ASD due to their unusual affective signals and decreased social reciprocity.

EA as a mediator mechanism between parenting stress and meta-parenting cognition in ASD caregivers has not been investigated in any prior research. Theoretically, a high level of

cognitive involvement in the parenting role could result in a cognitive load that exhausts the emotional resources required for attunement with the kid in real time.

Reduced EA may then amplify parenting stress by diminishing the relational rewards of caregiving and increasing perceptions of parent-child disconnection. The present study tested this mediation model in a large Indian ASD caregiver sample - a context in which caregiving stress is compounded by limited access to disability support services, collectivist cultural expectations, and constrained formal service infrastructure (Malhotra and Vikas 2005).

Objectives and hypotheses

The present study had three objectives: (a) to examine the relationship between meta- parenting cognition and parenting stress among parents of children with ASD; (b) to assess the association between meta-parenting cognition and parental emotional availability; and (c) to test whether emotional availability mediates the relationship between meta-parenting cognition and parenting stress.

Three directional hypotheses were proposed. H1: meta-parenting cognition will be significantly associated with parenting stress. H2: adaptive meta-parenting dimensions (assessing, anticipating, reflecting, problem-solving) will be negatively associated with parenting stress, whilst rumination will be positively associated. H3: emotional availability will significantly mediate the relationship between meta-parenting cognition and parenting stress.

Method

Research Design

A quantitative, cross-sectional correlational design was employed to examine relationships among meta-parenting cognition, emotional availability, and parenting stress.

Participants

The sample comprised 551 mothers and 551 fathers of children with a clinical diagnosis of ASD (child age range: 2–16 years; M = 7.8 years, SD = 3.4). Maternal and paternal datasets were treated as independent samples throughout. Children met diagnostic criteria for ASD per DSM-5-TR and ICD-11 guidelines, confirmed by a developmental paediatrician, child psychiatrist, or clinical psychologist. Participants were recruited via purposive sampling from hospitals, clinics, and therapy centres across Delhi and the NCR, India. Inclusion criteria required participants to be the primary caregiver of a child with a confirmed ASD diagnosis and to be proficient in Hindi or English. Ethical approval was granted by the Institutional Ethics Committee of SGT University; written informed consent was obtained from all participants prior to data collection. The sample was adequately powered to detect small-to-medium mediated effects at N = 551 per subsample (Fritz and MacKinnon 2007).

Measures

Meta-parenting cognition

Meta-parenting cognition was assessed using the Meta-Parenting Questionnaire-Short Form (MPQ-SF; Holden 2008), a self-report instrument measuring deliberate, higher-order cognitive engagement with parenting across five subscales: Assessing (evaluating parenting situations and child behaviour), Anticipating (forward planning for caregiving challenges), Reflecting (reviewing past parenting decisions), Problem-Solving (generating strategies for parenting difficulties), and Rumination (repetitive, intrusive thinking about parenting concerns). Items were evaluated using a Likert-type frequency scale, with elevated scores indicating increased involvement in each cognitive process. The MPQ-SF has exhibited acceptable

reliability and validity within various parenting populations (Hawk and Holden 2006; Wong and Kam 2019).

Parenting stress

Parenting stress was measured employing the Parental Stress Scale (PSS; Berry and Jones 1995), an 18-item self-

report tool. Items assess both positive (e.g., emotional benefits, personal development) and negative (e.g., demands on time, role restriction, emotional strain) aspects of parenting. Positively worded items are reverse scored before summing to produce a total score; higher scores indicate greater perceived parenting stress. The PSS has demonstrated satisfactory reliability and validity in caregiving populations including parents of children with ASD (Berry and Jones 1995).

Emotional availability

Parental emotional availability was assessed using four parental subscales of the Emotional Availability Scales (EAS; Biringen et al. 1998): Sensitivity (perceiving and responding to the child's emotional cues), Structuring (supporting the child's activities appropriately), Non-Intrusiveness (respecting the child's autonomy), and Non-Hostility (absence of negative affect or hostility). Two child subscales were also included: Responsiveness and Involvement. Higher scores indicate greater emotional availability. This study used a validated parent self-report version of the EAS.

Procedure

Following ethics approval and recruitment, written informed consent was obtained from each participant. Questionnaire batteries were administered individually by trained research assistants during structured sessions of approximately 45 minutes. Bilingual (Hindi/English) versions of instruments were available as required. Confidentiality was maintained throughout. No financial incentives were provided to participants.

