Temperament Moderates Associations between Exposure to Stress and Children's Externalizing Problems

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Stress and Child Development

- Stress predicts child development and adjustment (Compas, 1987)
- Family stress predicted internalizing, externalizing, academic achievement (Forehand et al., 1998)
- Associations found for interparental conflict, family violence, and financial stress (Conger et al., 2002; Cummings, Schermerhorn, et al, 2006; Dodge, Pettit, & Bates, 1997)
- But the stress-child adjustment association is complex; not all children are equally affected by stress (Garmezy, Masten, & Tellegen, 1984)

Stress and Child Development

- Which children are at greatest risk when exposed to stress?
  - Is the stress-externalizing association stronger for children with high levels of temperament-related dysregulation and fearfulness?

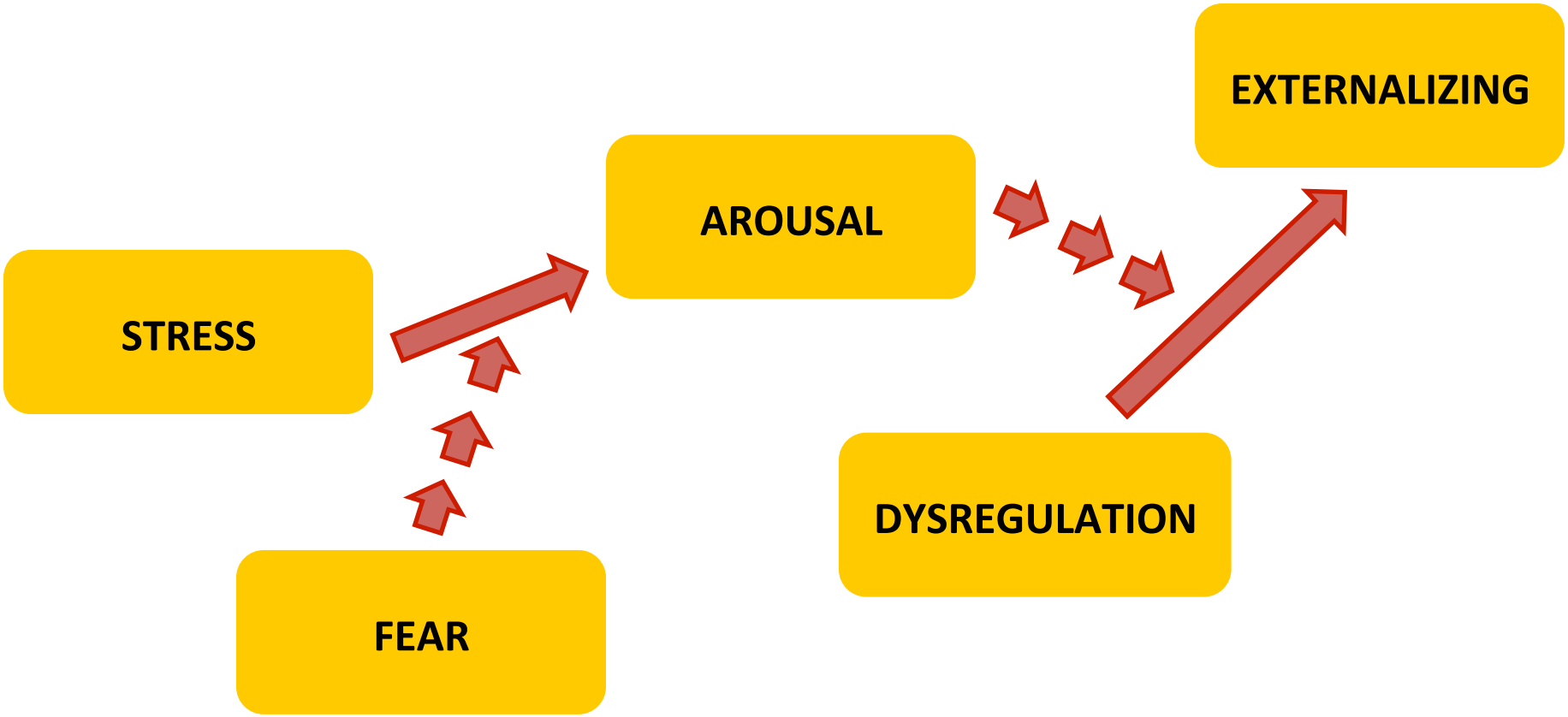
Temperament X Environment Interactions

- Dramatic increase in studies of interactions between temperament and environment (Rothbart & Bates, 2006)
- Inconsistent parental discipline strengthened links between self-regulatory deficits and externalizing (Lengua et al., 2000)
- Mothers' power assertion and negative discipline predicted less internalized self-control among fearful children (Kochanska, 1991, 1995, 1997)
- Fearful children exposed to harsh discipline had more aggressive behavior (Colder, Lochman, & Wells, 1997)

