



# Maternal mindfulness buffers parenting in highly sensitive mothers

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## Introduction

Belsky's model (1984) suggests parenting as multiply shaped. Besides contextual and child-related sources, parental personality influences parenting behaviors, significantly impacting parent-child interactions and child development (Coplan et al., 2009; Root et al., 2016). Recently, the exploration of the role of the personality trait of Sensory Processing Sensitivity (SPS; Aron & Aron, 1997) for parenting is gaining interest.

SPS is a biologically based trait capturing individual differences in perception, processing, and responsiveness to internal and external stimuli. Individuals with high SPS (~30% of the population) (Lionetti et al., 2018) show a deeper processing of stimuli, resulting in overall stronger emotional reactivity and a greater risk of overwhelm, but seems also to benefit more from positive stimuli. According to a few recent studies, highly sensitive (HS) parents show greater risk of difficulties in parenting, reporting the use of harsh and permissive discipline, withdrawal, dysfunctional behaviors, and negative caregiving feelings (Aron et al., 2019; Branjerdporn et al., 2019; Goldberg & Scharf, 2020). However, preliminary observational studies also showed that certain individual regulatory factors may moderate the impact of SPS for caregiving behaviors in HS people (Lionetti et al., 2025), possibly due to their greater benefit from internal resources. In this study, we enlarge this focus

exploring the role of a potentially key protective factor, such as mindfulness.

Mindfulness, involving the present-moment awareness of inner experiences with a non-reactive and accepting attitude (Kabat-Zinn, 2003), may support HS parents—who may be more vulnerable to overwhelm yet also more capable of benefiting from inner strengths—by improving their self-regulation during the parenting experience. The only available study on SPS and mindfulness suggests that this could be the case, based on data on HS non-parents and anxiety (Bakker & Moulding, 2012). With the current contribution, we aim at investigating the interaction between SPS and mindfulness in predicting both mother-child interactions, as perceived by the mother (i.e., self-reported maternal satisfaction, confidence and pleasure in interacting with the child), and maternal emotion regulation in caregiving. As mindfulness has been associated with positive parenting experiences (Fernandes et al., 2022; Passaquindici et al., 2024b), we expected mindfulness to decrease the risk of negative parenting in HS parents, with a flourishing effect (i.e., better parenting than less sensitive ones) (Belsky, et al., 2007; Belsky & Pluess, 2009).

## Method

### Participants and procedures

323 mothers of toddlers ( $M=1.87$  years,  $SD=0.60$ , 1-3yy, 39% F) and 214 mothers of preschoolers ( $M=4.45$  years,  $SD=0.86$ , 3-6yy, 44% F) were recruited via social media. Participants completed an online anonymous self-report survey available for three months. All mothers had a medium-high educational level (see Tables S1a and S1b in the supplementary material for further descriptive details). The study was approved by the Ethical Committee of Department of Neurosciences, Imaging and Clinical Sciences, G. d'Annunzio University of Chieti-Pescara.

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## Measures

### Highly sensitive person scale (HSP; Pluess et al., 2023; Lionetti et al., 2024)

The 12-item HSP assessed mothers' SPS on a 7-point Likert scale ranging from 1 (*not at all*) to 7 (*extremely*) (e.g., "Do you seem to be aware of subtleties in your environment?", "Do you get rattled when you have a lot to do in a short amount of time?"). Higher total score indicates higher sensitivity ( $\alpha=0.80$  and  $0.78$  for mothers of toddlers and preschoolers, respectively).

### Five facet mindfulness questionnaire short form (FFMQ-SF; Wilkinson & Hao, 2021)

The 20-item FFMQ-SF measured maternal dispositional mindfulness on a 5-point Likert scale ranging from 1 (*never or rarely true*) to 5 (*very often or always true*) (e.g., "I watch my feelings without getting lost in them"). Higher total score indicates higher mindfulness ( $\alpha=0.83$  and  $0.85$ ).

### Parent emotion regulation scale (PERS; Pereira et al., 2017)

The 5 items of the Lack of Control subscale from the PERS measured the maternal difficulties in regulating emotions in parenting on a 5-point Likert scale ranging from 0 (*never or almost never*) to 4 (*always or almost always*) (e.g., "When I am sad, anxious or angry, I can reasonably control my feelings/emotions in front of my child"). We reversed scores as higher total score indicates greater emotion regulation ( $\alpha=0.60$  for both age groups, in line with Pereira et al., 2017).

### Maternal postnatal attachment scale (MPAS; Condon & Corkindale, 2007)

The 19-item MPAS assessed the quality of mother-child interactions on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very frequently*) (e.g., "When I am with the child, I am happy and satisfied"). Higher total score indicates more positive mother-child interactions ( $\alpha=0.85$  and  $0.86$ ).

## Results

Bivariate associations showed that SPS and mindfulness were moderately associated—negatively and positively, respectively—with emotion regulation during parenting and with positive mother-child interactions in both groups. Additionally, SPS and mindfulness were negatively and moderately associated in the toddler sample but not in preschoolers (see Table S1a and S1b in the supplementary material).

