Effects of Maternal Involvement and other Contextual variables on Prediction of Toddler Negative Affect and Shyness

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Fearful Temperament

- Wariness, hesitance, distress in response to novelty and uncertainty (Kagan et al., 1984)
  - Behavioral inhibition
  - Distress to novelty
- Small to moderate correlations between maternal report and observation (e.g., Leerkes & Crockenberg, 2003; Lewis-Morrarty et al., 2012)
- Concordance influenced by maternal characteristics (e.g., Leerkes & Crockenberg, 2003)



Contexts of Fear-Elicitation

- Maternal Involvement (Grolnick et al., 1996; Leerkes & Crockenberg, 2003, Roque et al., 2013)

- Low vs. High threat
  - Toddler fear in low threat →Anxiety risk (Buss, 2011; Buss et al., 2013)
  - Maternal protective behavior in low threat → Anxiety risk (Kiel & Buss, 2012)

The Current Study

- Does the nature of a laboratory task influence concordance with maternal report?
  - Mothers involved vs. uninvolved
  - Low vs. high threat
- Are results consistent across level of analysis?
  - Broad index of fear
  - Discrete fear behaviors

Participants

- 111 24-month toddlers and their mothers
  - 49 female
  - > 90% European American
  - Middle-class SES

Maternal Report

- Toddler Behavior Assessment Questionnaire: 110 items (Goldsmith, 1996)
  - Social Fear
    - "Inhibition, distress, withdrawal (vs. approach), or signs of shyness in novel or uncertainty provoking situations"
  - Object Fear
    - "Distress, withdrawal, and hedonically fearful vocalizations when exposed to a variety of objects and nonsocial situations"
  - Fear
    - Mean of Social Fear and Object Fear

Laboratory Observation











Laboratory Observation

- Global coding of Fear
  - Negative affect (1-5), Shyness/Withdrawal (1-5)
  - Fear composites
    - Uninvolved (SA, Robot) vs. Involved (Clown, PS, Spider)

      $r = .54$, $p < .001$
    - Low Threat (Clown, PS) vs. High Threat (Spider)

      $r = .31$, $p < .001$

Laboratory Observation

- Discrete fear behaviors

Toddler Behavior (Clown)
Boldness
Proximity to mother
Attempt to be held
Number of games played
Shyness
vocalizations to clown
Intensity of distress vocalizations

Laboratory Observation

- Discrete fear behaviors

Maternal Prediction	Toddler Behavior (Clown)
Approach the clown?	Boldness
Want to stay close to you?	Proximity to mother
Want to be held by you?	Attempt to be held
Play all the games with the clown?	Number of games played
Be wary/fearful of the clown?	Shyness
Talk to the clown?	# vocalizations to clown
Cry or fuss?	Intensity of distress vocalizations

Results:
Fear in Involved/Uninvolved Episodes

Observed Fear	TBAQ Social Fear	TBAQ Object Fear	Mean (SF & OF)
Uninvolved	.05	.18†	.13
Involved	.15	.23*	.21*

†$p < .10$, *$p < .05$

Results:
Fear in Involved/Uninvolved Episodes

DV = TBAQ **Social Fear** (R^2 = .02, F[2, 108] = 0.27)

Variable	*b*	SE	*β*	*t*	*p*
Uninvolved	-0.06	0.15	-0.04	-0.37	.711
Involved	0.26	0.17	0.17	1.53	.128

DV = TBAQ **Object Fear** (R^2 = .06, F[2, 108] = 3.29*)

Variable	*b*	SE	*β*	*t*	*p*
Uninvolved	0.09	0.13	0.08	0.68	.497
Involved	0.23	0.14	0.19	1.67	.093

Results:
Fear in Involved/Uninvolved Episodes

DV = TBAQ **Fear** (R^2 = .05, F[2, 108] = 2.59†)

Variable	*b*	SE	*β*	*t*	*p*
Uninvolved	0.02	0.12	0.01	0.12	.903
Involved	0.24	0.13	0.21	1.84	.069

Results:
Fear in Low-Threat and High-Threat Episodes

Observed Fear	TBAQ Social Fear	TBAQ Object Fear	Mean (SF & OF)
High Threat	-.08	-.00	-.05
Low Threat	.29**	.34***	.36***

$**p < .01$, $***p < .001$

Results:
Fear in Low-Threat and High-Threat Episodes

Observed Fear	TBAQ Social Fear	TBAQ Object Fear	Mean (SF & OF)
High Threat	-.08	-.00	-.05
Low Threat	.29**	.34***	.36***
Steiger *Z*	3.34***	3.11**	3.74***

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

Results:
Fear in Low-Threat and High-Threat Episodes

DV = TBAQ **Social Fear** (R^2 = .12, F[2, 108] = 7.50**)

