Temperament, Parenting, and the Development of Anxiety in Early Childhood

Laura A. Niditch, M.S.
R. Enrique Varela, Ph.D.
Tulane University
March 2014
Disclosure

- No financial disclosures or conflicts of interest
Objectives

▪ Review literature on selected **risk factors** for childhood anxiety: temperament, parenting, & gender

▪ Present results from a study examining the roles of children’s **temperamental self-regulatory abilities** (**effortful control**), **caregiving experiences** (**maternal intrusiveness**), & **gender** in the translation of early temperamental risk (**behavioral inhibition**) to anxiety in mid-childhood

▪ Discuss conclusions regarding risk and resilience in **early childhood** & potential clinical implications
Temperament

▪ Constitutionally-based individual differences in reactivity & self-regulation [9]
▪ Results from a confluence of genetic & early environmental factors [9, 12]
▪ Reactivity
  ▪ Physiological, emotional, & behavioral responsibility to change [9]
  ▪ Individual differences apparent shortly after birth [10]
▪ Self-Regulation
  ▪ Modulation of reactivity via executive control of attention & behavior [9]
  ▪ Emerges toward end of 1st year, develops gradually through preschool years & beyond [11]
**Temperamental Reactivity & Anxiety**

- **Behavioral Inhibition (BI)**
  - Form of reactivity – fear, hypervigilance, & withdrawal in response to novelty \([15, 16]\)
  - \(\sim 15\%\) of typically-developing children \([15]\)
  - Moderately stable, \(\sim 50\%\) continuity \([22, 23]\)

- **Behavioral Inhibition & Anxiety**
  - Many common features \([17]\)
  - Regarded as independent constructs \([1]\)
  - BI is a risk factor for clinically significant anxiety in childhood & adolescence \([17-20]\)
Temperamental Self-Regulation & Anxiety

- **Effortful Control (EC)**
  - Active & voluntary recruitment of higher order cognitive processes to modulate reactivity[^9]
  - Attentional Control
  - Inhibitory Control

- EC plays an essential role in **Emotion Regulation**
  - Developmental progression: Passive, other-dependent strategies → active, autonomous strategies[^24, 25]
  - **Passive Coping** (e.g., comfort-seeking) – reinforces fear & avoidance[^15, 28, 29]
  - **Active Coping** (e.g., self-distraction) – dependent on EC[^25-27]

- EC is linked with **positive social-emotional outcomes**[^13, 14, 27, 30]
  - Negatively linked with anxiety[^15]
Reactivity, Self-Regulation, & Anxiety

- BI may shape the development of effortful control
  - Attentional rigidity $^{[17, 31, 32]}$
  - Withdrawal & avoidance – **reduced opportunity** to self-regulate $^{[15, 33]}$

- BI children who learn to **modulate** via EC may be protected from anxiety

- **Hypothesis 1:** Partial Mediation
Environmental Influences

- Caregiving environment may impact translation of BI to anxiety [7]
  - Parents play a primary role in socialization & development of emotion regulation [34, 35]
  - Parenting may also contribute to ineffective emotion regulation [24]

- ‘Parental Control’ is linked with child anxiety
  - Broad construct, inconsistently defined
  - Maternal Intrusiveness (MI) – excessive interference, redirection, & structuring; imposition of mother’s agenda despite child signals
  - Thought to reduce actual/perceived ability to self-regulate & master challenges [36, 48]
  - Support in school-age child samples; findings are rare & inconsistent in early childhood [44-47]
Environmental Influences

- **‘Goodness of Fit’ perspective**[^49] – MI may be a *poor fit* for BI children
  - In greater need of EC to regulate reactivity
  - MI may interfere with development & deployment of EC

- **Hypothesis 2: Moderated Mediation**
  - Indirect pathway *moderated* by MI
    - Mediating effect only in context of MI

- **Child Care (CC)**
  - Exposure to high quality, non-maternal CC may have a buffering role [7, 23, 50-52]
  - Explored effects of CC type & quality on indirect pathway – *results not presented due to inconsistent fit to data*

[^49]: Goodness of Fit perspective – MI may be a poor fit for BI children.
Gender, Temperament, & Anxiety

- Gender differences in temperament and anxiety
  - Girls demonstrate greater BI, EC, & anxiety [10, 53-55]

- Gender differences in socialization of emotion regulation
  - Parents’ differential reinforcement of inhibited/fearful behavior in girls & assertive behavior in boys [55-61]

- **Hypothesis 3: Moderated Mediation**
  - Indirect pathway *moderated* by gender
Methods
Participants & Data Collection

▪ National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD) [62-64]

▪ Prospective, longitudinal study of developmental outcomes associated w/ child care

▪ Began in 1991, followed children from birth to age 15

▪ Recruitment from hospitals over 10 month period from 10 sites across the U.S.