Temperament X Temperament Interactions

- Also studies of interactions between multiple temperament dimensions
- Negative emotionality strengthened links between poor attentional control and externalizing (Eisenberg et al., 2000)
- Effortful control weakened links between negative emotionality and internalizing and externalizing (Muris et al, 2007)
- What about interactions between stress and multiple temperament dimensions?

Conceptual Framework



Bates, Sandy, Dodge, & Pettit, 2000

The Current Study

- Temperament Dimensions
  - Dysregulation (unmanageability)
  - Fearfulness (novelty distress)
- Combination of dysregulation and fearfulness with stress

Schermerhorn, Bates, Goodnight, Lansford, Dodge, & Pettit (2013) *Child Development*

Method

- Sample: 556 families from the Child Development Project (CDP; Dodge, Bates, & Pettit, 1990)
- Kindergarteners and their families in 1987 or 1988 at Time 1 in Knoxville, TN, Nashville, TN, Bloomington, IN
- Longitudinal design
- Primarily middle-class, with a range of SES levels

Temperament

- Retrospective Infant Characteristics Questionnaire (RICQ; Bates & Bayles, 1984; Bates, Freeland, & Lounsbury, 1979)
  - Completed by mothers at Kindergarten assessment
  - Predicts subsequent adjustment (Bates et al., 1991; Bates et al., 1985; Keiley et al., 2003)

Stress

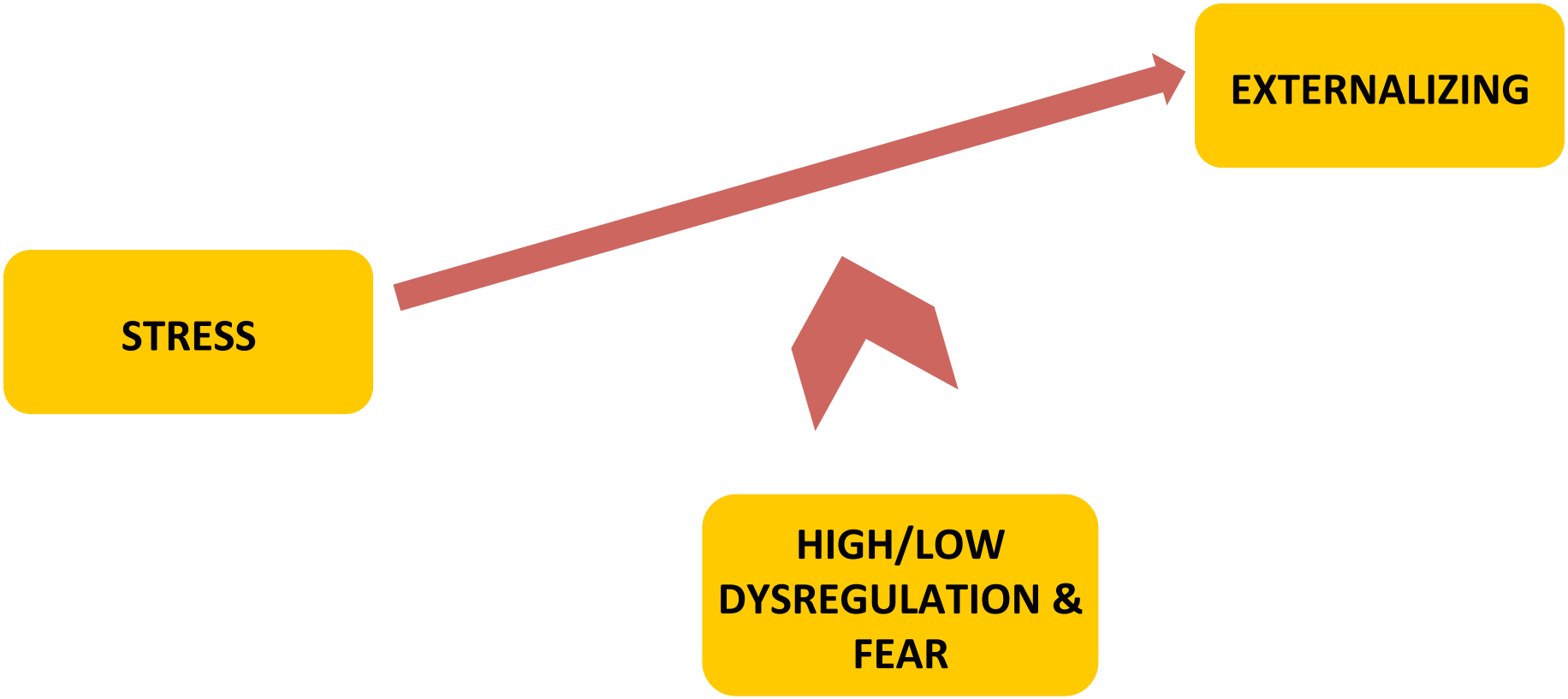
- Changes and Adjustments Scale (Dodge, Pettit, & Bates, 1994) checklist of 18 stressful life events during past year
  - e.g., serious medical problems, financial problems, divorce/separation
  - Completed by mothers annually in fall, K through 8th grade