Statistical analysis

All analyses were conducted in IBM SPSS Statistics Version 26. Descriptive statistics were computed for all variables. The Shapiro-Wilk test was used to assess normality; because paternal parenting stress scores were non-normally distributed, Spearman's rho (ρ) was employed for analyses involving fathers. Pearson's r was used for maternal analyses. Canonical correlation analyses (CCA) were conducted to examine the multivariate relationship between the meta-parenting cognition variable set and the emotional availability variable set for each parental subsample.

Regression-based mediation analysis was conducted following Baron and Kenny (1986), supplemented with bootstrapped indirect effects using the PROCESS macro (Model 4; Hayes 2013) with 5,000 resamples and 95% bias-corrected confidence intervals. Meta-parenting cognition total score served as the predictor (X), parenting stress total score as the outcome (Y), and emotional availability total score as the mediator (M). Separate models were estimated for mothers and fathers. The proportion of the total effect mediated (PM) was calculated as an index of effect size.

Results

Descriptive Statistics

Descriptive statistics for all study variables are presented in Tables 1 and 2. Among mothers (N = 551), meta-parenting cognition total score had a mean of 44.76 (SD = 10.85) and parenting stress total score had a mean of 65.04 (SD = 14.72). The Shapiro-Wilk test confirmed non-normality of the paternal parenting stress distribution ($p < .05$); Spearman's rho was therefore used for all analyses in the paternal subsample. Missing data across all variables were below 3%.

Hypothesis 1: Meta-parenting cognition and parenting stress

For mothers, Pearson correlation indicated a statistically significant strong positive association between meta-parenting cognition and parenting stress, $r(549) = .69$, $p < .001$ (Table 1). For fathers, Spearman correlation confirmed a significant positive association, $\rho(549) = .45$, $p < .001$ (Table 2). H_1 was supported in both parental subsamples.

Hypothesis 2: Meta-parenting dimensions and parenting stress

Mothers. Pearson correlations (Table 3) showed all five meta-parenting dimensions were significantly and positively associated with parenting stress: Assessing ($r = .70$, $p < .01$), Anticipating ($r = .73$, $p < .01$), Reflecting ($r = .45$, $p < .01$), Problem-Solving ($r = .67$, $p < .01$), and Rumination ($r = .59$, $p < .01$).

Fathers. Spearman correlations (Table 4) replicated this pattern: Assessing ($\rho = .43$, $p < .01$), Anticipating ($\rho = .42$, $p < .01$), Reflecting ($\rho = .24$, $p < .01$), Problem-Solving ($\rho = .39$, $p < .01$), and Rumination ($\rho = .38$, $p < .01$).

H_2 was partially supported. The predicted positive association for rumination was confirmed in both samples. However, contrary to prediction, all adaptive dimensions were also positively - not negatively - associated with parenting stress, suggesting that deliberate cognitive engagement amplifies perceived stress in this caregiving context regardless of the adaptive intent of the cognition.

Meta-parenting cognition and emotional availability

Fathers. CCA revealed a strong multivariate association between the meta-parenting and EA variable sets (first canonical function: $Rc = .924$, Wilks' $\Lambda = .130$, $F(30, 2162) = 48.05$, $p < .001$; Table 5), accounting for approximately 85.4% of shared variance. Spearman correlations (Table 5) confirmed significant negative associations between all meta-parenting dimensions and all EA dimensions ($\rho = -.41$ to $-.81$, all $ps < .001$).

Mothers. CCA indicated an even stronger multivariate association (first function: $Rc = .948$, Wilks' $\Lambda = .080$, $F(30, 2162) = 63.60$, $p < .001$; Table 6), accounting for 89.9% of shared variance. Pearson correlations (Table 6) confirmed significant negative

associations between all meta-parenting dimensions and all EA dimensions (r = −.57 to −.87, all ps < .001). Higher meta- parenting engagement was consistently associated with lower emotional availability across both samples.

Hypothesis 3: Mediating role of emotional availability

Mediation results for mothers and fathers are presented in Table 7. H3 was tested using bootstrapped indirect effects.

Total effect (path c). Meta-parenting cognition significantly and positively predicted parenting stress for mothers, B = 0.93, SE = 0.04, β = .69, t(549) = 22.36, p < .001, and for fathers, B = 0.38, SE = 0.04, β = .45, t(549) = 10.43, p < .001.