Variable	*b*	SE	*β*	*t*	*p*
High Threat	-0.19	0.09	-0.21	-2.15	.034
Low Threat	0.52	0.14	0.36	3.76	< .001

DV = TBAQ **Object Fear** (R^2 = .13, F[2, 108] = 3.29*)

Variable	*b*	SE	*β*	*t*	*p*
High Threat	-0.10	0.07	-0.13	-1.41	.162
Low Threat	0.47	0.12	0.39	4.08	<.001

Results:
Fear in Low-Threat and High-Threat Episodes

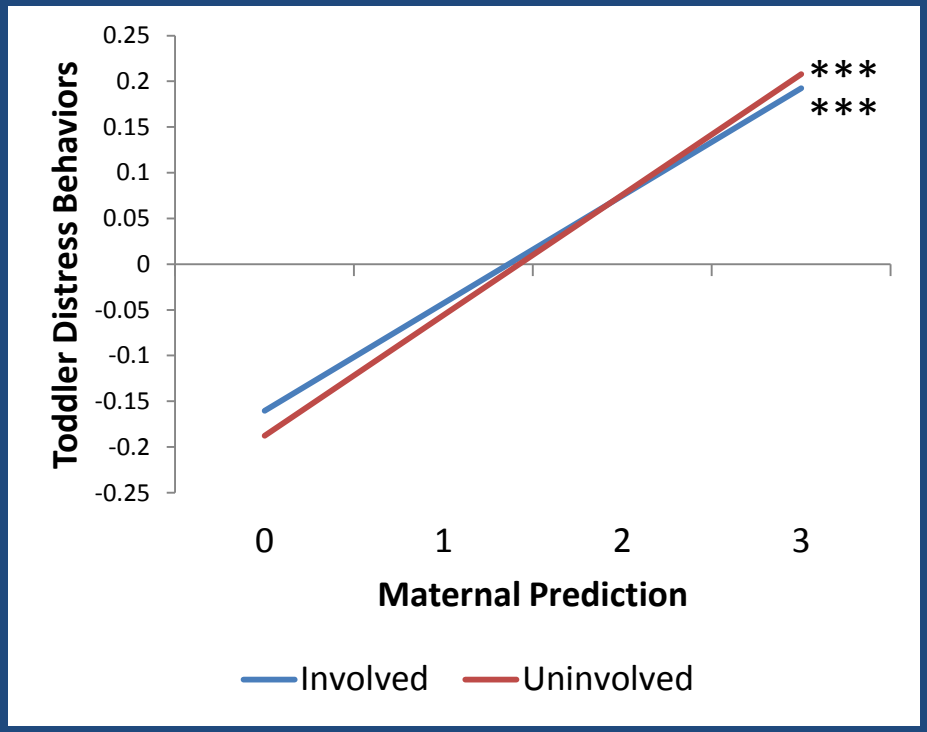
DV = TBAQ **Mean Fear** (R^2 = .16, F[2, 108] = 10.49***)

Variable	*b*	SE	*β*	*t*	*p*
High Threat	-0.14	0.07	-0.20	-2.11	.037
Low Threat	0.50	0.11	0.43	4.54	< .001

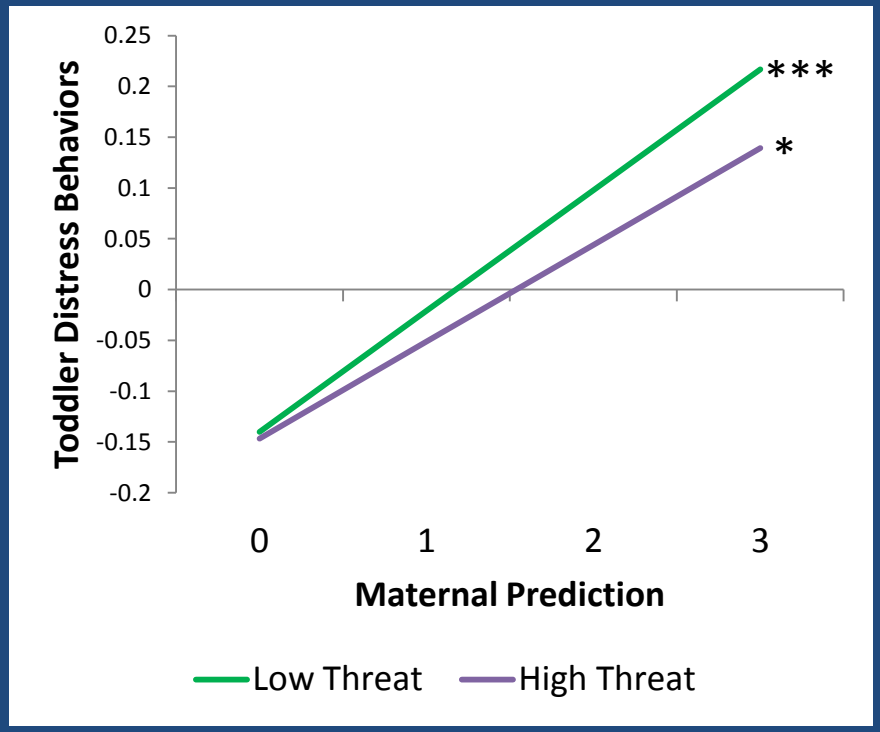
Results:

Relation of Maternal Predictions to Fear Behaviors

- Overall, significantly related (ɣ = 0.12, *SE* = 0.02, *t* = 5.14, *p* < .001)
- Not moderated by involvement or threat level



***p < .001



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

Results:

Unique Relation of Maternal Report to Discrete Fear Behaviors

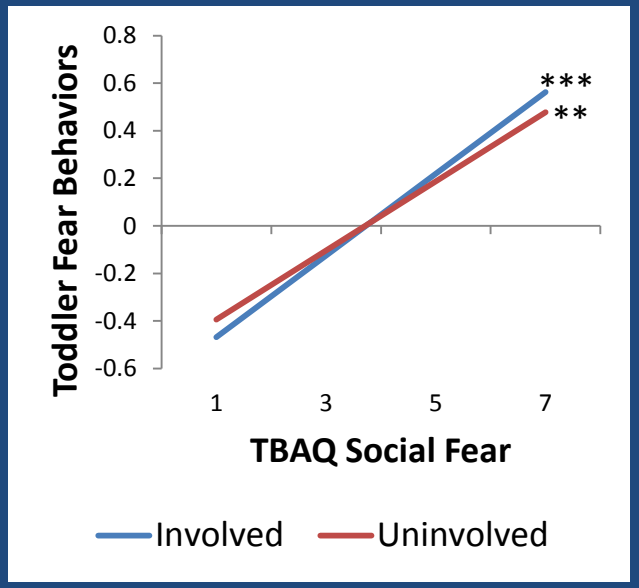
Variable	γ	SE	*t*	*p*
Prediction	0.12	0.02	4.71	< .001
TBAQ SF	**0.12**	**0.04**	**2.84**	**.005**

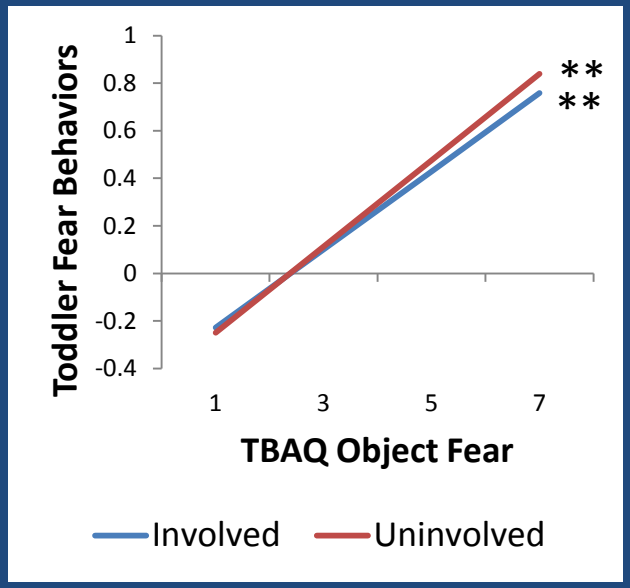
Variable	γ	SE	*t*	*p*
Prediction	0.12	0.02	4.71	< .001
TBAQ OF	**0.14**	**0.05**	**2.86**	**.005**

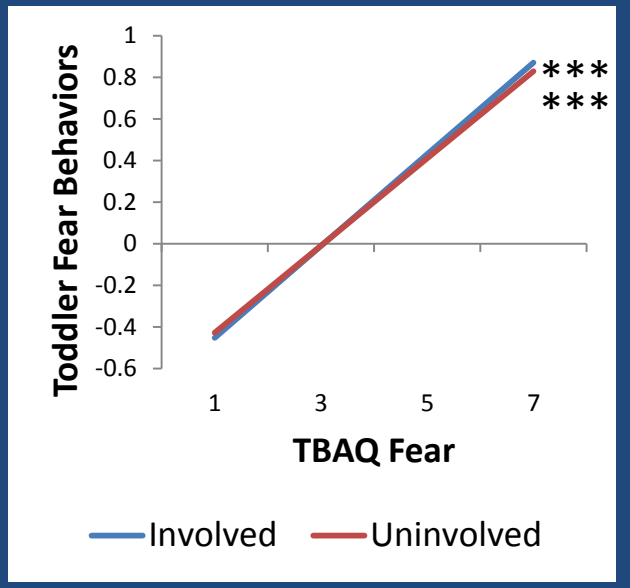
Variable	γ	SE	*t*	*p*
Prediction	0.12	0.02	4.68	< .001
TBAQ Fear	**0.17**	**0.05**	**3.29**	**.001**