Externalizing

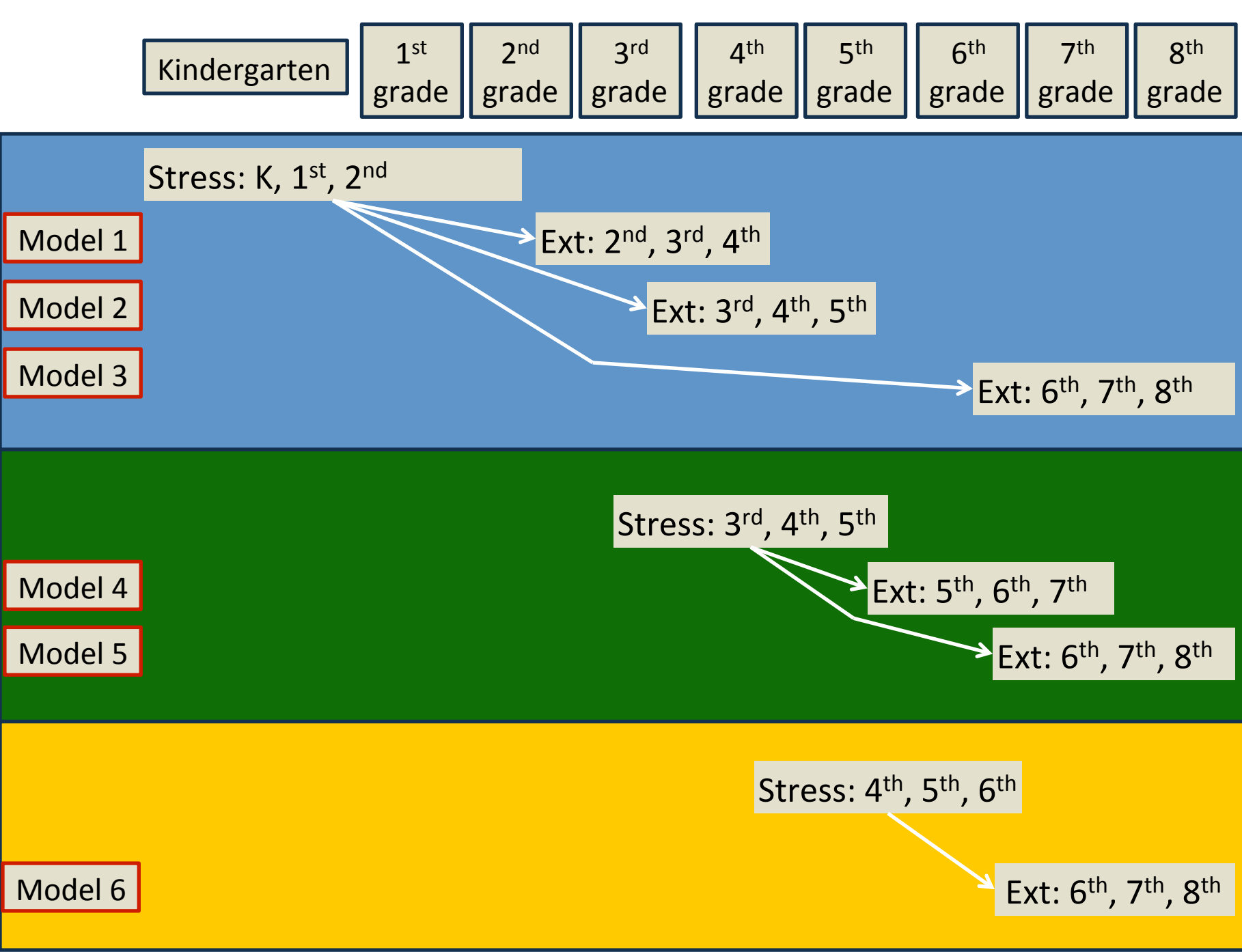
- Teacher Report Form (TRF; Achenbach, 1991)

