Mind matters

*On mothers’ and fathers’ mentalizing about their child*

Zeegers, M.A.J.

Citation for published version (APA):
REFERENCES


Supplementary materials


Messinger, D. S., Fogel, A., & Dickson, K. L. (2001). All smiles are positive, but some smiles are more positive than others. *Developmental Psychology, 37*, 642–653.


Supplementary Materials
APPENDIX A

Flow Chart of Search Results

Database search (k =)
- PsycINFO: 3548 results
- Medline: 901 results
- RIC: 623 results
- Embase: 89 results
- Cochrane Library: 97 results
- Web of Science: 2,391 results
- Google Scholar: 830 results
- Reference lists: 87
- Suggested by experts: 21

Records after duplicates removed (n = 3982)

Records screened (n = 4605)

Records excluded (n = 4352)

Excluded:
- Exclusion criteria:
  - assessment procedures: 74
  - samples too old: 35
  - foreign language: 2
  - clinical samples: 24
- Papers not retrieved: 5
- Non-response from author on request for information/ effect size could not be calculated: 3

Full-text articles assessed for eligibility (n = 253)

Number of studies (n), number of independent samples (s)
- Mentalization-attachment (n = 17, s = 13)
- Sensitivity-attachment (n = 75, s = 51)
- Mentalization-sensitivity (n = 18, s = 14)
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Note. M = mothers, F = fathers, Age parents = parents’ age during first assessment; Age ment = infants’ average age in months during assessment parental mentalization; Age att = infants’ average age in months during attachment assessment; Country = country in which the participants lived; Type ment = type of mentalization assessment; MM obs = mind-mindedness observational assessment; MMI = mind-mindedness interview; IA = insightfulness assessment; PRF = Parental reflective functioning; App MM = appropriate mind-mindedness, N-A MM = non-attuned mind-mindedness; SSP = strange situation procedure; AQS = Attachment Q-sort; N = number of participants in study; #ES = number of effect sizes coded from study; r = Pearson’s r correlation coefficient.

The N reported in the tables may deviate from the N reported in article texts because in some cases authors were contacted for additional information. Study in which the same sample was analyzed as in the study mentioned above.
## APPENDIX B2

Overview of the Included Studies on Sensitivity and Attachment

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### Overview of the Included Studies on Sensitivity and Attachment (continued)

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<td>South Africa</td>
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<td>Mali</td>
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<td>True et al.</td>
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<td>N/A</td>
<td>12</td>
<td>12.3</td>
<td>Mali</td>
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<td>Valenzuela</td>
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## Overview of the Included Studies on Sensitivity and Attachment (continued)

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<tr>
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<th>Age parents</th>
<th>Age sens</th>
<th>Age att</th>
<th>Country</th>
<th>SSP/AQS</th>
<th>Sensitivity instrument</th>
<th>N (^{a})</th>
<th>#ES</th>
<th>r</th>
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<td>Volling et al.</td>
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<td>12.5</td>
<td>USA</td>
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<tr>
<td>von der Lippe et al.</td>
<td>2010</td>
<td>M</td>
<td>38</td>
<td>5.5</td>
<td>12</td>
<td>Norway</td>
<td>AQS</td>
<td>Other</td>
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<td>Wong et al.</td>
<td>2009</td>
<td>M / F</td>
<td>28.9 / 31.6</td>
<td>3.6</td>
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<td>USA</td>
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<td>62 / 62</td>
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<td>-.03/.15</td>
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<tr>
<td>Xue (^{c})</td>
<td>2015</td>
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<td>30.91</td>
<td>10/21</td>
<td>13/27</td>
<td>Canada</td>
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<td>Yorgason (^{d})</td>
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<td>Zevalkink et al.</td>
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<td>Israël</td>
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<td>Aviezer et al.</td>
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<td>N/A</td>
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<td>12</td>
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<td>SSP(4)</td>
<td>EAS</td>
<td>687</td>
<td>1</td>
<td>.15</td>
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Note. M = mothers, F = fathers; Age parents = parents’ age during first assessment; Age sens = infants’ average age in months during assessment sensitivity; Age att = infants’ average age in months during attachment assessment; Country = country in which participants lived; SSP = strange situation procedure; AQS = Attachment Q Sort; Ainsworth = Ainsworth Scales, MBQS = Maternal Behavior Q-Set, EAS = Emotional Availability Scales; N = number of participants; #ES = number of effect sizes coded from study; r = Pearson’s r correlation coefficient.

\(^a\) The N reported in the tables may deviate from the N reported in article texts because in some cases authors were contacted for additional information.

\(^b\) Study in which the same sample was analyzed as in the study mentioned above.

\(^c\) Unpublished studies.
## APPENDIX B3

### Overview of the Included Studies on Parental Mentalization and Sensitivity

<table>
<thead>
<tr>
<th>Reference</th>
<th>Year</th>
<th>Gender</th>
<th>Age parents</th>
<th>Age ment</th>
<th>Age sens</th>
<th>Country</th>
<th>Type ment</th>
<th>App/N-A MM</th>
<th>Sensitivity instrument</th>
<th>N²</th>
<th>#ES</th>
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<td>Demers et al.</td>
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<td>MM obs</td>
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Note. M = mothers; Age parents = parents’ age during first assessment; Age ment = infants’ average age in months during assessment mentalization; Age att = infants’ average age in months during sensitivity assessment; Country = country in which participants lived; Type ment = type of mentalization assessment; MM obs = mind-mindedness observational assessment; MMI = mind-mindedness interview; IA = Insightfulness assessment; App MM = appropriate mind-mindedness, N-A MM = non-attuned mind-mindedness; N = number of participants in study, #ES = number of effect sizes coded from study; r = Pearson’s r correlation coefficient

a The N reported in the tables may deviate from the N reported in article texts because in some cases authors were contacted for additional information.
b Study in which the same sample was analyzed as in the study mentioned above
c Unpublished study
### APPENDIX C

**Overview of Quantitative and Categorical Variables Coded for Each Primary Study Including Response Categories**

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<tr>
<td>Sample size</td>
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</tr>
<tr>
<td>Effect size controlled or not</td>
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<td>Gender of the parent</td>
<td>Mothers / Fathers</td>
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<td>Percentages of males (children)</td>
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<tr>
<td>Age of the parent</td>
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<tr>
<td>Age of the child during the MM/sensitivity/attachment assessment</td>
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<td>Socioeconomic status of the family</td>
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<td>Strange Situation Procedure / Attachment Q-Sort</td>
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<td>Location</td>
<td>Lab / Home</td>
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<tr>
<td>Type of classification (only when SSP was conducted)</td>
<td>Three-way classification (ABC) / Four-way classification (ABCD)</td>
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<td>Dimension of mind-mindedness (only when free-play observation was assessed)</td>
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</tr>
<tr>
<td>Appropriate mind-related comments / Non-attuned mind-related comments</td>
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</tr>
<tr>
<td>Location assessment</td>
<td>Lab / Home</td>
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<th>Characteristics of the sensitivity assessment</th>
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<td>Ainsworth Maternal Sensitivity Scales / Maternal Behavior Q sort / Emotional Availability Scales / Other</td>
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<tr>
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<td>Lab / Home</td>
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<td>Duration of the assessment</td>
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<td>Removal or addition of items/scales</td>
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### APPENDIX D1

Parental Mentalization and Attachment: Estimated Results (Fisher's Z, Regression Coefficients, Omnibus-test) for Continuous and Categorical Moderator Variables

<table>
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<tr>
<th>Study characteristics</th>
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<th>#ES</th>
<th>Zr (SE)</th>
<th>β1 (SE)</th>
<th>F (df1, df2)</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
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<td>20</td>
<td>-.02 (.01)</td>
<td>F(1, 18) = 8.31</td>
<td>.010*</td>
<td></td>
</tr>
<tr>
<td>Time between measurements (c)</td>
<td>13</td>
<td>20</td>
<td>.01 (.01)</td>
<td>F(1, 18) = 0.68</td>
<td>.422</td>
<td></td>
</tr>
</tbody>
</table>

#### Sample characteristics

| Age of the parent (c) | 12 | 19  | -.001 (.01) | F(1, 17) = 0.02 | .904 |
| Gender of the parent mothers | 13 | 17  | .31 (.05)*** | F(1, 18) = 0.41 | .841 |
| fathers | 2 | 3  | .28 (17) | .03(17) | |
| Percentage boys (c) | 13 | 20  | .003 (.01) | F(1, 18) = 0.29 | .599 |
| Age child attachment assess. (c) | 13 | 20  | -.01 (.02) | F(1, 18) = 0.17 | .685 |
| Age child mentalization assess.(c) | 13 | 20  | -.01 (.01) | F(1, 18) = 0.86 | .367 |
| Continent | 6 | 11  | .34(.06)*** | F(1, 17) = 1.66 | .214 |
| North-America | 6 | 8  | .23(.07)** | -.11 (.09) | |
| SES | 6 | 10  | .39 (.06)*** | F(1, 18) = 3.00 | .100 |
| low | 5 | 11  | .25 (.08)*** | -.14 (.08) | |
Parental Mentalization and Attachment: Estimated Results (Fisher’s Z, Regression Coefficients, Omnibus-test) for Continuous and Categorical Moderator Variables (continued)