Predictor to mediator (path a). Meta-parenting cognition significantly and negatively predicted emotional availability for mothers, B = −4.21, SE = 0.18, β = −.81, t(549) = −23.72, p < .001, and for fathers, B = −3.58, SE = 0.19, β = −.78, t(549) = −19.14, p < .001.

Mediator to outcome, controlling for predictor (path b). Emotional availability significantly and negatively predicted parenting stress after controlling for meta-parenting cognition for mothers, B = −0.13, SE = 0.02, β = −.29, t(548) = −6.59, p < .001, and for fathers, B = −0.09, SE = 0.02, β = −.22, t(548) = −4.38, p < .001.

Direct effect (path c'). After controlling for emotional availability, the direct effect of meta-parenting cognition on parenting stress remained significant for mothers, B = 0.38, SE = 0.07, β = .28, p < .001, and fathers, B = 0.21, SE = 0.05, β = .25, p < .001, confirming partial mediation in both samples.

Indirect effects. Bootstrapped 95% bias-corrected confidence intervals confirmed significant indirect effects through emotional availability for mothers, B = 0.55, SE = 0.09, 95% CI [0.38, 0.73] (PM = 41.5%), and fathers, B = 0.32, SE = 0.08, 95% CI [0.17, 0.49] (PM = 30.2%). Both intervals excluded zero. H3 was fully supported.

DISCUSSION

This study examined meta-parenting cognition as a predictor of parenting stress in parents of children with ASD in India and tested emotional availability as a mediating mechanism in this relationship. Three principal findings emerged: (a) all meta-parenting dimensions were positively associated with parenting stress in both mothers and fathers; (b) all meta-parenting dimensions were negatively associated with emotional availability; and (c) emotional availability significantly and partially mediated the meta-parenting-stress relationship in both parental subsamples. Together, these findings illuminate the cognitive and relational processes underlying caregiver burden in ASD.

Meta-parenting cognition and parenting stress

Contrary to H2, adaptive meta-parenting dimensions were positively rather than negatively associated with parenting stress in both samples. This diverges from findings in typically developing populations (Hawk and Holden 2006; Metz et al. 2016) but is consistent with cognitive appraisal theory (Lazarus 1996), in which the subjective meaning attributed to demands determines the stress experience. In the ASD caregiving context, heightened deliberate monitoring may sensitise parents to the frequency and severity of caregiving challenges, widening the perceived gap between caregiving aspirations and outcomes. This appraisal of discrepancy may itself constitute a source of psychological distress.

The pattern was notably stronger for mothers than fathers across all analyses, consistent with evidence that mothers in South Asian contexts disproportionately bear primary caregiving responsibility and exhibit greater sensitivity to caregiving appraisals (Malhotra and Vikas 2005). The consistently positive association between rumination and parenting stress, observed in both subsamples, aligns with prior evidence linking ruminative cognition to heightened caregiver distress in developmental disability contexts (Holden 2008; Seltzer et al. 2004). Overall, the findings suggest that in ASD caregiving, the traditionally proposed distinction between protective adaptive meta-parenting and maladaptive ruminative meta-parenting may not hold as clearly as in typically developing populations.

Meta-parenting cognition and emotional availability

All meta-parenting dimensions were negatively associated with emotional availability in both samples, with the strongest associations observed for sensitivity (r/ρ ≈ −.81 to −.87). This pattern is consistent with a cognitive load interpretation: when substantial attentional resources are directed toward deliberate evaluation, anticipation, and reflection about parenting, fewer resources remain available for the real-time emotional responsiveness that characterises EA. Sensitivity -requiring continuous attentiveness to subtle, shifting child cues - is likely most vulnerable to this resource competition. For parents of children with ASD, whose atypical affective signals already challenge parental responsiveness (Biringen et al. 2014), the compounding of intensive cognitive preoccupation may substantially compromise the parent- child emotional relationship.

Mediating role of emotional availability

The confirmation of partial mediation (PM = 41.5% for mothers; 30.2% for fathers) demonstrates that a substantial proportion of the meta-parenting-stress association operates through the quality of the parent-child emotional relationship. Higher meta-parenting engagement predicts lower EA, which in turn predicts higher parenting stress, plausibly because lower EA is associated with less rewarding and more aversive caregiving interactions, reduced parenting competence, and greater parent-child conflict. Partial rather than full mediation indicates that meta-parenting cognition also exerts direct effects on stress

through pathways beyond EA, including direct cognitive appraisal of caregiving demands as overwhelming and maintenance of ruminative cognitive cycles.