- Completed by teachers midway through school year, K through 8th grade

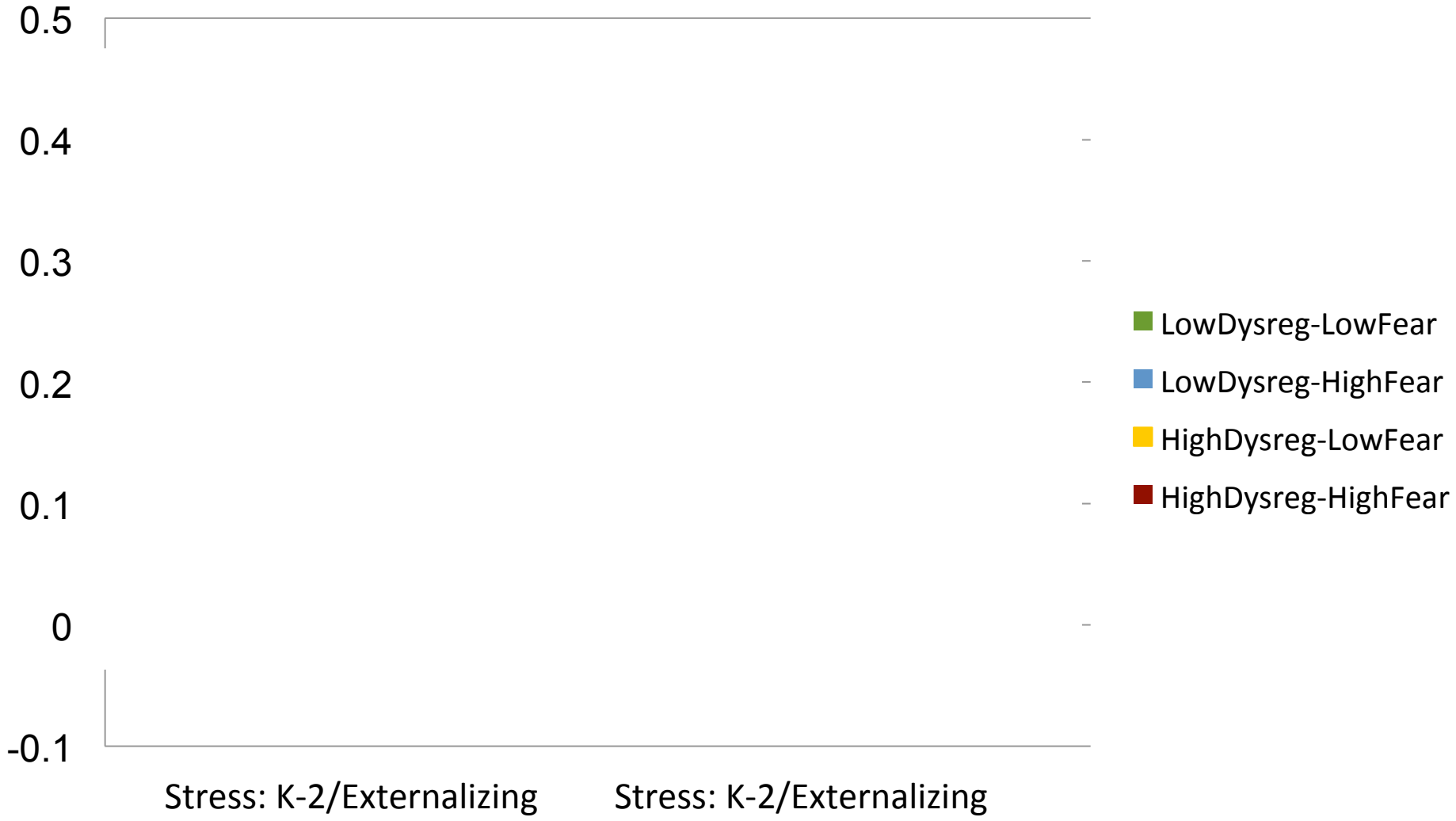
Conceptual Framework



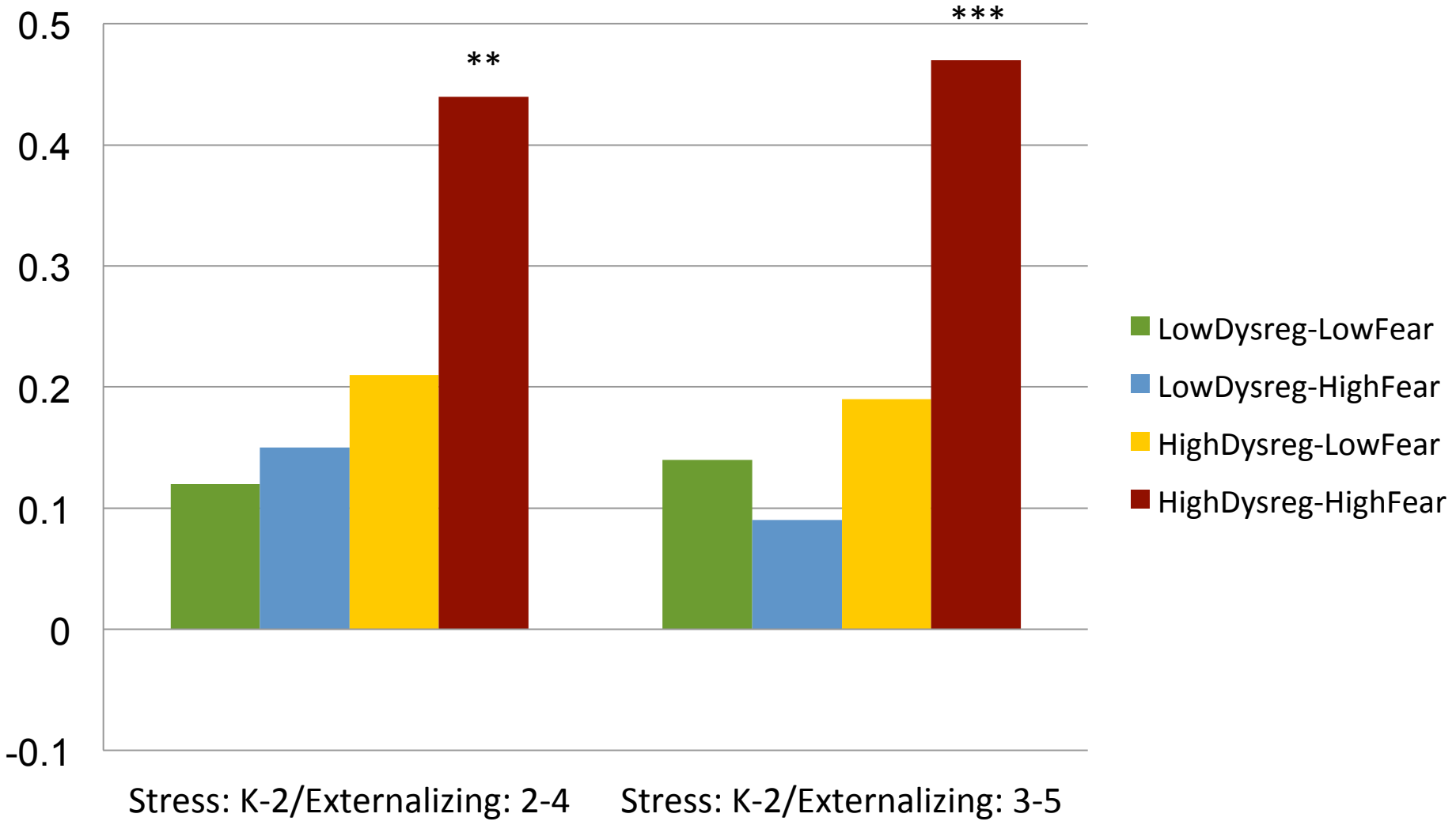
N = 556 participants from Child Development Project (Dodge et al, 1990)
low dysreg, low fear: n=173, 31%
low dysreg, high fear: n=105, 19%
high dysreg, low fear: n=139, 25%
high dysreg, high fear: n=139, 25% (risk profile)