<table>
<thead>
<tr>
<th>Attachment assessment</th>
<th>#k</th>
<th>#ES</th>
<th>Zr (SE)</th>
<th>β₁ (SE)</th>
<th>F (df1, df2)*</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F(1, 18) = 0.93</td>
<td>.348</td>
</tr>
<tr>
<td>SSP</td>
<td>11</td>
<td>17</td>
<td>.34 (.06)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AQS</td>
<td>2</td>
<td>3</td>
<td>.22 (12)</td>
<td>-.12 (13)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mentalization assessment</th>
<th>#k</th>
<th>#ES</th>
<th>Zr (SE)</th>
<th>β₁ (SE)</th>
<th>F (df1, df2)*</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment strategy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F(1, 18) = 0.02</td>
<td>.884</td>
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<td>MM</td>
<td>8</td>
<td>15</td>
<td>.30 (.06)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA/PRF</td>
<td>5</td>
<td>5</td>
<td>.31 (08)</td>
<td>.01 (10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Location assessment     |    |     |         |         | F(1, 18) = 1.20 | .287    |
| lab                     |  9 | 15  | .34 (.05)*** |         |              |         |
| home                    |  4 |  5  | .24 (09)  | -.11 (10)|              |         |

<table>
<thead>
<tr>
<th>MM Index</th>
<th>#k</th>
<th>#ES</th>
<th>Zr (SE)</th>
<th>β₁ (SE)</th>
<th>F (df1, df2)*</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>appropriate</td>
<td>7</td>
<td>10</td>
<td>.26 (05)***</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>non-attuned</td>
<td>3</td>
<td>4</td>
<td>.49 (07)***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. #k = number of studies; #ES = number of effect sizes; Zr = Fisher’s Z correlation; SE = standard error; β₁ = estimated regression coefficient; (c) = continuous variables; MM = mind-mindedness; IA = insightfulness assessment; PRF = parental reflective functioning; * p < .05; ** p < .01; *** p < .001.

a Omnibus test of all regression coefficients in the model.
b The effects of the variables study design and attachment classification system were not tested due to lack of variation within this variable.
c One study was conducted in a continent other than North-America or Europe (Koren-Karie et al., 2002). This study was left out of this moderator analysis.
### APPENDIX D2

Parental Mentalization and Sensitivity: Estimated Results (Fisher’s Z, Regression Coefficients, Omnibus-test) for Continuous and Categorical Moderator Variables

<table>
<thead>
<tr>
<th>Study characteristics</th>
<th>#k</th>
<th>#ES</th>
<th>Zr (SE)</th>
<th>β*, (SE)</th>
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<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Publication year (c)</td>
<td>14</td>
<td>24</td>
<td>.01 (.01)</td>
<td>F(1, 22) = 0.28</td>
<td>.603</td>
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<td>Sample characteristics</td>
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<tr>
<td>Age of the parent (c)</td>
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<td>24</td>
<td>.02 (.01)</td>
<td>F(1, 22) = 3.48</td>
<td>.076</td>
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<td>Percentage boys (c)</td>
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<td>20</td>
<td>-.00 (.01)</td>
<td>F(1, 18) = 0.46</td>
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<tr>
<td>Age child mentalization assessment (c)</td>
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<td>24</td>
<td>-.01 (.004)</td>
<td>F(1, 22) = 6.62</td>
<td>.017*</td>
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<tr>
<td>Age child sensitivity assessment (c)</td>
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<td>24</td>
<td>.29 (.06)**</td>
<td>F(1, 22) = 4.47</td>
<td>.046*</td>
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<tr>
<td>Continent (c)</td>
<td></td>
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<tr>
<td>Europe</td>
<td>6</td>
<td>11</td>
<td>-.07 (.08)</td>
<td>F(1, 21) = 0.81</td>
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<td>North-America</td>
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<td>12</td>
<td>.21 (.05)**</td>
<td>F(1, 22) = 0.88</td>
<td>.359</td>
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<td>SES</td>
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<tr>
<td>low</td>
<td>6</td>
<td>12</td>
<td>.28 (.07)**</td>
<td>F(1, 22) = 0.87</td>
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<td>middle-high</td>
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<td>.07 (.07)</td>
<td>F(1, 22) = 0.87</td>
<td>.359</td>
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<td>Mentalization assessment</td>
<td></td>
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<tr>
<td>Assessment strategy</td>
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<tr>
<td>MM</td>
<td>10</td>
<td>18</td>
<td>.24 (.04)**</td>
<td>F(1, 22) = 0.19</td>
<td>.668</td>
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<tr>
<td>IA/PRF</td>
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<td>6</td>
<td>.27 (.07)**</td>
<td>F(1, 20) = 0.26</td>
<td>.617</td>
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<td>Location</td>
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<tr>
<td>lab</td>
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<td>15</td>
<td>.27 (.05)**</td>
<td>F(1, 13) = 4.43</td>
<td>.055</td>
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<td>7</td>
<td>.23 (.07)**</td>
<td>F(1, 22) = 0.62</td>
<td>.267</td>
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<tr>
<td>appropriate</td>
<td>9</td>
<td>10</td>
<td>.30 (.05)**</td>
<td>F(1, 22) = 0.19</td>
<td>.668</td>
<td></td>
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<tr>
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<td>5</td>
<td>5</td>
<td>.13 (.07)</td>
<td>F(1, 22) = 0.19</td>
<td>.668</td>
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**Parental Mentalization and Sensitivity: Estimated Results (Fisher’s Z, Regression Coefficients, Omnibus-test) for Continuous and Categorical Moderator Variables (continued)**

<table>
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<tr>
<th>Sensitivity assessment</th>
<th>#k</th>
<th>#ES</th>
<th>Zr (SE)</th>
<th>β (SE)</th>
<th>F (df1, df2)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (^a)</td>
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<td></td>
<td></td>
<td></td>
<td>F(1, 0) = 0.03</td>
<td>.876</td>
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<tr>
<td>lab</td>
<td>9</td>
<td>16</td>
<td>.26 (.04)**</td>
<td>-.01 (.09)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>home</td>
<td>4</td>
<td>6</td>
<td>.25 (.08)**</td>
<td>-.001 (.002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration (c)</td>
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<td>20</td>
<td></td>
<td></td>
<td>F(1, 22) = 0.00</td>
<td>.998</td>
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<tr>
<td>Instrument</td>
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<td></td>
<td></td>
<td></td>
<td>F(1, 22) = 0.00</td>
<td>.998</td>
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<td>Ainsworth scales</td>
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<td>8</td>
<td>.25 (.06)**</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>other</td>
<td>11</td>
<td>16</td>
<td>.25 (.04)**</td>
<td>.00 (.08)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. #k = number of studies; #ES =number of effect sizes; Zr = Fisher’s Z correlation; SE=standard error; β = estimated regression coefficient; (c) = continuous variables; MM = mind-mindedness; IA = insightfulness assessment; PRF = parental reflective functioning; * p < .05; ** p < .01; *** p < .001.

\(^a\) Omnibus test of all regression coefficients in the model
\(^b\) The effects of the variables study design were not tested due to lack of variation within these variables
\(^c\) One study was conducted in a continent other than North-America or Europe (Koren-Karie et al., 2002). This study was left out of this moderator analysis
\(^d\) The location was unknown for one study (with 2 effect sizes)
APPENDIX E CHAPTER 3

Flow Chart of Search Results

Database search
PsycINFO 1,227 results
Medline 557 results
ERIC 382 results
Embase 97 results
Cochrane Library 43 results
Web of Science 854 results
Google Scholar 620 results
Reference lists: 15
Suggested by experts: 6
Total: 3801

Records after duplicates (n = 1178) removed

Records screened (n = 2623)

Records excluded after screening (n = 2419)

Full-text articles assessed for eligibility (n = 204)

Excluded (171):
Exclusion criteria:
- assessment procedures/different construct: 141
- samples too young/old: 22
- clinical/non-biological samples: 8

Studies included (n = 33*):
Attachment - EU (n = 18, with 15 unique samples)
Attachment - FBU (n = 18 with 17 unique samples)
*3 studies investigated attachment in relation to both EU and FBU
## APPENDIX F1 CHAPTER 3