▪ 8,986 mothers recruited; 5,416 eligible & willing to be contacted; 3,015 randomly selected to be contacted; 1,525 reached by phone; 1,364 participated

▪ Enrolled children: 705 (52%) male; 659 (48%) female

▪ Wide range of ethnic, educational, & economic backgrounds

▪ Data collected from multiple informants, in multiple settings, using multiple methods

▪ Present study uses data from ages 6 months to approximately 6 years
Measures

▪ Temperament (6 months)
  ▪ *Revised Infant Temperament Questionnaire*, [65] Approach (reversed); mother-report (\(\alpha = .75\))

▪ Maternal Intrusiveness (15 & 24 months)
  ▪ Observations of *mother-child interactions* in semi-structured tasks – coded for MI; scores averaged & dichotomized as presence or absence of intrusiveness

▪ Effortful Control (54 months)
  ▪ *Continuous Performance Test*, [66] Hits Minus False Alarms
  ▪ *Delay of Gratification Task*, [67] Total Time Waited
  ▪ *Children’s Behavior Questionnaire*, [68] Attention Focusing (\(\alpha = .74\)) & *Inhibitory Control* (\(\alpha = .75\)); mother-report
  ▪ EC composite – averaged Z-scores

▪ Anxiety (Kindergarten)
  ▪ *Child Behavior Checklist*, [69] Anxiety Scale; [70] mother-report (\(\alpha = .73\))
Analytic Strategy

- Models tested via SEM (path analysis) in Amos
Results & Discussion
Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Behavioral Inhibition</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Intrusiveness</td>
<td>.09**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Effortful Control</td>
<td>-.15**</td>
<td>-.27**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>4. Anxiety</td>
<td>.08**</td>
<td>.05</td>
<td>-.09**</td>
<td>-</td>
</tr>
</tbody>
</table>

Partial mediation of BI-Anxiety path by EC

χ²[3] = 7.95, p = .047, χ²/df = 2.65, RMSEA = .035, CFI = .996
### Results

- **Moderation of Indirect Pathway by MI**
  - $\chi^2[6] = 8.97, p = .175$, RMSEA = .019, CFI = .997

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intrusive Mothers ($n = 783$)</th>
<th>Non-Intrusive Mothers ($n = 581$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI</td>
<td>2.41 (0.71)$^a$</td>
<td>2.28 (0.69)$^a$</td>
</tr>
<tr>
<td>EC</td>
<td>-0.16 (0.67)$^a$</td>
<td>0.22 (0.65)$^a$</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.20 (0.13)</td>
<td>0.19 (0.14)</td>
</tr>
</tbody>
</table>

Intrusive Mothers ($n = 783$)

Non-Intrusive Mothers ($n = 581$)

---

[Diagram of the moderation of indirect pathway by MI]
Results

- **Moderation of Indirect Pathway by Gender**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Girls $(n = 659)$</th>
<th>Boys $(n = 705)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI</td>
<td>2.43 (0.72)$^a$</td>
<td>2.28 (0.68)$^a$</td>
</tr>
<tr>
<td>EC</td>
<td>0.14 (0.65)$^a$</td>
<td>-0.13 (0.70)$^a$</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.20 (0.14)$^b$</td>
<td>0.19 (0.12)$^b$</td>
</tr>
<tr>
<td>Intrusiveness</td>
<td>346 (53)$^a$</td>
<td>437 (62)$^a$</td>
</tr>
</tbody>
</table>

- Also evidence for differential effects of MI on indirect pathway for boys & girls – *results not presented here*
Discussion

- Early BI emerged as a significant, but not clinically meaningful predictor of child anxiety
  - More **proximal intrinsic & extrinsic risk factors** play more important roles

- Findings support the hypothesis that diminished/ineffective deployment of **effortful control** is one mechanism linking **early BI to childhood anxiety**, but only in the **absence of intrusive parenting & only for girls**

- **First empirical support** for this indirect pathway in early childhood
  - Complements & extends **recent similar finding** in an older sample (aged 7-10) [72]
  - Suggests **circumstances under which this pathway is apparent**
Discussion

- **Apparent only for girls** – may be due to socialization of emotion regulation
  - Parents’ responses may disrupt BI-anxiety pathway in boys; less dependent on EC

- **Disappeared in the context of MI** – less intuitive
  - Literature on child anxiety & parental control has focused mainly on *school-age children & adolescents*[^36]
    - **Greater definitional specificity** may be needed regarding MI/parental control in early childhood
  - MI may not be a poor fit for BI children until *later on*
    - Some degree of ‘intrusive’ behavior may facilitate exposure to developmentally appropriate experiences[^16, 41, 76, 77]

- **Potential clinical implications**
  - Interventions to develop EC may protect against anxiety for BI young girls
  - Family-based interventions to reduce MI may not be appropriate for BI young children
  - Additional research is needed
Acknowledgement

- The data used in this study were collected as part of the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD). The SECCYD was directed by a steering committee and supported by NICHD through a cooperative agreement between the grantees and NICHD staff.

- We thank the principal investigators and families of the SECCYD. The content is solely the responsibility of the authors and does not necessarily reflect the views of the NICHD or the NICHD Early Child Care Research Network.
Questions?
References


References


References


References