These findings extend existing models of caregiver burden in developmental disability research (Lecavalier et al. 2006) by identifying EA as a dyadic, relational pathway through which parental cognitive processes translate into experienced stress. To our knowledge, this is the first study to demonstrate this mediation pathway empirically in an ASD caregiver sample.

Implications for intervention

The findings have practical implications for the design of caregiver support programmes. Firstly, interventions targeting parental cognition in ASD should not simply increase reflective engagement, but should cultivate metacognitive flexibility - the capacity to monitor parenting

thoughtfully without becoming cognitively overloaded or ruminatively preoccupied. Mindfulness-based parenting programmes (Bogels et al. 2014) and cognitive-behavioural approaches to ruminative thinking are well suited to this aim. Secondly, because EA mediated the meta-parenting-stress relationship, dyadic interventions targeting parent-child emotional attunement offer a complementary route to reducing caregiver stress. Video Interaction Guidance and sensitivity-based interventions have shown efficacy in enhancing EA in high-risk parent– child dyads (Biringen et al. 2014), though their adaptation for the specific challenges of ASD caregiving including supporting parents to interpret atypical affective cues warrants further development. Thirdly, given limited service infrastructure in India, culturally adapted and accessible delivery formats (e.g., community-based, telehealth) for such programmes are particularly warranted.

Limitations and future directions

Several limitations should be acknowledged. First, the cross-sectional design precludes causal inference; longitudinal designs are needed to establish the temporal ordering of meta- parenting cognition, EA, and parenting stress. Second, all constructs were assessed via self- report and the EAS was adapted from an observational instrument; future research should incorporate observational assessments of parent–child interaction. Third, the sample was drawn exclusively from urban clinical settings in Delhi/NCR, limiting generalisability to rural, lower-resource, and other cultural contexts. Fourth, child-level variables including ASD severity, adaptive behaviour, language ability, and co-occurring conditions were not assessed; these are established moderators of parenting stress and should be included in future studies. Fifth, only meta-parenting cognition was examined as a predictor; future research should explore additional

parental psychological variables such as social support, self-efficacy, coping style, and mindfulness as moderators or mediators of the observed pathways. Finally, it would be valuable to examine whether the mediation model varies across child age groups, time since diagnosis, or between single-carer and dual-carer household structures.

CONCLUSION

This study provides the first evidence that emotional availability mediates the relationship between meta-parenting cognition and parenting stress in parents of children with ASD. Higher cognitive engagement with the parenting role - across both adaptive and ruminative dimensions was associated with reduced emotional attunement with the child, which in turn predicted greater parenting stress. These results question the notion that intentional parental reflection is consistently protective against stress and highlight the significance of the parent-child relationship in comprehending how parental thinking influences caregiver well-being. An effective approach for parents of children with ASD should simultaneously target metacognitive flexibility and emotional availability to enhance lasting caregiver resilience.

Table 1:Pearson Correlation Between Meta-Parenting Cognition Total Score and Parenting Stress Total Score (Mothers, N = 551)

Variable	M	SD	1	2
1. Meta-Parenting Cognition	44.76	10.85	—	.69**
2. Parenting Stress	65.04	14.72	.69**	—

Note. Pearson's r. df = 549. ** p < .01 (two-tailed).

Table 2:Spearman's Rho Correlation Between Meta-Parenting Cognition Total Score and Parenting Stress Total Score (Fathers, N = 551)

Variable M	SD	1	2
1. Meta-Parenting Cognition —	—	—	.45**
2. Parenting Stress —	—	.45**	—

Note. Spearman's ρ. df = 549. ** p < .01 (two-tailed). M and SD not reported for fathers due to non-normality of the parenting stress distribution.

Table 3:Pearson Correlations Between Meta-Parenting Cognition Dimensions and Parenting Stress (Mothers, N = 551)

Meta-parenting dimension	Assess.	Anticip.	Reflect.	Prob.-Solv.	Rumin.	PS (r)
Assessing	—	.97**	.86**	.98**	.83**	.70**
Anticipating	.97**	—	.83**	.96**	.80**	.73**
Reflecting	.86**	.83**	—	.89**	.71**	.45**
Problem-Solving	.98**	.96**	.89**	—	.83**	.67**
Rumination	.83**	.80**	.71**	.83**	—	.59**

Note. PS = parenting stress total score. N = 551. ** p < .01 (one-tailed).