Characteristics of the Included Studies on Attachment and Emotion Understanding

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>N</th>
<th>Child age attachment (months)</th>
<th>Attachment assessment</th>
<th>Child age EU (months)</th>
<th>EU task</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altamura (U)</td>
<td>2010</td>
<td>58</td>
<td>49</td>
<td>ASCT</td>
<td>49</td>
<td>Emotion labelling and understanding (Denham, 1986)</td>
<td>.45</td>
</tr>
<tr>
<td>Greig &amp; Howe*</td>
<td>2001</td>
<td>45</td>
<td>40</td>
<td>ASCT</td>
<td>40</td>
<td>Emotion labelling and understanding (Denham, 1986)</td>
<td>.52</td>
</tr>
<tr>
<td>Kidwell et al.</td>
<td>2010</td>
<td>54</td>
<td>54</td>
<td>PAA</td>
<td>54</td>
<td>Emotion labelling and understanding (positive and negative; Saarni, 1999)</td>
<td>.46</td>
</tr>
<tr>
<td>Laible &amp; Thompson</td>
<td>1998</td>
<td>40</td>
<td>50</td>
<td>AQS - mother</td>
<td>50</td>
<td>Emotion labelling and understanding (Denham, 1986 + naturalistic interview)</td>
<td>.39</td>
</tr>
<tr>
<td>Laible et al.*</td>
<td>2004</td>
<td>51</td>
<td>49</td>
<td>AQS - mother</td>
<td>49</td>
<td>Emotion labelling and understanding (Denham, 1986)</td>
<td>.50</td>
</tr>
<tr>
<td>Laible et al.*</td>
<td>2011</td>
<td>50</td>
<td>51</td>
<td>AQS - mother</td>
<td>51</td>
<td>Emotion labelling and understanding (Denham, 1986)</td>
<td>.00</td>
</tr>
<tr>
<td>McQuaid et al.</td>
<td>2008</td>
<td>33</td>
<td>57</td>
<td>PAA</td>
<td>57</td>
<td>Emotion understanding; scenario played by actors</td>
<td>.34</td>
</tr>
<tr>
<td>[Blinded for review]</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Emotion labelling and understanding (Denham, 1986) + Test of Emotion Comprehension (Pons, Harris, &amp; de Rosnay, 2004)</td>
<td>.07; .02; .24; .19; .33; .23; .11; -.04</td>
</tr>
<tr>
<td>Ontai et al</td>
<td>2002</td>
<td>50</td>
<td>41</td>
<td>AQS - mother</td>
<td>41</td>
<td>Emotion labelling and understanding (Denham, 1986)</td>
<td>.12</td>
</tr>
<tr>
<td>Psychogiou et al.*</td>
<td>2018</td>
<td>105</td>
<td>68</td>
<td>Manchester Child Attachment Story task</td>
<td>68</td>
<td>Test of Emotion Comprehension (Pons &amp; Harris, 2000)</td>
<td>.30; .32</td>
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</table>
### Characteristics of the Included Studies on Attachment and Emotion Understanding (continued)

<table>
<thead>
<tr>
<th>Author</th>
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<th>N</th>
<th>Child age attachment (months)</th>
<th>Attachment assessment</th>
<th>Child age EU (months)</th>
<th>EU task</th>
<th>r</th>
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</thead>
<tbody>
<tr>
<td>Raikes &amp; Thompson</td>
<td>2006; 2008</td>
<td>42</td>
<td>28</td>
<td>AQS - observer</td>
<td>42</td>
<td>Emotion labelling and understanding (Denham, 1986)</td>
<td>.44</td>
</tr>
<tr>
<td>Repacholi &amp; Trapolini</td>
<td>2004</td>
<td>48</td>
<td>54</td>
<td>SAT</td>
<td>54</td>
<td>Causes of Emotion interview (Dunn &amp; Hughes, 1998)</td>
<td>.30</td>
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<tr>
<td>Steele et al.</td>
<td>1999; 2002; 2008</td>
<td>60;63</td>
<td>12;18</td>
<td>SSP</td>
<td>71</td>
<td>Emotion labelling and understanding (The Affect Task; Croft, 1997)</td>
<td>.41; -.03</td>
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<tr>
<td>Vaughn et al.</td>
<td>2011</td>
<td>39</td>
<td>45</td>
<td>ASCT</td>
<td>45</td>
<td>Emotion labelling and understanding (adapted version; Denham, 1998)</td>
<td>.46</td>
</tr>
<tr>
<td>Waters et al</td>
<td>2010</td>
<td>72</td>
<td>54</td>
<td>AQS - mother</td>
<td>54</td>
<td>Negative emotion understanding (Denham, 1986)</td>
<td>.10</td>
</tr>
</tbody>
</table>

Note. ASCT = Attachment Story Completion Task; AQS = Attachment Q-Sort; SAT = Separation Anxiety Test; SSP = Strange Situation Procedure; PAA = Preschool Assessment of Attachment.

*Additional information provided by authors Controle voor taal : raikes en thompson (r = .29)

*effect size calculated on the basis of insecure/secure group differences
## Characteristics of the Included Studies on Attachment and False Belief Understanding

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>N</th>
<th>Child age attachment (months)</th>
<th>Attachment</th>
<th>Child age FB task (months)</th>
<th>FB task</th>
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<td>Arranz et al.</td>
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<td>44.6</td>
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<td>.23</td>
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<td>De Rosnay &amp; Harris</td>
<td>2002</td>
<td>51</td>
<td>60.9</td>
<td>SAT</td>
<td>60.9</td>
<td>Desire-belief reasoning</td>
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<td>Fonagy et al.</td>
<td>1997</td>
<td>77</td>
<td>58</td>
<td>SAT</td>
<td>58</td>
<td>Desire-belief reasoning</td>
<td>.37</td>
</tr>
<tr>
<td>Greig &amp; Howe*</td>
<td>2001</td>
<td>45</td>
<td>40</td>
<td>ASCT</td>
<td>40</td>
<td>Unexpected identity/content</td>
<td>.09</td>
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<tr>
<td>Laranjo et al.</td>
<td>2010/2014</td>
<td>59</td>
<td>15.6</td>
<td>AQS - observer</td>
<td>48.9</td>
<td>Unexpected identity</td>
<td>-.13</td>
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<tr>
<td>Marchetti et al.*</td>
<td>2014</td>
<td>30</td>
<td>76.4</td>
<td>SAT</td>
<td>76.4</td>
<td>Unexpected transfer</td>
<td>.19</td>
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<tr>
<td>McElwain &amp; Volling</td>
<td>2004</td>
<td>32</td>
<td>12</td>
<td>SSP</td>
<td>51</td>
<td>Unexpected transfer</td>
<td>.30 / .50</td>
</tr>
<tr>
<td>Meins et al.</td>
<td>1998</td>
<td>30</td>
<td>12</td>
<td>SSP</td>
<td>49 / 61.5</td>
<td>Unexpected transfer; Desire-belief reasoning</td>
<td>.51 / .23</td>
</tr>
<tr>
<td>Meins et al. *</td>
<td>2002</td>
<td>52</td>
<td>12</td>
<td>SSP</td>
<td>45 / 48</td>
<td>Unexpected transfer; Unexpected identity/content</td>
<td>.26 / -.19</td>
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<td>[Blinded for review]</td>
<td>160</td>
<td>15;44;51</td>
<td>SSP; PAA; ASCT; SAT</td>
<td>51; 61</td>
<td>Unexpected transfer; Unexpected identity/content</td>
<td>.01; .02; .08; .06; .09; .16</td>
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<td>Moore &amp; Symons</td>
<td>2008</td>
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<td>12</td>
<td>SSP</td>
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<td>Unexpected transfer; Desire-belief reasoning</td>
<td>-.02; .04</td>
</tr>
<tr>
<td>Oppenheim et al.*</td>
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<td>12</td>
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### Characteristics of the Included Studies on Attachment and False Belief Understanding (continued)

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<th>Child age attachment (months)</th>
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<th>Child age FB task (months)</th>
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</thead>
<tbody>
<tr>
<td>Reese (U)*</td>
<td>1998</td>
<td>48</td>
<td>19</td>
<td>AQS</td>
<td>51</td>
<td>Unexpected transfer; unexpected identity/content</td>
<td>-.21; .00</td>
</tr>
<tr>
<td>Repacholi &amp; Trapolini</td>
<td>2004</td>
<td>48</td>
<td>54</td>
<td>SAT</td>
<td>54</td>
<td>Unexpected identity</td>
<td>.22</td>
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<tr>
<td>Symons &amp; Clark</td>
<td>2000</td>
<td>46</td>
<td>25 / 70</td>
<td>AQS</td>
<td>70</td>
<td>Unexpected transfer; unexpected identity/content</td>
<td>.02; .06 / .23; .30</td>
</tr>
<tr>
<td>Villachan-Lyra et al</td>
<td>2015</td>
<td>20 / 20</td>
<td>36 / 48</td>
<td>ASCT</td>
<td>36 / 48</td>
<td>Unexpected transfer; unexpected identity/content</td>
<td>.42; .43; .44; .45</td>
</tr>
</tbody>
</table>

Note. ASCT = Attachment Story Completion Task; AQS = Attachment Q-Sort; SAT = Separation Anxiety Test; SSP = Strange Situation Procedure; PAA = Preschool Assessment of Attachment.