Kindergarten
1st grade
2nd grade
3rd grade
4th grade
5th grade
6th grade
7th grade
8th grade
Stress: K, 1st, 2nd
Model 1
Model 2
Model 3
Ext: 2nd, 3rd, 4th
Ext: 3rd, 4th, 5th
Ext: 6th, 7th, 8th
Stress: 3rd, 4th, 5th
Model 4
Model 5
Ext: 5th, 6th, 7th
Ext: 6th, 7th, 8th
Stress: 4th, 5th, 6th
Model 6
Ext: 6th, 7th, 8th

Results

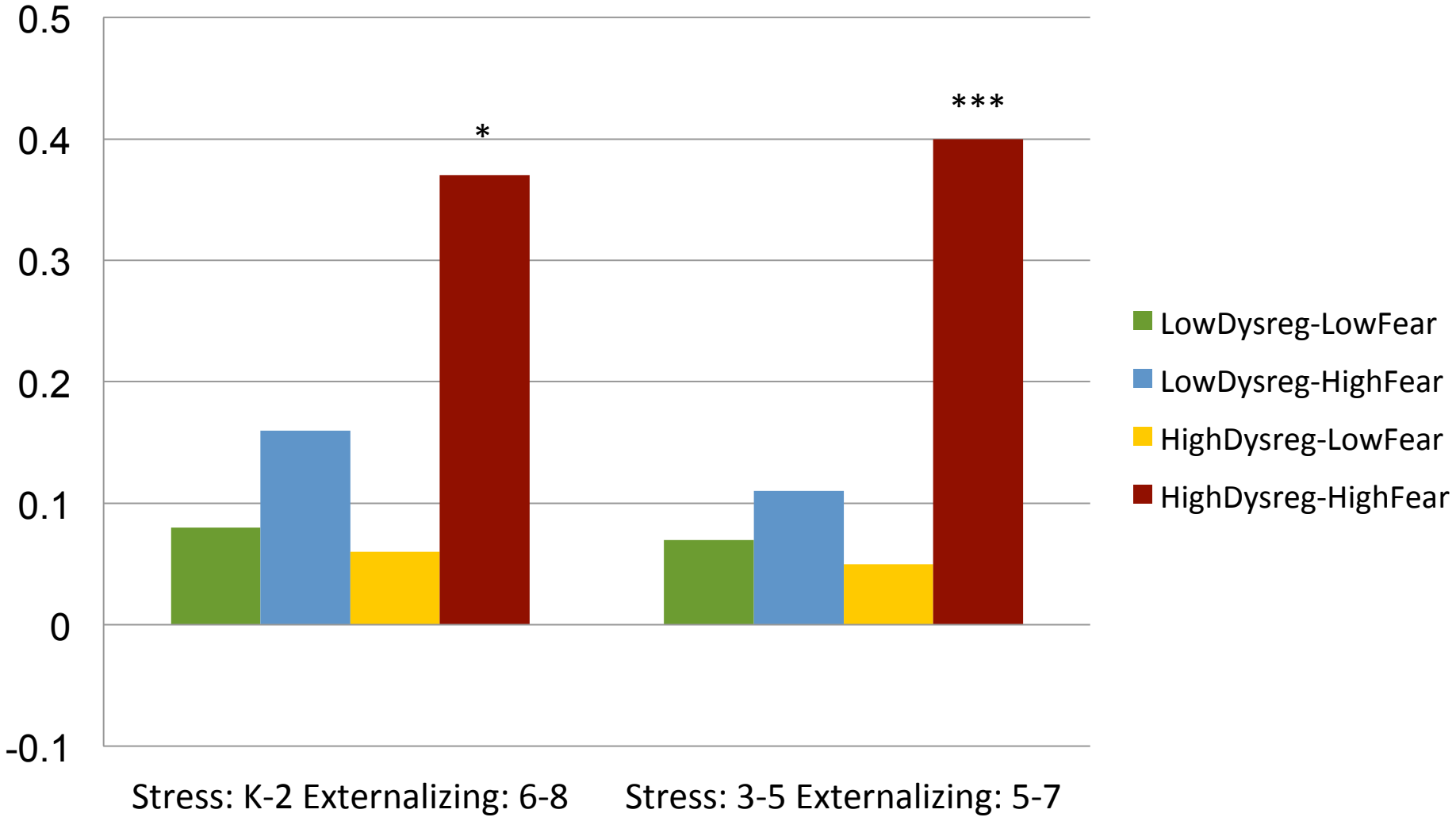

0.5
0.4
0.3
0.2
0.1
0
-0.1
Stress: K-2/Externalizing
Stress: K-2/Externalizing
LowDysreg-LowFear
LowDysreg-HighFear
HighDysreg-LowFear
HighDysreg-HighFear

