Supplement

Mediation analyses (MacArthur Approach) were conducted to test whether each attachment scale (i.e. avoidant, anxious, secure) mediated the effect of maternal childhood trauma severity (predictor variable) on child emotional and behavioral problems (outcome variable). Refer to Supplemental Figure 1 for the mediator model specification. We followed the eligibility and analytical criteria of the MacArthur approach for mediators, which was embedded in our models [34, 35]. Mediator analyses were performed using linear regression. Statistical analyses were performed in R Software (R Core Team, 2018).

Results

Assessing the MacArthur Mediator Eligibility Criteria

All three attachment scales met the first eligibility criteria for testing mediation in the MacArthur Framework (see Supplemental Table 2). Moreover, all attachment scales met the second preliminary requirement as well. Greater maternal childhood maltreatment severity was associated with less secure attachment (regression coefficient=-.33, p=.002); maternal childhood maltreatment severity was positively associated with anxious and avoidant attachment scores (regression coefficient=.38, p<.001 *anxious*; regression coefficient=.37, p<.001 *avoidant)*.

Secure Attachment Style as Mediator

Secure attachment style mediated the relationship between total maternal childhood maltreatment and child emotional and behavioral problems (see Supplemental Table 2). Regression analysis demonstrated that secure attachment style had a main effect on total child problems i.e., every 1 standard deviation increase from mean secure attachment score was associated with an 11% decrease in mean total child problems (regression coefficient=-0.11; p=.001). Furthermore, maternal childhood maltreatment was marginally associated with child

behavioral problems (regression coefficient=.17, p=.10). The interaction effect of childhood maltreatment severity and secure attachment on child total problems was not statistically significant.

Anxious Attachment Style as Mediator

Anxious attachment style mediated the relationship between maternal childhood maltreatment and child emotional and behavioral problems. Anxious attachment style had a main effect on total child problems i.e., a 1 standard deviation increase from the mean anxious attachment score was associated with a 5% increase in mean total child problems (regression coefficient=.05, p=.008). Maternal childhood maltreatment was marginally associated with total child problems (regression coefficient=0.19, p=.10). The interaction effect was not statistically significant.

Avoidant Attachment Style as Mediator

Avoidant attachment style was not a mediator between maternal childhood maltreatment severity and child emotional and behavioral problems. However, there was a maternal childhood maltreatment effect on total child problems in the positive direction (regression coefficient=.25, p=.03).

These supplemental findings provide evidence that maternal attachment insecurity (both lower security and elevated anxious attachment) explains in part the association between maternal childhood experiences of abuse and neglect and increased young child emotional and behavioral problems.

Supplemental Figure 1.

$$O = \beta_0 + \beta_1 T + \beta_2 M + \beta_3 TM + \varepsilon \qquad (1)$$

Linear model conceptualization of hypothesis 1: Attachment style mediates the relationship between maternal childhood maltreatment severity and child emotional and behavioral problems

Notes. O (i.e. Outcome)=Child Total Problems; T (i.e. Target/Predictor)=Maternal Childhood Maltreatment Severity

$$M = \gamma_0 + \gamma_1 T + \varepsilon^* \qquad (2)$$

Model Conceptualization for the Establishment of Eligibility Criteria for Hypothesis 1

Notes. T (i.e. Target)=Maternal Childhood Maltreatment Severity; M (i.e. Mediator)=Attachment Domain Score

[a] Unadjusted maternal childhood maltreatment severity to maternal attachment: Regression coefficient (γ_1) for maternal childhood maltreatment severity from a linear regression model where attachment is the outcome and childhood maltreatment severity is the predictor. This model was used to establish that mediator eligibility criteria was met, $M = \gamma_0 + \gamma_1 T + \varepsilon$

[b]Maternal attachment to child emotional and behavioral problems: Regression coefficient for the respective attachment domain (β_2) from a linear regression model where the outcome is square-root-transformed child total problems and the predictors are maternal childhood maltreatment severity, maternal attachment, and the interaction effect of maternal childhood maltreatment severity and maternal attachment, $O = \beta_0 + \beta_1 T + \beta_2 M + \beta_3 T * M$

[c]Adjusted, maternal childhood maltreatment severity to child emotional and behavioral problems: Regression coefficient for total maternal childhood maltreatment severity (β_1) from a linear regression model where the outcome is square-root-transformed child total problems and the predictors are maternal childhood maltreatment severity, maternal attachment, and the

interaction effect of maternal childhood maltreatment severity and maternal attachment, $O = \beta_0 + \beta_1 T + \beta_2 M + \beta_3 T * M$

[d] Interaction effect to child emotional and behavioral problems (β_3): Regression coefficient of the interaction effect of maternal attachment style and maternal childhood maltreatment severity from a linear regression model where the outcome is square-root-transformed child total problems and the predictors are maternal childhood maltreatment severity, maternal attachment, and the interaction effect of maternal childhood maltreatment severity and maternal attachment, $O = \beta_0 + \beta_1 T + \beta_2 M + \beta_3 T * M$

[e] Unadjusted maternal childhood maltreatment severity to child emotional and behavioral problems: Regression coefficient for maternal childhood maltreatment severity from a linear regression model where the outcome is square-root-transformed child total problems and the predictor is maternal childhood maltreatment severity. $O = \alpha_0 + \alpha_1 T$

Supplemental Table 2. Coefficient estimates from mediator models using MacArthur approach

Effect	Attachment domain		
	Secure	Anxious	Avoidant
Unadjusted effect (maternal childhood maltreatment severity on maternal attachment)[a]	-0.19 (.002)	0.22 (<.001)	0.22 (<.001)
Effect of maternal attachment on child total problems[b]	-0.11 (<.001)	0.05 (0.008)	0.02 (.17)
Effect of maternal childhood maltreatment severity on child total problems[c]	0.17 (.10)	0.19 (.10)	0.25 (.03)
Interaction effect between maternal childhood maltreatment and maternal attachment on child total problems[d]	-0.01 (.49)	-0.01 (.36)	0.002 (.80)
Unadjusted effect of maternal childhood maltreatment severity on child total problems[e]	0.31 (.003)	0.31 (.003)	0.31 (.003)

Notes: Coefficient estimate (p-value).