*Additional information provided by authors

*effect size calculated on the basis of insecure/secure group differences
**APPENDIX C CHAPTER 3**

*Overview of Quantitative and Categorical Variables Coded for Each Primary Study Including Response Categories*

<table>
<thead>
<tr>
<th>Study characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication year</td>
</tr>
<tr>
<td>Sample size</td>
</tr>
<tr>
<td>Effect size controlled or not</td>
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</table>

<table>
<thead>
<tr>
<th>Sample characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country in which the families lived</td>
</tr>
<tr>
<td>North-America / Europe / Other</td>
</tr>
<tr>
<td>Percentage boys</td>
</tr>
<tr>
<td>Age of the parent</td>
</tr>
<tr>
<td>Age of the child during the mentalization/attachment assessment</td>
</tr>
<tr>
<td>Socioeconomic status of the family</td>
</tr>
<tr>
<td>Low-middle / middle-high</td>
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</table>

<table>
<thead>
<tr>
<th>Characteristics of the attachment assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument attachment</td>
</tr>
<tr>
<td>Stange Situation Procedure / Attachment Q-Sort / Separation Anxiety Test / Attachment Completion Task</td>
</tr>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Lab / Home</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristics of the FB/EU assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of FB task</td>
</tr>
<tr>
<td>Unexpected transfer / Unexpected identity / Desire – Belief reasoning</td>
</tr>
<tr>
<td>Type of EU task</td>
</tr>
<tr>
<td>Denham’s emotion understanding task / other</td>
</tr>
<tr>
<td>Location FB/EU task</td>
</tr>
<tr>
<td>Lab / Home</td>
</tr>
</tbody>
</table>
### APPENDIX I CHAPTER 8

Main Effects of Parent Gender (with Father as a Reference Category) and Interaction Effects with Posttest and Follow-up

<table>
<thead>
<tr>
<th></th>
<th>B (SE)</th>
<th>F</th>
<th>Cohen's d</th>
<th>B (SE)</th>
<th>F</th>
<th>Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mind-mindedness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>-0.03 (0.03)</td>
<td>1.57</td>
<td>-0.23</td>
<td>Father</td>
<td>-2.32 (1.23)</td>
<td>3.56</td>
</tr>
<tr>
<td>Father * posttest</td>
<td>0.01 (0.04)</td>
<td>0.06</td>
<td>0.06</td>
<td>Father * posttest</td>
<td>2.10 (1.70)</td>
<td>1.16</td>
</tr>
<tr>
<td>Father * follow-up</td>
<td>0.02 (0.04)</td>
<td>0.25</td>
<td>0.12</td>
<td>Father * follow-up</td>
<td>1.09 (1.77)</td>
<td>1.26</td>
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<tr>
<td>Externalizing problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive MRC</td>
<td>-0.01 (0.02)</td>
<td>0.24</td>
<td>-0.09</td>
<td>Father</td>
<td>-3.60 (1.38)</td>
<td>6.77**</td>
</tr>
<tr>
<td>Father * posttest</td>
<td>-0.01 (0.03)</td>
<td>0.00</td>
<td>-0.00</td>
<td>Father * posttest</td>
<td>0.19 (1.70)</td>
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<tr>
<td>Father * follow-up</td>
<td>-0.01 (0.03)</td>
<td>0.03</td>
<td>-0.04</td>
<td>Father * follow-up</td>
<td>1.96 (1.69)</td>
<td>1.36</td>
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<tr>
<td>Internalizing problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative MRC</td>
<td>-0.02 (0.02)</td>
<td>1.27</td>
<td>-0.21</td>
<td>Father</td>
<td>2.24 (0.89)</td>
<td>6.29**</td>
</tr>
<tr>
<td>Father * posttest</td>
<td>0.01 (0.02)</td>
<td>0.24</td>
<td>0.12</td>
<td>Father * posttest</td>
<td>-0.13 (1.10)</td>
<td>0.02</td>
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<tr>
<td>Father * follow-up</td>
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<td>0.30</td>
<td>0.14</td>
<td>Father * follow-up</td>
<td>-0.32 (1.18)</td>
<td>0.07</td>
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<tr>
<td>Avoidant attachment</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>0.07 (0.16)</td>
<td>0.00</td>
<td>0.06</td>
<td>Father</td>
<td>-1.68 (0.79)</td>
<td>4.52*</td>
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<tr>
<td>Father * posttest</td>
<td>0.21 (0.20)</td>
<td>1.06</td>
<td>0.18</td>
<td>Father * posttest</td>
<td>1.63 (0.88)</td>
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<tr>
<td>Father * follow-up</td>
<td>-0.18 (0.20)</td>
<td>0.84</td>
<td>-0.16</td>
<td>Father * follow-up</td>
<td>1.88 (0.95)</td>
<td>2.97*</td>
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<td>Ambivalent attachment</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Parenting Stress</td>
<td>B (SE)</td>
<td>F</td>
<td>Cohen’s d</td>
<td>Disorganized attachment</td>
<td></td>
<td></td>
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<tr>
<td>----------------------------------</td>
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<td>---------</td>
<td>-----------</td>
<td>-------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>-3.48(1.49)</td>
<td>5.41*</td>
<td>-0.38</td>
<td>Father</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>2.20(1.47)</td>
<td>2.23</td>
<td>0.24</td>
<td>Father * posttest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father * follow-up</td>
<td>1.93(1.53)</td>
<td>1.60</td>
<td>0.21</td>
<td>Father * follow-up</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. MRC = mind-related comments, B = the unstandardized parameter coefficient of the posttest and follow-up relative to the pretest, SE = standard error of parameter estimate, † = p < .1, * = p < .05, ** = p < .01, *** = p < .001. The label Father presents main effects of fathers compared to mother, taken all measurement times together. The label Father x posttest indicates whether the pre- to posttest changes were different for fathers compared to mothers; the label Father x follow-up indicates whether effects were the pretest to follow-up changes were different for fathers compared to mothers.
SUMMARY

Mentalizing, the capacity to interpret behaviors of the self and others in terms of mental states, is a hugely influential construct for understanding individual differences in development across the life span. Since two decades, mentalizing became embedded in theories that explain infant-parent attachment security as well as socioemotional functioning, and parenting researchers developed ways to assess parents’ mentalizing capacity. This dissertation aimed to review the existing mentalizing-attachment literature of the past two decades. Second, this dissertation aimed to extend existing research on parental mentalization by investigating whether both mothers’ and fathers’ mind-mindedness uniquely predicts children’s socioemotional functioning of, and whether parents’ mind-mindedness is adaptable through intervention. Section 1 (Chapters 2 and 3) included two meta-analytic studies on the associations between parents’ and children’s mentalizing and child-parent attachment security. Section 2 (Chapters 4 and 5) addressed fundamental questions on whether mind-mindedness of mothers and fathers predicts infants’ regulated emotional responding, as well as preschoolers’ behavior problems and social competence later in childhood. Section 3 (Chapters 6, 7, and 8) included an evaluation of two interventions that aim to change parents’ “online” moment-to-moment representations of their child’s mind.

Since research on the association between people’s mentalizing and attachment relationships expanded hugely the past two decades, the aim of Section 1 was to synthesize the research on the associations among the parent’s and child’s mentalizing capacity and child-parent attachment security. In Chapter 2 we investigated whether parents’ mentalizing capacity (i.e., mind-mindedness, parental reflective functioning, and insightfulness) uniquely predicts variation in attachment, over and above parental sensitivity. The pooled correlations presented moderate but robust associations between parental mentalization and attachment security, as well as parental sensitivity. Although the overall effect of mentalization on attachment security decreased after controlling for the effect of sensitivity (and vice versa), direct effects of both predictors remained substantial. We also observed a small indirect effect of mentalization on attachment security via sensitive parenting. The results imply that parental mentalization explains unique variation in attachment, and should be incorporated into existing models that map the predictors of infant-parent attachment.

In Chapter 3 we investigated whether there are direct pooled associations between attachment and two hallmarks of children’s mentalizing abilities: false-belief understanding and emotion understanding. Although a body of studies exists in which attachment is examined as a predictor of early mentalizing abilities of preschoolers, doubts have been raised about whether the attachment-mentalization relation is
Summary

The results of Chapter 3 showed that the pooled correlation between attachment and emotion understanding was significantly larger than the pooled correlation between attachment and false belief understanding, suggesting that attachment relates more strongly to processes involved in understanding other people's emotions. Children's language ability mediated the association between attachment and false belief understanding, but not the association between attachment and emotion understanding. Lastly, the attachment assessment approach was a significant moderator of the attachment-mentalizing association—studies using representational measures of attachment reported significant associations between attachment and false belief or emotion understanding, whereas studies using behavioral measures of attachment did not. Given that only representational attachment tasks were associated with mentalizing tasks, the observed attachment-mentalizing association may be due to representational attachment measures and mentalizing tasks drawing on the same ability to understand others' internal states, rather than indicating a genuine link between attachment security and children's mentalizing capacity. The outcomes provide reason to further study the opposite direction of cause and effect—are children who are good at reading their own and other people's minds better able to form secure attachments during the preschool years?