### Multivariate regression models

We run multivariate regression models for each age group, including main (i.e., SPS and mindfulness) and interaction (i.e., SPS x mindfulness) effects in predicting both maternal emotion regulation during parenting and mother-child interactions, controlling for maternal age and education. The interaction term was significant only in mothers of preschoolers. Mindfulness significantly interacted with SPS in predicting maternal emotion regulation and positive mother-child interactions as perceived by the mothers (Table 1). Significant interaction effects were graphically represented by plotting simple slopes (Fig. 1). Follow-up plots suggest that mothers with higher levels of sensitivity showed less positive mother-child interactions and greater difficulties in emotion regulation, particularly when mindfulness was low. When supported by stronger mindfulness competences, HS mothers showed more positive mother-child interactions and better emotion regulation, comparable to less sensitive ones.

## Discussion

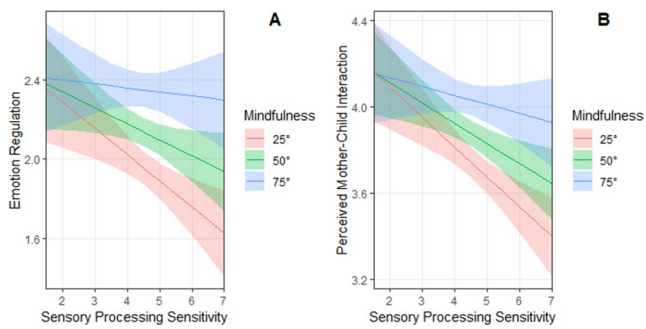
This work provides first evidence on the association between SPS and maternal mindfulness in predicting parenting, considering both maternal perception of mother-child interactions and maternal emotion regulation during caregiving interactions.

Consistent with previous evidence (Branjerdporn et al., 2019; Goldberg & Scharf, 2020), we found that HS mothers

**Table 1** Estimated parameters for mothers of preschoolers

	Mother-child Interaction			Maternal emotion regulation in parenting		
	$\beta$	$p$	$R$ square	$\beta$	$p$	$R$ square
SPS	-1.18	<0.01	0.30	-1.09	<0.01	0.32
Mindfulness	-0.23	0.43		-0.15	0.60	
SPS * Mindfulness	1.16	0.024		1.11	0.017	
Maternal Age	0.03	0.65		0.04	0.45	
Maternal Education (years)	-0.24	<0.001		-0.21	<0.001	

SPS maternal sensory processing sensitivity trait, *Mother-child Interaction* perceived mother-child interaction, *Mindfulness* maternal dispositional mindfulness



**Fig. 1** SPS and mindfulness in predicting maternal emotion regulation in parenting (**A**) and mother-child interaction as perceived by the mother (**B**). The moderating variable of mindfulness was divided in low (below the first 25th quantile), medium, and high levels (above the fourth– 75th– quantile). Note. Mindfulness=Maternal Dispositional Mindfulness; Emotion Regulation=Maternal Emotion Regulation during Parenting

tend to report greater difficulties in engaging in positive and satisfying interactions with their child. Interestingly, this stronger perception of distress when engaging with the child has been found in self-report data, but not in observational measures, suggesting that HS mothers may be more emotionally attuned (Lionetti et al., 2025). This discrepancy may indicate that their heightened emotional experience leads them to feel emotions more intensely, potentially resulting in a sense of overwhelm that may bias their perception in a more negative way.

This stronger perception of challenges when interacting with the child was especially true when mindfulness was low. Likely due to their heightened reactivity to internal stimuli, they may face more challenges in regulating their emotional states (e.g., anger or anxiety) during the interactions with a greater risk of getting overwhelmed, particularly in the absence of other regulatory resources. However, findings supported mindfulness as a protective factor for HS mothers, who reported overall a more positive parenting experience when supported by mindfulness-related regulatory skills. This pattern was evident in mothers of preschoolers but not in mothers of toddlers, suggesting that the protective role of mindfulness in parents increases as the child's age (Burke et al., 2020; Passaquindici et al., 2024a). One possible explanation is that as children's behavioral challenges and demands increase over time, parenting becomes potentially more stressful, making mindfulness particularly beneficial in this period. Greater parenting challenges may, in fact, be necessary to fully observe the effects of mindfulness in HS parents, possibly explaining why HS mothers of preschoolers benefited more, demonstrating more adaptive parenting.

Overall, the role of mindfulness in buffering greater reactivity related to sensitivity may be understood by considering that while both SPS and mindfulness contribute

to heightened reactivity to emotional and social cues, they operate at different levels (i.e., SPS at the sensory threshold and reactivity level), while mindfulness at a more regulatory and metacognitive level. HS parents with high mindfulness, aware of their emotional arousal, are also supported by a non-reactive attitude toward their present-moment heightened reactivity, observing it non-judgmentally. This, in turn, helps them in regulating their emotions more effectively, fostering greater emotional balance and adaptive parenting.

Notably and contrary to our expectations, no vantage effect emerged for HS mindful parents, as they did not flourish in parenting or exceed less sensitive ones but rather reached comparable levels.

This was a self-report and cross-sectional study, and further longitudinal observational research accounting for additional individual child variables (e.g., temperament) is needed. However, findings contribute to first interesting insights for applied settings, suggesting that sensitive parents could potentially benefit from mindfulness-based interventions.

**Supplementary Information** The online version contains supplementary material available at <https://doi.org/10.1007/s12144-025-08258-0>.

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**Data availability** Data of the current study are available at: <https://gitf.ront.io/r/dataset/r8ovZ4NsDN9b/Mindfulness-Buffers-HS-Parenting/>.

## Declarations

**Ethical approval** The study was approved by Ethical Committee of the University G. d'Annunzio of Chieti-Pescara, Italy.

**Informant consent** Participants provided informant consent

**Conflicts of interest** We have no conflicts of interest to disclose

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