Models 1 and 2: Stress predicted externalizing for the risk profile temperament group only

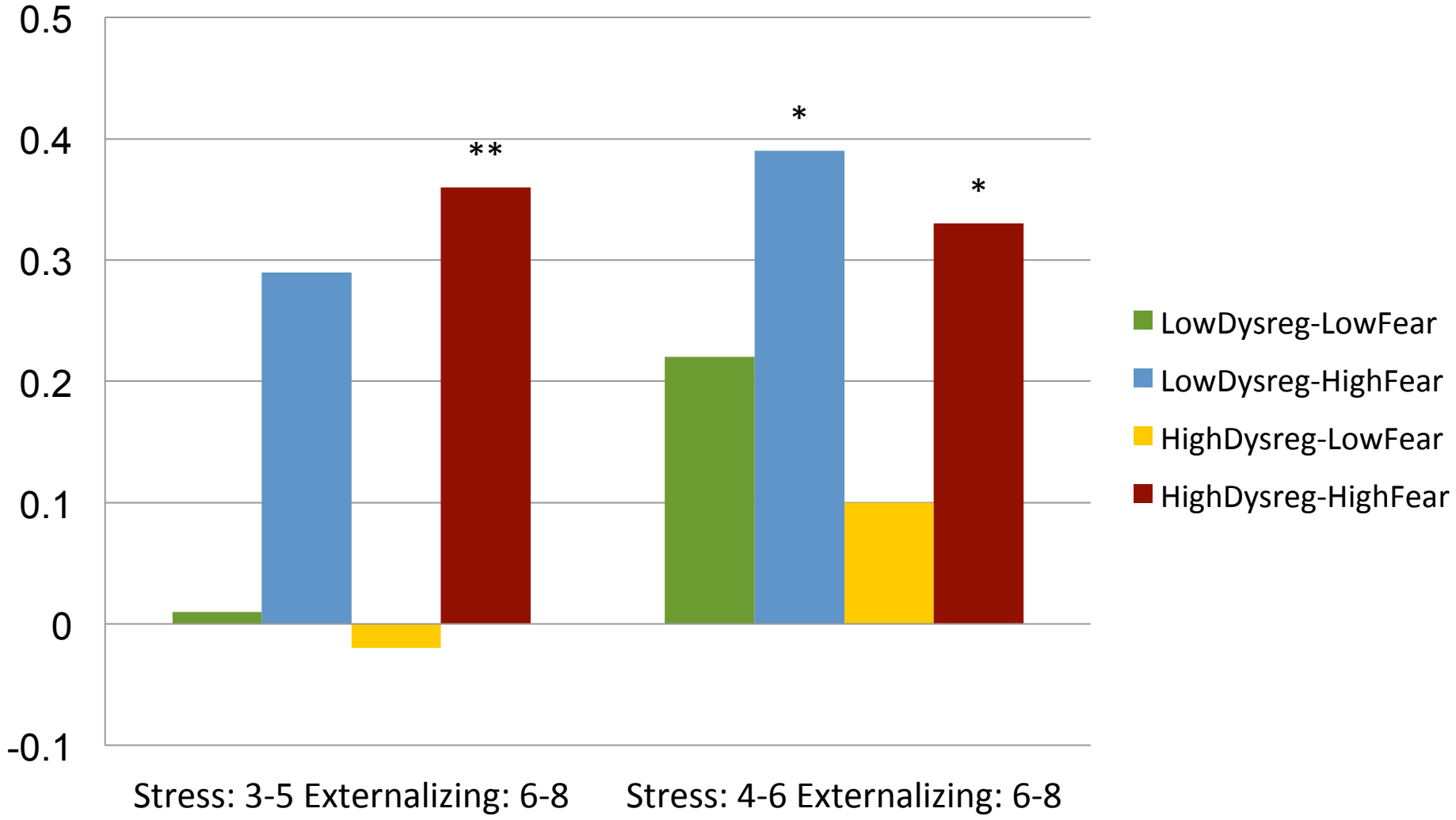


Schermerhorn, Bates, Goodnight, Lansford, Dodge, & Pettit (2013) *Child Development*

Models 3 and 4: Stress predicted externalizing for the risk profile temperament group only