In Section 2 (Chapters 4 and 5) we investigated the (bidirectional) relations between mothers' and fathers' mind-mindedness and physiological emotion regulation in infancy, as well as behavior problems and social competence in early childhood. In Chapter 4, we tested multiple hypotheses on the associations between both parents' early mind-mindedness and infants' physiological emotion regulation across the first year of life, as indicated by levels of heart-rate variability (HRV) during rest and a stressful situation. When mothers displayed high levels of appropriate and low levels of nonattuned mind-related comments about their 4-month-olds' minds, infants had higher HRV levels during rest at 12 months, over and above infants' resting HRV levels at 4 months. The same effects were found for paternal mind-mindedness, but only at 12 months. We observed a larger HRV decline (i.e., active emotion regulation) in infants during the stranger task at 12 months when mothers made more frequent appropriate mind-related comments at 4 months, and fathers made more nonattuned comments at 12 months. Infants' HRV levels at 4 months did not predict mind-mindedness at 12 months. The results indicate that mothers' and fathers' appropriate and non-attuned mind-related speech uniquely impacts the development of infants' physiological emotion regulation.

Chapter 5 presents research on the stability, continuity, and concordance in mothers' and fathers' mind-mindedness from 4 to 30 months, as well as the joint effects of parents' early mind-mindedness on children's later social competence and behavior problems (4.5 years). The study showed that both parents' appropriate mind-related
comments and fathers’ nonattuned mind-related comments were stable from 4 to 30 months, although the amount of parents’ mind-related speech decreased over time. During infancy mothers’ and fathers’ mind-mindedness became more alike, but concordance disappeared during toddlerhood. Only when both parents were low in appropriate mind-related speech, children showed more externalizing problems at 4.5 years, implying that mothers and fathers could compensate for each other’s lack of mind-mindedness. In addition, mothers’ and fathers’ use of nonattuned mind-related comments predicted children’s low social competence and more externalizing, but not internalizing, behavior at 4.5 years. The results imply that the effects of parents’ mind-mindedness during infancy and toddlerhood may extend to preschoolers’ social and behavioral development.

In Section 3 (Chapters 6, 7, and 8), we investigated whether parental mind-mindedness increased after two interventions that explicitly aim to enhance and change parents’ representations of their child’s mind: “Mindful with your baby/toddler” and “Basic Trust”. In Chapters 6 and 7, we evaluated changes in parenting behavior after the Mindful with your baby/toddler training, a group-based mindful parenting training for mothers of infants and toddlers who experience parental stress and/or problems in the parent-child relationship. Chapter 6 presents initial results on the self-reported effects of the “Mindful with your toddler” intervention, since the effectiveness of the toddler version had not been explored previously. Overall, mothers (N = 22) reported no significant differences between waitlist and pretest. From pre- to posttest, mothers reported improvements in child psychopathology, maternal mindfulness and self-compassion (medium effect sizes). These effects were stable or further improved at a 2- and 8-month follow-up (medium/large effect sizes). Improvement in child dysregulation, maternal internalizing psychopathology, parenting stress, sense of parental incompetence, non-judgmental acceptance of parental functioning, and nonjudging of inner experience was only seen at 2- and 8-month follow-up (medium/large effect sizes). No changes in maternal externalizing psychopathology, overreactivity, compassion for the child, and partner relationship were reported. These results provided initial support that the mindful parenting group training is also successful in improving mental health in mother-toddler dyads.

In Chapter 7 we examined whether the mindful with your baby/toddler training not only reduces maternal self-reported parenting stress, but also changes objectively-measured maternal behavior during parent-child interactions and mother-child interaction quality, as compared to waitlist (N = 53 mother-child dyads). The results showed no significant changes in maternal behavior or stress between waitlist and pretest. Mothers reported less parenting stress after the training (small effect size), were more accepting (medium effect size), and made fewer nonattuned references
Summary
to the child’s mental states (large effect size). The children showed higher levels of responsiveness after the training (small to medium effect size). No significant changes occurred in appropriate mind-related comments, maternal responsiveness (vocal turn-taking), and dyadic coordination of gaze and facial expressions. The outcomes suggest that the Mindful with your baby/toddler training affects not only maternal stress, but also maternal behavior, particularly (over)reactive parenting behaviors, which resulted in more acceptance, better attunement to child’s mental world, and more “space” for children to respond to their mothers during interactions.

The Basic Trust method, presented in Chapter 8, is an example of an attachment-based intervention method that is focused on explicitly improving children’s mentalizing abilities through teaching parents to frequently and consistently make the child aware of their own and others’ mental states (i.e., by frequently using mental state language when interacting with their child). We studied post-intervention changes in children’s attachment insecurity and behavior problems, as well as parents’ mind-mindedness, sensitivity and parenting stress in 53 families with internationally adopted children who were insecurely attached to their adoptive parents. Children showed less insecure attachment behaviors (small effect sizes, internalizing and externalizing behaviors (medium effect size). Mothers’ and fathers’ stress decreased from pre-test to posttest and these effects were sustained at the six-month follow-up (medium effect sizes). Both parents’ sensitivity showed improvement at follow-up (medium effect size), but not at posttest, whereas both parents’ mind-mindedness showed an improvement at posttest (medium effect size), but not at the follow-up assessment.

Altogether, the outcomes presented in the separate chapters provide support for the idea that parents’ mentalizing about their child is an essential characteristic that sets in motion a positive developmental pathway of children by: (a) fostering secure attachment and better emotion regulation capacity during infancy, (b) providing interactions in which children are able to learn about their own and others’ minds, and (c) aids the development of more (socially) adaptive behaviors and less maladaptive behaviors. The outcomes of this dissertation also indicate that predicting child development is complex. It seems necessary to take into account the entire family system and the stressors they face when investigating children’s socioemotional functioning. Since aspects of the parent’s capacity to mentalize seem adaptable, we should learn more about which aspects of mentalizing in the parent-child relationship are essential for positive developmental changes in children to occur.
MENTALISEREN IS EEN VEEL BESPROKEN EN ONDERZOEKTE CAPACITEIT IN DE LITERatuUR OVER DE MENTAL GEZONDHEID VAN VOLWASSENEN EN DE SOCIALE ONTWIKKELING VAN KINDEREN. SINDS TWEE DECENNIA IS MENTALISEREN OPGENOMEN IN THEORIEËN DIE DE VEILIGE GEHECHTheid VAN KINDEREN VERKLAREN. OOK HEBBEN GEDRAGSWETENSCHAPPERS VERSCHILLENDE MANIÈREN ONTWIKKELD OM HET MENTALISEREND VERMOGEN VAN OUDERS GOED TE KUNNEN METEN. HET EERSTE DOEL VAN DIT PROEFSCHRIFT WAS OM DE BESTAANDE LITERATUUR OVER MENTALISEREN EN KIND-OUDER GEHECHTheid SAMEN TE VATTEn. DAARNAAST BEOOGDE DIT PROEFSCHRIFT OM DE BESTAANDE LITERATUUR UIT TE BREIDEN DOOR TE OnderZOEKEN OF (A) HET MENTALISEREND VERMOGEN VAN ZOWEL MOEDERS ALS VADERS EEN UNIEKE VOORSPELLER IS VAN HET SOCIAAL-EMOTIONEEL FUNCTIONEREN VAN KINDEREN, EN (B) OF BEHANDELING GERICHT OP HET VERBETEREN VAN HET MENTALISEREN VAN OUDERS LEIDT TOT POSITIEVE VERANDERINGEN IN GEDRAG EN MENTALE GEZONDHEID VAN OUDERS EN KINDEREN. SECTIE 1 (HOOFDSTUKKEN 2 EN 3) BEVAT TWEE META-ANALYSES OVER MENTALISEREN VAN OUDERS EN KINDEREN IN RELATIE TOT EEN VEILIGE KIND-OUDER GEHECHTheid. IN SECTIE 2 (HOOFDSTUKKEN 4 EN 5) ONDERZOEKEN WE OF MENTALISEREN (D.W.Z. MIND-MINDEDNESS; MEINS, 1997) VAN MOEDERS EN VADERS DE FYSIOLOGISCHE STRESSREACTIE VAN BABY’S VOORSPELT, ALSOOK DE GEDRAGSPROBLEMEN EN SOCIALE COMPETENTIES VAN KLEUTERS. IN SECTIE 3 (HOOFDSTUKKEN 6, 7, EN 8) EVALUEERDEN WE TWEE INTERVENTIES DIE TOT DOEL HEBBEN HET MENTALISEREN VAN OUDERS TE VERANDEREN.

