

## Introduction

- Parent response to infants/children when they are upset is important for their later social competence (1), coping strategies (2), prosocial behavior and emotion regulation (3).
- Several episodes are available to examine infant responses to mildly stressful situations (e.g., Still Faced Paradigm, 4). However, few infants become inconsolably upset.
- When an infant does become significantly upset, the episode is typically discontinued, limiting opportunities to examine parental response.
- In situations that do permit examination of responses to upset infants (e.g., vaccinations [5]), responses are contingent upon parent characteristics, infant characteristics, and context.
- The aim of the present study is to assess the feasibility of the infant simulator episode as a procedure to hold constant infant dysregulation and examine parent/participant responses to such a situation.
- To assess the feasibility of an infant simulation paradigm, associations between participant effortful control, executive attention, and emotion regulation (EEE) and responses to high levels of infant distress were examined.
- Associations between participant EEE and response to a simulated, difficult infant were based on prior work demonstrating the importance of caregiver EEE for the development of emotion regulation (ER) in children (6, 7).

## Hypotheses

- Participants possessing better ER-related characteristics would:
  - Persist longer and use more techniques in their attempts to console the simulator,
  - Display more frequent signs of positive affect (i.e., smiles) and greater sensitivity while interacting with the simulator,
  - Exhibit fewer gaze aversions during their interaction with the simulated infant
- We also anticipated that higher rated sensitivity would be positively associated with task persistence and the number of techniques used to attempt to soothe the simulator, but negatively associated with gaze aversions.

## Method - Participants

- 19 non-parents, 11 females, 8 males
- Mean age = 23.42 years
- Mean years of education = 17.00 (range = 12.00 – 24.00)
- Participants self-identified as primarily Caucasian (78.9%)

## Measures

- Participants completed self-report measures of:
  - Emotion regulation (Emotion Regulation Questionnaire; 8)
  - Effortful control (Adult Temperament Questionnaire; 9)
  - Executive function (BRIEF; 10)
- Participants interacted with a simulated infant:
  - The simulator (a life-like, and sized doll, 3 month old infant), is programmable to a variety of user specifications (RealCare® Baby II-plus, 11)

## Method - Procedure

- Infant simulator paradigm
  - After being informed that the simulator responds to caregiving efforts similar to real infants (e.g., responds to voice, facial expression, and physical contact), a RA demonstrates that when distressed, the simulator can be calmed
    - The simulator responds to the RA due to a “caregiver” microchip strategically hidden on the RA.
- During the participant’s interaction with the simulator, it was programmed for a need (i.e., feeding) that could not be met because the participant was not provided the microchip identifier. This resulted in the simulator becoming increasingly upset over repeated 255 second cycles.
- Interaction with the simulator continues until the participant terminates the episode.
- Coding in vivo
  - 1 RA coded gaze aversions and the number of techniques used to attempt to soothe the simulator; a 2<sup>nd</sup> RA coded the number of smiles displayed by each participant.
  - Both RAs independently assigned each participant a sensitivity rating (from 1 = not at all sensitive to 7 = extremely sensitive, 12) at the end of each episode.

## Results

- Participants spent a mean of 15 minutes 3 seconds with the simulator, (3 minutes 12 seconds to 37 minutes 22 seconds).
- Two independent ratings of sensitivity were averaged to create the sensitivity variable.
  - Ratings were significantly correlated,  $r(17) = .96, p < .05$

### Associations Between Questionnaire Measures and Simulated Infant Variables

Variable	EQ		ATQ	BRIEF Total
	Reappraise	Suppress	Effortful Control	
Sensitivity	<i>0.17</i>	-0.04	<i>0.33</i>	<i>-0.26</i>
Gave aversions per minute	-0.03	<i>0.16</i>	<b>-0.41*</b>	<i>0.27</i>
Number of smiles	<b>0.53**</b>	<i>-0.11</i>	<i>0.22</i>	<i>-0.34</i>
Persistence time	<i>0.13</i>	<i>-0.16</i>	0.06	0.01
Number of techniques used to attempt to soothe	<i>0.17</i>	<i>-0.25</i>	<i>0.13</i>	<i>-0.18</i>

\* =  $p < .10$ ; \*\* =  $p < .05$  for Both Tables; italics signify associations that were ns, but were in the expected direction and consistent with a small or larger effect size based on Cohen’s criteria.