Table 4: Spearman's Rho Correlations Between Meta-Parenting Cognition Dimensions and Parenting Stress (Fathers, N = 551)

Meta-parenting dimension	Assess.	Anticip.	Reflect.	Prob.-Solv.	Rumin.	PS (ρ)
Assessing	—	.96**	.71**	.97**	.82**	.43**
Anticipating	.96**	—	.75**	.93**	.81**	.42**
Reflecting	.71**	.75**	—	.74**	.62**	.24**
Problem-Solving	.97**	.93**	.74**	—	.85**	.39**
Rumination	.82**	.81**	.62**	.85**	—	.38**

Note. PS = parenting stress total score. N = 551. ** p < .01 (two-tailed).

Table 5: Spearman's Rho Correlations Between Meta-Parenting Cognition Dimensions and Emotional Availability Dimensions (Fathers, N = 551)

MP dimension	Sensitiv.	Structur.	Non-Intr.	Non-Host.	Child Resp.	Child Inv.
Assessing	−.81**	−.73**	−.75**	−.72**	−.72**	−.69**
Anticipating	−.81**	−.75**	−.78**	−.72**	−.72**	−.70**
Reflecting	−.52**	−.42**	−.49**	−.45**	−.46**	−.41**
Problem-Solving	−.79**	−.67**	−.72**	−.70**	−.69**	−.65**
Rumination	−.77**	−.64**	−.71**	−.71**	−.63**	−.61**

Note. N = 551. Spearman's ρ. All ps < .001 (two-tailed). CCA first function: Rc = .924, Wilks' Λ = .130, F(30, 2162) = 48.05, p < .001. MP = meta-parenting.

Table 6: Pearson's r Correlations Between Meta-Parenting Cognition Dimensions and Emotional Availability Dimensions (Mothers, N = 551)

Assessing	−.87**	−.82**	−.84**	−.82**	−.77**	−.74**
Anticipating	−.87**	−.81**	−.83**	−.80**	−.78**	−.75**
Reflecting	−.67**	−.60**	−.62**	−.61**	−.60**	−.57**
Problem-Solving	−.84**	−.78**	−.79**	−.79**	−.75**	−.72**
Rumination	−.79**	−.79**	−.80**	−.80**	−.67**	−.67**

MP dimension Sensitiv. Structur. Non-Intr. Non-Host. Child Resp. Child Inv

Note. N = 551. Pearson's r. All ps < .001 (two-tailed). CCA first function: Rc = .948, Wilks' Λ =

.080, F(30, 2162) = 63.60, p < .001. MP = meta-parenting.

Table 7: Mediation Analysis: Emotional Availability as Mediator of the Relationship Between Meta-Parenting Cognition and Parenting Stress

Path	B	SE	β	t	p	95% CI LL	95% CI UL	Sample
Path c — total effect: MPC → PS								
MPC → PS	0.93	0.04	.69	22.36	< .001	0.85	1.01	Mothers
MPC → PS	0.38	0.04	.45	10.43	< .001	0.30	0.46	Fathers
Path a: MPC → EA								
MPC → EA	−4.21	0.18	−.81	−23.72	< .001	−4.56	−3.86	Mothers
MPC → EA	−3.58	0.19	−.78	−19.14	< .001	−3.94	−3.22	Fathers
Path b: EA → PS (controlling for MPC)								
EA → PS	−0.13	0.02	−.29	−6.59	< .001	−0.17	−0.09	Mothers
EA → PS	−0.09	0.02	−.22	−4.38	< .001	−0.13	−0.05	Fathers
Path c′ — direct effect: MPC → PS (controlling for EA)								
MPC → PS	0.38	0.07	.28	5.41	< .001	0.24	0.52	Mothers
MPC → PS	0.21	0.05	.25	4.16	< .001	0.11	0.31	Fathers
Indirect effect (a × b): bootstrapped 95% CI								
MPC → EA → PS	0.55	0.09	—	—	< .001	0.38	0.73	Mothers (PM = 41.5%)
MPC → EA → PS	0.32	0.08	—	—	< .001	0.17	0.49	Fathers (PM = 30.2%)

Note. MPC = meta-parenting cognition total score; EA = emotional availability total score; PS = parenting stress total score; PM = proportion of total effect mediated. Bootstrapped indirect effects based on 5,000 resamples (PROCESS Macro, Model 4; Hayes 2013). LL = lower limit; UL = upper limit. Partial mediation confirmed in both samples: direct effect (path c′) remained significant after controlling for mediator

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