In hoofdstuk 2 onderzochten we of het mentaliserend vermogen van ouders (d.w.z. mind-mindedness, reflective functioning, en insightfulness) unieke variantie in baby-ouder gehechtheid verklaart, naast de variantie die door sensitiviteit van ouders wordt verklaard. Om deze vraag te onderzoeken, voegden we de resultaten van alle studies naar de associatie tussen mentaliseren en sensitiviteit van ouders, en baby-ouder gehechtheid samen. Daarna onderzochten we of, alle studies samengenomen, de associatie tussen mentaliseren en gehechtheid nog steeds significant was. De resultaten lieten een middelgroot verband zien tussen mentaliseren van ouders en veilige baby-ouder gehechtheid, alsook tussen ouderlijk mentaliseren en sensitiviteit. Hoewel de effectgrootte van de mentaliseren-gehechtheid relatie afnam na controle voor het effect van sensitiviteit van ouders (en vice versa), bleven de directe effecten van beide voorspellers substantieel. We namen ook een klein indirect effect van mentaliseren op gehechtheid via sensitiviteit waar. De resultaten suggereren dat het mentaliserend vermogen van ouders een unieke indicator is van een veilige baby-ouder gehechtheidsrelatie, en dat mentaliseren van ouders moet worden opgenomen in bestaande modellen die de voorspellers van veilige baby-ouder gehechtheid in kaart brengen.
In Hoofdstuk 3 onderzochten we of veilige gehechtheid gerelateerd is aan twee ‘markers’ van mentaliseren bij kinderen: het begrijpen van onjuiste overtuigingen in anderen (false-belief begrip, vaak aangeduid als theory of mind) en het begrijpen van emoties in anderen. Hoewel er een flink aantal studies is gedaan naar veilige gehechtheid als voorspeller van het mentaliserend vermogen van kinderen, was er twijfel of de gehechtheid-mentaliseren relatie significant en direct is. De resultaten van Hoofdstuk 3 lieten zien dat de associatie tussen gehechtheid en begrip van emoties, \( r = .31 \), groter is dan die tussen gehechtheid en false-belief begrip, \( r = .19 \). Taalvaardigheid van kinderen bleek de associatie tussen gehechtheid en false-belief begrip te mediëren: Kinderen met een veilige gehechtheid hebben vaker een betere taalvaardigheid en scoren daardoor mogelijk beter op false-belief taken. Verder bleek de operationalisatie van gehechtheid een modererend effect te hebben op de associatie tussen gehechtheid en mentaliseren. We vonden namelijk dat studies die gehechtheid classificeerden aan de hand van een beoordeling van gedrag van kinderen (bijv. the strange situation procedure) geen significante samenhang lieten zien tussen gehechtheid en mentaliseren (zowel begrip van emoties als false belief begrip). Aan de andere kant vonden we dat studies die gehechtheid classificeerden aan de hand van een beoordeling van gehechtheidsrepresentaties (bijv. de Attachment Story Completion Task) wel een samenhang lieten zien tussen gehechtheid en mentaliseren van kinderen. Representatietaken meten gehechtheid aan de hand van verhaaltjes met plaatjes of poppen over situaties die gehechtheidsgedrag activeren. In representatietaken wordt aan kinderen gevraagd te vertellen wat zij zouden doen in een dergelijke situatie en dat vereist van kinderen dat ze het perspectief van anderen kunnen nemen. Omdat de operationalisatie van gehechtheid een significante moderator was, is het mogelijk dat de link tussen gehechtheid en mentaliseren van kinderen dus voortkomt uit methodologische kwesties, en niet uit een daadwerkelijke relatie tussen vroege gehechtheid en later mentaliseren van kinderen. De resultaten werpen daarmee ook de vraag op of er bi-directionele effecten zijn tussen gehechtheid en mentaliseren—zijn kleuters die goed kunnen mentaliseren beter in staat veilige gehechtheidsrepresentaties te ontwikkelen? Dit idee vereist echter vervolgonderzoek, omdat direct empirisch bewijs hiervoor tot nu toe ontbreekt.

Omdat het de premisse van de gehechtheidstheorie is dat veilige gehechtheid de sociale en emotionele ontwikkeling van kinderen bevordert, onderzochten we in Sectie 2 of de effecten van mentaliseren van ouders zich uitstreken tot het sociaal-emotioneel functioneren van jonge kinderen (van baby tot kleuter). Het specifieke doel van Sectie 2 (Hoofdstukken 4 en 5) was om te onderzoeken of het mentaliseren van moeders en vaders de werking van het autonome zenuwstelsel in 12-maanden-oude baby’s voorspelt (d.w.z. fysiologische emotie-regulatie), alsook gedragsproblemen en
sociale competenties in de kleutertijd. Mentaliseren werd in deze studies gemeten door de mind-mindedness van moeders en vaders in kaart te brengen. Mind-mindedness gaat over de neiging van ouders om de mentale toestanden (gevoelens, gedachten, voorkeuren) van hun kind te herkennen en op gepaste manier te verwoorden tijdens interacties, en kent twee indexen. Appropriate mind-mindedness geeft weer hoe vaak een ouder op gepaste wijze over de mentale toestanden van het kind praat (bijv. “Jij vindt dit een heel leuk boekje” wanneer een kind tekenen van enthousiasme laat zien tijdens het lezen). Nonattuned mind-mindedness geeft weer hoe vaak de ouder niet goed afgestemde opmerkingen over de mentale toestand van het kind maakt (bijv. ‘Jij bent moe’, wanneer de baby zich verzet tegen oppakken door de ouder en geen signalen van moeheid laat zien).

In Hoofdstuk 4, hebben we meerdere hypothesen getoetst over de associaties tussen de mind-mindedness van beide ouders en fysiologische emotieregulatie gedurende het eerste levensjaar, gemeten door de levels van hartslagvariatie (HSV) gedurende rust en een stressvolle ontmoeting met een vreemde man (opgepakt worden). We vonden dat moeders die blijk gaven van een hoge mate van mind-mindedness (hoog in appropriate mind-gerelateerde opmerkingen en laag in nonattuned mind-gerelateerde opmerkingen), vaker een baby hadden met een hogere HSV tijdens rust, en daarmee een ‘betere’ emotieregulatie-capaciteit. Dit bleek zowel op 4 als 12 maanden. Voor vaders trad het effect ook op, maar dan alleen op 12 maanden. Deze effecten werden gevonden ongeacht de eerdere HSV levels van baby’s op 4 maanden. We vonden een grotere afname in de HSV van baby’s tijdens de ‘vreemde man’ taak op 12 maanden wanneer moeders meer mind-minded waren op 4 maanden en vaders op 12 maanden. De HSV levels van baby’s op 4 maanden waren geen voorspeller van mind-mindedness op 12 maanden. De resultaten impliceerden dat de mate van mind-mindedness van zowel vaders als moeders een belangrijke indicator is van de ontwikkeling van fysiologische emotie-regulatie in baby’s gedurende het eerste levensjaar.

In Hoofdstuk 5 onderzochten we de stabiliteit, continuïteit, en overeenstemming in de mind-mindedness van moeders en vaders gedurende de baby- en peutertijd. Ook onderzochten we de effecten van mind-mindedness op de latere gedragsproblemen en sociale competentie van kleuters (4.5 jaar). Appropriate mind-gerelateerde opmerkingen van beide ouders en nonattuned mind-gerelateerde van vaders lieten stabiliteit zien van 4 tot 30 maanden, hoewel het aantal mind-gerelateerde opmerkingen afnam over de tijd. Gedurende het eerste levensjaar van het kind, ontstond een correlatie tussen de mind-mindedness van moeders en vaders, maar die correlatie verdween weer gedurende de peutertijd. Alleen wanneer beide ouders weinig over de gevoelens en gedachten van de baby praatten, lieten kinderen op 4.5 jaar meer externaliserende gedragsproblemen zien. Dit impliceert dat moeders en vaders een ‘gebrek’ aan
mentaliseren van hun partner mogelijk kunnen compenseren. Belangrijk is hierbij te vermelden dat de studie een steekproef met gemiddeld hoogopgeleide ouders betrof met gemiddeld weinig psychische problemen. Mogelijk is dit effect anders in hoog-risico populaties (bijv. gezinnen met een ouder met psychopathologie of veel socio-economische stressoren). Ten slotte zagen we dat moeders en vaders die moeite hadden met het juist interpreteren van hun baby’s mentale toestanden (hoog in non-attuned mind-mindedness), op latere leeftijd vaker een kleuter hadden met minder goede sociale competenties en meer opstandig en dwars gedrag.

