



Validation of an Experimental Distressed Baby Simulator (BSIM) Task



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INTRODUCTION

- Early maternal behavior, such as response to infant distress, is an important predictor of subsequent child outcomes including:¹⁻²
 - Externalizing behavior problems
 - Attachment security
 - Social competence
- However, maternal response to infant distress is difficult to examine as there are few opportunities to do so in a laboratory setting and naturalistic settings (e.g., doctors' offices) are often difficult to access.
- The baby simulator (BSIM) task has been under development in recent years as an experimental method of examining response to infant distress. However, the validity of this task has not yet been examined.
- To establish the validity of this task, the present study examines links between how mother's interact with the BSIM and how they interact with their own infants.

HYPOTHESES

- Mothers who spend more time engaging in behaviors in an attempt to soothe the BSIM will:
 1. Exhibit more positive affective involvement and verbalization (PAIV) during interactions with their own infants four months later.
 2. Demonstrate less negative affect and behavior (NAB) during interactions with their infants when they are approximately eight months old.
 3. Display less intrusiveness, insensitivity, and inconsistency (III) during interactions with their own infants when they are approximately 8 months of age.

METHOD

- 84 mothers (mean age of 27.67 years; mean of 14.53 years of education) and their infants (50 females, 34 males) participated.
- Mothers primarily self-identified as Caucasian (70.2%), Latino (13.1%), and African American (10.7%); most were in a stable relationship (86.7%).
- A cumulative risk index, which took into account maternal education, maternal age, maternal relationship status, family income, and maternal history or current experience of depression, was calculated and utilized as a covariate in all analyses.

BSIM PARADIGM

- The BSIM is a lifelike simulated infant³
- At the start of the task, a demonstration takes place in which the BSIM is successfully soothed.
- Next, participants are instructed to soothe the BSIM although it is re-programmed to be inconsolable. A variety of props are provided for use during the task (e.g., toys, blankets, a bottle).
- Interactions with the BSIM continue for up to five 255-second cycles of crying; however, participants were able to end the task at any time.
- Using Noldus Observer XT software⁴, the proportion of time spent vocalizing, distracting, rocking, presenting face, and engaging in caregiving and soothing touch behaviors was coded based on an existing coding scheme.⁵

FREE PLAY WITHOUT TOYS

- During a lab visit when infants were 8 months old, mothers played with their infants without toys for about 6 minutes.
- The following global codes, consistent with the Parent-Child Early Relational Assessment (PCERA, Clark, 1985),⁶ were rated for each mother-infant dyad:
 - Maternal Positive Affective Involvement and Verbalization
 - Maternal Negative Affect and Behavior
 - Maternal Intrusiveness, Insensitivity, and Inconsistency

RESULTS

Table 1. Hierarchical Multiple Regressions Predicting Maternal Behavior during Free Play from Maternal Behavior during the BSIM Task.

DV	Predictor	ΔR ²	β
Maternal PAIV		.134*	
	Infant Sex		-.235*
	Cumulative Risk		-.030
		.443***	
	Caregiving		-.252*
	Distracting		.133
	Soothing Touch		.222
Maternal NAB	Presenting Face		.154
	Rocking		.251*
	Vocalizing		.541***
		.008	
	Infant Sex		.202
	Cumulative Risk		-.288
		.365**	
Maternal III	Caregiving		.231
	Distracting		-.193
	Soothing Touch		-.515**
	Presenting Face		-.323*
	Rocking		.089
	Vocalizing		-.364*
		.245***	
	Infant Sex		.203
	Cumulative Risk		.190
		.291**	
	Caregiving		.100
	Distracting		.079
	Soothing Touch		-.352*
	Presenting Face		-.160
Rocking		.013	
Vocalizing		-.396**	

Note. PAIV = maternal positive affective involvement and verbalization; NAB = maternal negative affect and behavior; III = maternal intrusiveness, insensitivity, and inconsistency

p* < .05, *p* < .01, ****p* < .001

DISCUSSION

- This study provides evidence of the validity of the BSIM task.
- Maternal behaviors exhibited in the context of the BSIM task predicted maternal behavior during interactions with their own, non-distressed infants.
- The BSIM paradigm appears to be a relatively easy way to examine maternal response to infant distress as it circumvents various ethical and practical issues
- With additional research, the BSIM may prove useful in parent training interventions which aim to improve parenting behavior, especially in the context of stressful parent-infant interactions.
- Future research should evaluate the potential for the BSIM paradigm to accurately represent paternal behavior in response to infant distress.
- Additional work involving the BSIM paradigm should examine parental physiological reactivity (e.g., heart rate variability) during the task.

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