### Associations Between Sensitivity, Persistence, Gaze Aversions, and Techniques Attempted to Soothe the Simulator

Variable	Persistence	Gaze Aversions	Techniques
Sensitivity	<b>.67**</b>	<b>-0.46*</b>	<b>0.56**</b>
Persistence	---	<b>-0.42*</b>	<b>0.75**</b>
Gaze Aversions	---	---	<i>-0.30</i>

## Conclusions

- Consistent with hypotheses, emotion-related regulation was important for how participants interacted with the infant simulator when the simulator was inconsolably distressed.
- This small feasibility study suggests that the infant simulator paradigm may be a viable means by which to examine the associations between parent characteristics (e.g., EEE) and reactions to temperamentally dysregulated infants.

## Future Directions

- Future studies should include a larger pilot project with non-parents as well as pilot testing with parents.
- Researchers should attempt to replicate the current findings with both high and low risk families.
- Future studies should assess whether the infant simulator paradigm may be used to predict interactions with real infants or to predict infant outcomes.
- The viability of the infant simulator paradigm would be supported through replication of well-established findings in the literature (e.g., if associations between maternal depression and expressions of positive affect could be established with the infant simulator task).
- Future studies should address the limitations of the current study (e.g., it may be beneficial to video record participant interactions with the infant simulator to aide in the coding of participant behaviors).

## References

1. Roberts, W., & Strayer, J. (1987). Parents' responses to the emotional distress of their children: Relations with children's competence. *Developmental Psychology*, 23(3), 415-422. doi:10.1037/0012-1649.23.3.415
2. Hardy, D., Power, T., & Jaedicke, S. (1993). Examining the relation of parenting to children's coping with everyday stress. *Child Development*, 64(6), 1829-1841. doi:10.2307/1131472
3. Eisenberg, N., Fabes, R., & Murphy, B. (1996). Parents' reactions to children's negative emotions: Relations to children's social competence and comforting behavior. *Child Development*, 67(5), 2227-2247. doi:10.2307/1131620
4. Tronick, E. Z., Als, H., Adamson, L., Wise, S., & Brazelton, T. B. (1978). The infant's response to entrapment between contradictory messages in face-to-face interaction. *Journal of American Academy of Child Psychiatry*, 17, 1-13. http://www.jaacap.com/
5. Jahromi, L. B., Putnam, S. F., & Sifter, C. A. (2004). Maternal regulation of infant reactivity from 2 to 6 months. *Developmental Psychology*, 40(4), 477-487. doi:10.1037/0012-1649.40.4.477
6. Cumberland-Li, A., Eisenberg, N., Champion, C., Gershoff, E., & Fabes, R. (2003). The relation of parental emotionality and related dispositional traits to parental expression of emotion and children's social functioning. *Motivation and Emotion*, 27(1), 27-56. http://www.springer.com/?SGWID=0-102-0-0-0
7. Valente, C., Lemery-Chalfant, K., & Reiser, M. (2007). Pathways to problem behaviors: Chaotic homes, parent and child effortful control, and parenting. *Social Development*, 16(2), 249-267. doi:10.1111/j.1467-9507.2007.00383.x
8. Gross, J., & John, O. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348-362. doi:10.1037/0022-3514.85.2.348
9. Evans, D., & Rothbart, M. (2007). Developing a model for adult temperament. *Journal of Research in Personality*, 41(4), 868-888. doi:10.1016/j.jrp.2006.11.002
10. Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2000). *Behavior rating inventory of executive function, professional manual*. Odessa, FL: Psychological Assessment Resources.
11. *RealCare® Baby II-plus [Apparatus and software]*. (2005). Eau Claire, WI: Realityworks, Inc.
12. Spinrad, T. L., Eisenberg, N., Gaertner, B. M., Popp, T., Smith, C. L., Kupfer, A., Hofer, C. (2007). Relations of maternal socialization and toddlers' effortful control to children's adjustment and social competence. *Developmental Psychology*, 43(5), 1170-1186. doi:10.1037/0012-1649.43.5.1170

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