In Sectie 3 (Hoofdstukken 6, 7, en 8) onderzochten we of ouders meer mind-minded werden na twee interventies die erop gericht zijn te veranderen hoe (vaak) ouders de mentale toestanden van hun kind representeren: Mindful met je baby/peuter en Basic Trust. In hoofdstukken 6 en 7 evalueerden we veranderingen in ouderlijk gedrag na de Mindful met je baby/peuter training, een mindfulness groep training voor moeders van baby’s en peuters die stress en/of problemen in de ouder-kind relatie ervaren. Hoofdstuk 6 presenteert een pilot studie naar de zelf-gerapporteerde effecten van de Mindful met je peuter interventie, omdat de effectiviteit van de peuter-training nog niet eerder was onderzocht. Moeders (N = 22) rapporteerden geen significante verschillen tussen de wachtlijst-meting en voormeting. Na de behandeling rapporteerden moeders verbeteringen in psychopathologie (kind), mindful opvoeden, en zelf-compassie (gemiddeld effect). Deze effecten bleven bestaan of verbeterden tijdens de 2- en 8-maanden follow-up (gemiddeld tot groot effect). Verbetering in regulatie van kinderen, internaliserende problematiek van moeders, opvoedstress, gevoel van ouderlijke incompetentie, acceptatie van ouderlijke functioneren, en niet-oordelende houding over innerlijke ervaringen werden alleen gevonden op de 2- en 8-maanden follow-up (gemiddeld tot groot effect). We vonden geen veranderingen in externaliserende psychopathologie van moeders, overreactiviteit, compassie voor het kind, en partner relaties. Deze resultaten geven een eerste indicatie dat de mindfulness groepstraining ook succesvol is in het verbeteren van de geestelijke gezondheid van moeder-peuter paren.

In Hoofdstuk 7 onderzochten we of de mindful met je baby/peuter training niet alleen stress van moeders vermindert, maar ook leidt tot veranderingen in geobserveerd opvoedgedrag van moeders tijdens interacties met hun kind. In totaal werden 53 moeder-kind paren gezien tijdens een wachtlijst-meting (8 weken voor de training), voormeting en nameting (direct na de training). De resultaten lieten geen veranderingen zien in stress of gedrag van moeders in de periode van wachtlijstmeting tot aan de start van de training. Moeders rapporteerden na de training minder stress (klein effect), ze lieten meer acceptatie zien (gemiddeld effect), en maakten minder nonattuned opmerkingen over de gevoelens en gedachten van hun kind (groot effect).
De kinderen lieten meer responsiviteit zien na de training (klein tot gemiddeld effect). Geen veranderingen werden waargenomen in moeders’ appropriate mind-gerelateerde opmerkingen, moederselijke responsiviteit, en de ouder-kind synchronie (d.w.z. synchronie in kijkrichting en gezichtsuitdrukking). De uitkomsten suggereren dat de Mindful met je baby/peuter training niet alleen stress van moeders beïnvloedt, maar ook gedrag van moeders, in het bijzonder (over-)reactief opvoedgedrag. Dit resulteert in meer acceptatie, betere afstemming op de mentale wereld van het kind, en meer ‘ruimte’ voor kinderen om te reageren op hun moeders tijdens interacties.

De Basic Trust methode, beschreven in Hoofdstuk 8, is een voorbeeld van een gehechtheidsinterventie die erop gericht is mentaliserend vermogen van ouders expliciet te verbeteren door ouders te leren om frequent de gedachten en gevoelens van het kind te verwoorden. We onderzochten de effecten van de training op verschillende gebieden: onveilig gehechtheidsgedrag (kind) dwars en opstandig gedrag (kind), het mentaliserend vermogen (mind-mindedness; ouder), sensitiviteit (ouder), en opvoedstress. In totaal deden 53 internationaal geadopteerde kinderen met gehechtheidsproblemen en hun moeders en vaders mee aan een voormeting, nameting en zes-maanden follow-up meting. Ouders rapporteerden na de behandeling dat hun kinderen minder onveilig gehechtheidsgedrag lieten zien (klein effect), ook minder internaliserende en externaliserende gedragsproblemen (gemiddeld effect). Opvoedstress van moeders en vaders nam af van de voormeting naar de nameting (gemiddeld effect). Deze afname was nog steeds aanwezig zes maanden na de behandeling. Sensitiviteit van zowel vaders als moeders liet een verbetering zien zes maanden na de behandeling, maar niet direct na de behandeling. Mind-mindedness van ouders liet direct na de behandeling een verbetering zien, maar deze verbetering was niet meer zichtbaar zes maanden na de behandeling.

Over het geheel genomen, ondersteunen de studies in dit proefschrift het idee dat mentaliseren van ouders een essentieel kenmerk van ouders is dat een positief ontwikkelingstraject van kinderen in gang zet door (a) een veilige gehechtheid en betere emotie-regulatie capaciteit tijdens de babytijd te voeden, (b) interacties te bieden waarin kinderen de mogelijkheid krijgen om over hun eigen en andermans gedachten en gevoelens te leren, en (c) de ontwikkeling van (sociaal) flexibel en adaptief gedrag en minder maladaptief gedrag bevordert. De uitkomsten van de eerste twee secties laten tevens zien dat het voorspellen van kind-ontwikkeling zeer complex is. Het ziet er naar uit dat het noodzakelijk is om in onderzoek naar de sociaal-emotionele ontwikkeling van kinderen het gehele gezinsysteem in acht te nemen alsook de (socio-economische) stressoren. Sectie 3 impliceert dat mentaliseren (mind-mindedness) van ouders een veranderbare eigenschap is, hoewel de resultaten van dit proefschrift de vraag opwerpen of kortdurende gezinsinterventies langdurende effecten in het mentaliseren
van ouders te weeg kunnen brengen. Om hier meer zicht op te krijgen zullen we meer moeten leren over de antecedenten van mentaliseren, alsook over de lange-termijn effecten van mentaliseren-bevorderende gezinsinterventies.

MZ and CC designed the study. MZ conducted literature searches, coded the studies, and conducted the statistical analysis. CC coded studies for the interrater reliability. MZ wrote the manuscript. All authors contributed to and have approved the final manuscript.


MZ, EM, and CC designed the study. MZ conducted literature searches, coded the studies, and conducted the statistical analysis. CC coded studies for the interrater reliability. MZ wrote the manuscript. All authors contributed to and have approved the final manuscript.


SM designed the original prospective study on the antecedents of social anxiety in children. MZ and WdV designed the study on mind-mindedness and infant cardiac activity. WdV, MN, MM, and CC collected data. MZ, MM, and CC coded parent-child observations. WdV and “MN processed physiology data. MZ performed the statistical analyses. MZ wrote the manuscript. All authors contributed to and have approved the final manuscript.

SM designed the original prospective study on the antecedents of social anxiety in children. CC, MZ, and MM collected data. MZ and CC coded parent-child observations. CC performed the statistical analyses. CC wrote the manuscript. All authors contributed to and have approved the final manuscript.


EP and SB contributed to the design of the study. EP developed the training. EP and MZ did the statistical analyses. EP supervised data collection. EP and MZ wrote the manuscript. SB contributed to and has approved the final manuscript.


MZ, EP, IV, EA, SB, and CC contributed to the design of the study. MZ did the statistical analyses. EP developed the trainings. EP and IV were the mindfulness trainers. MZ, IV, MG, and CC contributed to data collection. MZ, CC, and EP supervised data collection. MZ and EP wrote the manuscript. All authors contributed to and have approved the final manuscript.


CC, NP, and GS designed the study. MZ and CC contributed to data collection. MZ, CC, and GS supervised data collection. MZ and CC coded parent-child interactions. MZ wrote the manuscript. All authors contributed to and have approved the final manuscript.
ACKNOWLEDGEMENTS [DANKWOORD]

Lieve Cristina, over veilige gehechtheid gesproken, wat heb ik mezelf kunnen ontplooien als onderzoeker in een warm en veilig nest. Jouw kamer had geen drempel. Als ik binnenkwam, schoof je je tas van die gele stoel, “kom zitten”. Dan volgde er een verhelderend gesprek en zat ik even later weer met een goed gevoel en een duidelijk voornemen in mijn kamer. Zo ging het 4 jaar lang fijn en makkelijk met jou. Ik kan er allemaal analyses loslaten op waarom dat zo was. Misschien omdat je altijd probeerde te snappen wat er in me omging en dat ook op een aardige en voorzichtige manier spiegelde, omdat je meedacht over inhoudelijke vragen en daarna vaak gelijk met goeie ideeën en adviezen kwam die ik wel of niet mocht opvolgen, omdat je snapte dat ik behoefte had aan een plan. Ja, deze dingen waren ook belangrijk. Maar uiteindelijk komt het neer op een hele goeie klik en wederzijds vertrouwen. Als ik weer eens iets héél anders met m’n leven wilde gaan doen, dan steunde je elke zoektocht maar niet zonder een herinnering dat ik daar over 6 maanden wel weer anders over zou denken. En ja, nu kan ik je zeggen: You know me well! Naast dat ik héél veel van je heb geleerd als onderzoeker, was het fijn om met iemand te werken die zo enthousiast is over haar werk, over het doen van wetenschappelijk onderzoek, maar ook over een heleboel andere dingen in het leven. Sei fantastico! Grazie per gli anni passati, e per tutti quelli che verranno.

