Individual differences in effects of child care quality: The role of child affective self-regulation and gender

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August 29, 2015 – EARLI, Limassol (Cyprus)
Background

• NL: 60% increase in the use of child daycare
  55% of all children between 0-4 of age
  (Statistics Netherlands, 2007; 2011)

Socio-emotional development

• High *quantity* child care $\rightarrow$ (small) negative effects
  (e.g., Loeb et al., 2007; NICHD ECCRN, 2006; Vandell et al., 2010)

• High *quality* child care $\rightarrow$ (small) positive effects
  (e.g., Burchinal et al., 2008; Vandell et al., 2010; Mashburn et al., 2008)

$\rightarrow$ Similar effects for every child?
Child care quality X Temperament

• **Dual-risk model** (Sameroff, 1983)
  Toddlers with a “difficult temperament” were less integrated with peers in lower, but not higher quality child care.
  (Gevers Deynoot-Schaub & Riksen-Walraven, 2006)
  
  → *vulnerability*

• **Differential susceptibility framework** (Belsky, 1997; 2007)
  Children with a highly reactive temperament were less socially integrated in lower quality childcare, but also better integrated in higher quality childcare.
  (Phillips et al., 2012)
  
  → *susceptibility*
Differential susceptibility

Figure from Pluess & Belsky (2009)
Temperament

“Constitutionally based individual differences in reactivity and self-regulation, in the domains of affect, activity, and attention”.

**Reactivity:** Responsiveness to change in environment

**Self-regulation:** Processes like effortful control that modulate reactivity

(Rothbart & Bates, 2006, p. 100)

Individual differences in child **self-regulation** are predictive of:

- Social competence (e.g., Spinrad et al., 2007)
- (less) Behavior problems (e.g., Calkins & Keane, 2009; Kim et al., 2012)
- Academic achievement (e.g., Blair & Razza, 2007)
- Physical health, substance dependence, personal finances, and criminal offending outcomes **at age 32** (Moffitt, et al., 2011)
‘Cool’ vs ‘Hot’/Affective Self-regulation
(e.g., Metcalfe & Mischel, 1999; Willoughby et al., 2011; Zelazo & Carlson, 2012)

Cool self-regulation: activated when neutral component needs to be regulated (e.g., motor inhibition or Stroop-like tasks)
→ academic outcomes

Hot/affective self-regulation: activated when an affectively or emotionally salient component needs to be regulated (e.g., delay of gratification tasks)
→ socio-emotional outcomes
(Kim et al., 2013; Willoughby et al., 2011)
Several studies found no evidence for moderation by gender (Belsky et al., 2007; Burchinal, Peisner-Feinberg, Bryant, & Clifford, 2000; Keys et al., 2013)

Others found that boys were more vulnerable for low quality child care (Howes & Olenick, 1986; Votruba-Drzal, Coley, Maldonado-Carren, Li-Grining, & Chase-Lansdale, 2010; Votruba-Drzal, Levine Coley, & Chase-Lansdale, 2004)

→ Proposed mechanism: Boys have lower self-regulatory abilities, and therefore more strongly need higher quality child care environments as external source of regulation

However, this has never been empirically investigated
Research question

Does the association between child care quality and children’s socio-emotional outcomes depend on children’s affective self-regulation skills and gender?

Hypotheses: Low aff. self-reg. = vulnerability (or susceptibility) Boy = vulnerability
Methods – Teacher & Parent model

Data: Pre-COOL study, Time 1 (age 2) & Time 2 (age 3)
Sample: \( n = 545, M \text{ age} = 2.3 \text{ years}, 59 \text{ child care centers} \)

Child care quality (T1)
Emotional and behavioral support – live observations
CLASS-Toddler, 80% agreement

Child socio-emotional outcomes (T2)
Externalizing behavior (teacher + parent)
Social competence (teacher)
BITSEA, \( \alpha \)’s from .68 to .86

• Affective self-regulation (T1)
  Delay of gratification tasks
• Gender

Both models:
• Covariates (behavior T1, age, ethnicity, SES, enrollment age 1)
• Multilevel analysis with FIML
CLASS - Toddler
(La Paro, Hamre & Pianta, 2011)

Classroom interactions

<table>
<thead>
<tr>
<th>Emotional and Behavioral Support</th>
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<tbody>
<tr>
<td>Positive Climate</td>
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<tr>
<td>Negative Climate</td>
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<td>Teacher Sensitivity</td>
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<td>Regard for child perspectives</td>
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<td>Behavior Guidance</td>
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<th>Instructional Support</th>
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<td>Facilitation of learning and development</td>
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<td>Quality of Feedback</td>
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<td>Language Modeling</td>
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1,2 = low score
3,4,5 = medium score
6,7 = high score
Affective self-regulation

Two delay of gratification tasks at age 2
adapted from Kochanska et al. (2000) by Dr. Hanna Mulder

1. Snack delay (raisins)
2. Wrapped gift

“I have a nice present for you. You can have it, but first we play a game. I will put the present over here and you may try to not touch it. That’s the game! Ok?”
Child socio-emotional outcomes (BITSEA)

Externalizing behavior – 5 items (e.g., activity, aggression, obedience)
• Restless and can’t sit still
• Cries or throws tantrums until exhausted

Social competence – 7 items (e.g., helping, sharing)
• Plays well with other children
• Often offers to help others (parents, teachers, other children)

BITSEA (Briggs-Gowan & Carter, 2002)
Results *Externalizing* – Teacher report

- Externalizing behavior at age 2

**Quality:** Emotional and Behavioral Support

- Externalizing behavior at age 3

- Self-regulation
- Gender

B = 0.33
Results *Social competence* – Teacher report

- Social competence at age 2
- Quality: Emotional and behavioral support
- Social competence at age 3
- Self-regulation
- Gender

\[ B = 0.23 \]
Child care quality x Affective self-regulation

RoS: < -1.40 SD (score EBS < 4.20) and >1.44 SD (score EBS > 5.84)
Child care quality x Gender

\[ B = 0.17, \ p < .001 \]

\[ B = -0.03, \ p = .621 \]

Ros < ± 0.35 SD

Social competence T2 - teacher report

Low center emotional and behavioral support (-1 SD)  High center emotional and behavioral support (+1 SD)

Boys

Girls
Results *Externalizing* – Parent report

- Externalizing behavior at age 2
  - $B = 0.40$
- Quality: Emotional and Behavioral Support
- Self-regulation
  - Gender
- Externalizing behavior at age 3

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In summary...

- For children low on affective self-regulation, lower quality child care was related to less social competence, and higher quality child care was related to more social competence = Susceptibility

- Boys had less social competence than girls, although only in lower quality child care = Vulnerability

- No interactions were found with gender and affective self-regulation for externalizing behavior
Take home message

• Findings highlight the importance of investigating individual differences in effects of early child care.

• High quality child care has a beneficial impact on children’s social competence, especially for boys and children with lower affective self-regulation skills.

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