Results:
Maternal Report → Discrete Fear Behaviors

- Not moderated by involvement



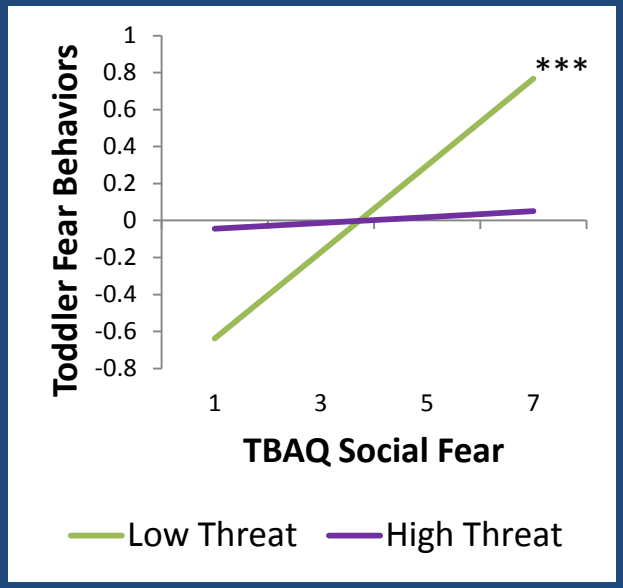


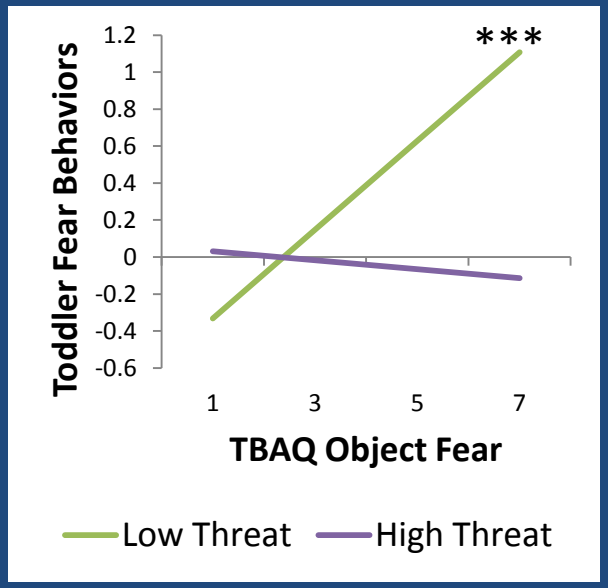


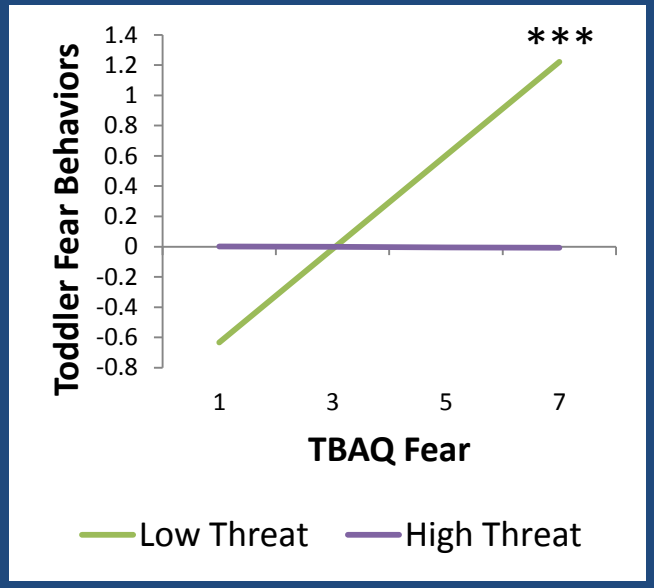
$^{**}p < .001$, $^{***}p < .001$

TBAQ → Discrete Fear Behaviors

- Moderated by threat level







$^{**}p < .001$, $^{***}p < .001$

Discussion

- Maternal report can relate meaningfully to laboratory assessments of fearful temperament
- Concordance is not just about maternal biases
- Maternal involvement did not affect concordance
- Threat level affected concordance
  - Low threat more similar to maternal report

Implications & Future Directions

- Laboratory procedures that best reflect typical fearful/shy behaviors → Low threat
- Low threat episodes emerging as salient for multiple domains
  - Temperament, parenting, concordance
- Similar for dads? Across cultures?

Acknowledgements

Toddlers and parents who participated in these studies







Funding

F31 MH773853 to E. Kiel

APA Dissertation Award

R01 MH075750 to K. Buss

Emotion Development Lab

University of Missouri

Behavior, Emotions, and Relationships Lab

Miami University