Lieve Geert-Jan, jij was er altijd vol enthousiasme over het onderwerp van mijn proefschrift. Onze samenwerking gaf een enorme motivatie-boost gedurende mijn hele PhD-traject. In de eerste plaats omdat jij als geen ander de relevantie ziet van onderzoek naar mentaliseren en gehechtheid, en niet in de laatste plaats omdat jij deze relevantie—ook als geen ander—kon verwoorden. “Uiterst innovatief” en “baanbrekend” waren termen die geregeld voorbij kwamen en zulke woorden waren precies wat mijn soms over-kritische brein nodig had. Daarnaast zorgt jouw humor ervoor dat het een groot plezier is om met jou te werken. Met name als je een vergaderkamer niet kon vinden ontstonden er van-Kooten-en-de-Bie-achtige grapjes en typetjes die ik niet snel zal vergeten. Bedankt ook dat je altijd mijn belangen voorop hebt gesteld bij elke keuze die gemaakt moest worden. Het was een fijne tijd!

Lieve Susan, jij was een enorme inspiratiebron, onder andere vanwege al jouw klinische ervaring, vernieuwende ideeën, creatieve brein, durf, en levenslust (ik herinner me vooral nog de mooie avonden en dansjes in Melbourne). Wat kon ik met jou fijn discussiëren over de theorieën rondom mentaliseren van ouders. Je luisterde naar mijn visies en kwam dan meestal met een alternatieve kijk. Dat was niet alleen enorm prikkelend voor mijn
geest maar maakte me er ook van bewust dat er vele wegen naar Rome leiden. Samen kwamen we er altijd wel uit welke kant een studie op moest gaan. Ik zal ook je zorgzame kant niet vergeten: ‘s ochtends vroeg Jamie Oliver ontbijtjes maken in Melbourne of het leiden van mindful morning meditaties tijdens de schrijfweek. Dank je voor de hele fijne begeleiding en samenwerking!

Dear Liz, the first thing I did when starting my PhD was to read your dissertation from 1997, which I managed to track down in a local Dutch bookshop and was full with pencil notes from the previous owner (it was read carefully!). It greatly inspired me to think about the type of research I wanted to conduct. Thank you for all the things you have taught me about the mentalizing literature, coding mind-mindedness, and writing. Also, thank you for welcoming me to your lab in York. It was a great pleasure working with you during my PhD!

Dear OOP-colleagues, you were a fun and supportive group. I enjoyed spending time with you very much, whether it was during writing week, lunches, conferences, running; you were awesome!

In particular, Milica, thank you for being the kindhearted, helpful, and humorous person that you are. You are extremely good at getting to the core of things, whether it is about work or personal matters. I often understand myself better when we have talked. I enjoyed working with you, but also going through pregnancy and new motherhood—what an incredible journey we have gone through! Eva, Irena en Evín, bedankt voor de ontzettend leuke en makkelijke samenwerking tijdens de Mindful met je baby/peuter studie. En Eva, bedankt voor de draagdoekcursus. Deze heeft Oscar en mij iets heel moois gebracht. Wieke en Mirjana, bedankt voor jullie goede adviezen, kritische blikken en fijne samenwerking bij de HRV studie. Ik ben enorm trots op dit artikel! Stephanie en Lucia, dank jullie voor de gezelligheid en de hele fijne ondersteuning bij mijn ‘proefleidsterschap’ in het lab. You kept it going!

Aan alle studenten en UvA-minds stagiaires die zich hebben ingezet om de studies in dit proefschrift mogelijk te maken: hartelijk bedankt voor al jullie geweldige werk! In het bijzonder, Melissa, bedankt voor je kritische houding bij het scoren van opvoedgedrag, de enorme bergen werk die je hebt verzet, en het meeschrijven aan ons artikel.

Allerliefste kamergenootjes, jullie maakten het zo gezellig in D9.12, waardoor werken meestal niet als werken voelde. Liesbeth, #Telmanmodel, wat hebben we een hoop meegemaakt vanaf de ResMa. Bij jou kon (kan) ik volledig mezelf zijn. En, oh oh wat mis
ik je droge grapjes van achter de kast! Jolien, relaxed, positief en ondernemend, in voor van alles: voor een goed gesprek, een geintje, een drankje, een dansje. Wat was het fijn dat jij mijn desk-buddy was en wat hebben we leuke dingen meegemaakt! Dank je dat je me straks bijstaat tijdens mijn verdediging. Anna, met jouw attente, lieve, eerlijke en oprechte karakter zorgde je voor een warme en veilige sfeer in ons PhD-groepje. Renée, het verdedigen van je principes, jouw eigenheid en passies voor van-alles-en-nog-wat waren een inspiratiebron. Eliala, thank you for your warm presence, lighting up the room when you enter and giving everybody a hug or kiss. Oxytocin levels at the ninth floor rise when you are there. Marijke, jouw humorvolle en kritische blikken op de wetenschap en alles eromheen waren een verademing. Verder bedankt aan alle andere leuke lieve (oud-)kamergenootjes: Anne, Rosanne, Brechtje, Hend, Yfke, Marloes, Çisem.


Lieve familie en vrienden, zonder jullie was het leven niet half zo mooi!

In het bijzonder, lieve Naomi, dank je dat je al die jaren met een nachtdienst-slaperig-hoofd naar mijn UvA perikelen luisterde in CREA, T, of waar dan ook in Amsterdam-Oost. Dank je dat je me straks bijstaat tijdens mijn verdediging.

Lieve mama en papa, bedankt voor jullie onvoorwaardelijke liefde, warmte, steun, en rotsvaste vertrouwen in mij. Nu ik zelf een ouder ben, waardeer ik alles wat jullie voor ons doen nog zo veel meer. Jullie zijn geweldig!
Lieve Geert, de afgelopen jaren waren vooral zo fijn dankzij jou. Dank je dat je er altijd was tijdens de moeilijke momenten en dat je de leuke momenten met me vierde. Dank je voor alle grapjes over mijn uit de hand gelopen ‘scriptie’, of nonattuned [jeweetwel] opmerkingen en voor alle andere keren dat je me een spiegel voorhield. Dank je dat je kalm bleef wanneer ik dat niet was. Dank je dat je zo flexibel bent, en dat je me altijd helpt zoeken naar mijn sleutels, pasjes, telefoon, jas, en wat niet meer. Omdat jij alles opruimt, raak ik mezelf niet kwijt. Dank je voor het liefste jongetje dat ik kon wensen. Maar vooral, dank je dat je zo'n ongelófelijke goedzak bent voor alles en iedereen, je maakt de wereld een beetje zachter. G, liever dan lief, de mooiste mind, die heb jij.

Lieve Oscar, toen jij kwam, kwam dit proefschrift tot leven. Als je ooit verdrietig bent, of boos, of bang, of blij, en je weet niet wat te doen daarmee, kom dan maar vlug naar mij. Mama.
ABOUT THE AUTHOR

Moniek Zeegers (1988) was born and grew up in Utrecht, the Netherlands. She currently lives in Amsterdam with Geert and their son Oscar (2018). Moniek received a Bachelor degree in Criminology at the VU University in Amsterdam (2011). During her studies Moniek volunteered at a forensic psychiatric center for two years. The conversations with the psychiatric patients made her aware of the fundamental importance of secure child-parent attachment relationships. She therefore proceeded to study Pedagogical Sciences at the University of Amsterdam (short Bachelor track; 2012). Moniek received a clinical Master degree in Pedagogical Sciences (Cum laude; 2014) and Research Master degree in Child Development and Education (Cum laude; 2015), at the Research Institute for Child Development and Education (RICDE), University of Amsterdam. In 2015, Moniek worked for six months at the mental health care institute Bosman GGZ, before she started her PhD track at the RICDE. In 2016 she visited the lab of Professor Elizabeth Meins at the University of York. In 2017 and 2018 she worked at Basic Trust, trauma and attachment center, counseling parents of children with attachment-related problems. Moniek currently works as a postdoctoral researcher at the RICDE where she studies whether dysfunctional parenting alters methylation of stress system genes throughout infancy.
The fact that we try to make sense of our own and others’ behavior in terms of thoughts and feelings is unique to us as humans. This capacity is termed mentalizing, or theory of mind, and has proven to be a hugely influential construct for understanding individual differences in development across the life span. Over the last two decades, mentalizing has become embedded in theories that attempt to explain child-parent attachment security as well as children’s socioemotional functioning. This dissertation aimed to a) review the existing literature on parents’ and children’s mentalizing in relation to child-parent attachment security, b) extend the existing research on parents’ mentalization by investigating whether mothers’ and fathers’ mentalizing (i.e., mind-mindedness) predicts variation in children’s emotion regulation and behavioral functioning, and c) investigate whether parents’ mentalizing is changeable through intervention.