Stress predicted externalizing most strongly for the risk profile group in Model 5, but not in Model 6



Discussion

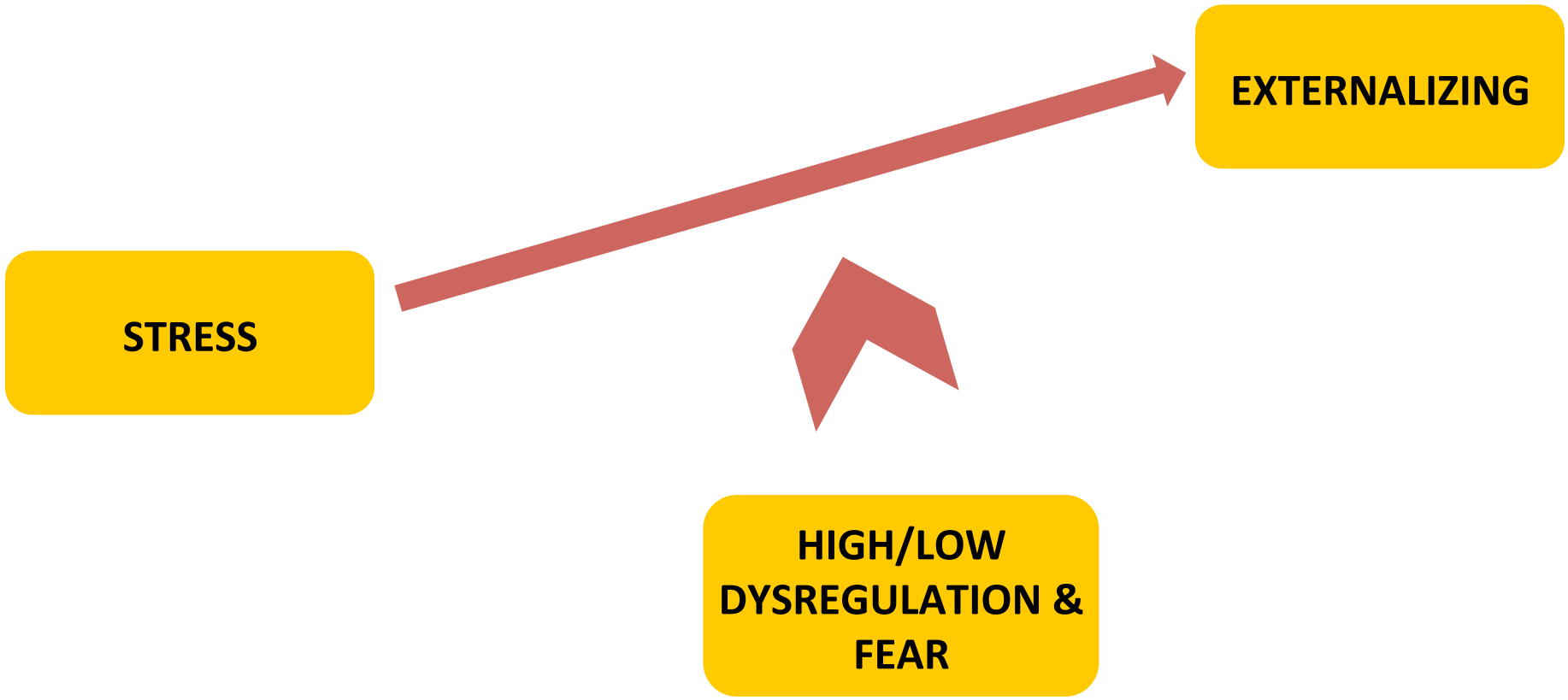
- Support hypothesis that stress predicts externalizing most strongly for children with high dysregulation and fearfulness
  - For these children, the stress-externalizing association was significant across all timing windows,
  - these children had the largest stress-externalizing regression coefficient in 5 of the 6 models, and
  - in 4 of the 6 models, this path was significantly larger for these children than for other children

Discussion

- Weaker pattern in Models 5 and 6
  - Might indicate lack of support for our hypothesis,
  - Increased time in relation to temperament assessment, or
  - Could reflect stronger effects for relatively early exposure to stress (K-2nd grade)
- Need tests with independent samples

Conclusions

- Children high in fear and dysregulation are especially at risk



Future Directions: Underlying Mechanisms

- Emotional arousal
- Executive functioning
- Neuropsychological processes: Event-related potential (ERP) components



Thank you

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