

Observational methods for studying emotion regulation in early childhood

Pamela M. Cole
The Pennsylvania State University

EmotionNet

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Colleagues

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Clancy B. Blair
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Background

- Children who display more negative emotion are at greater risk for developing psychopathology
- In studies, more negative emotion is often interpreted as weaker skill at *regulating* negative emotion
- Evidence of regulatory processes, however, is slim

Background

Limited understanding of

- adaptive functions of negative emotion & their development
- specific role of emotion/ER in development of different forms of psychopathology

Examining ER in early childhood

- Importance of development of self-regulation from toddler to school entry (Kopp, 1982; 1989)
- Importance of understanding which individual differences in this age period presage risk for specific types of psychopathology (e.g., depression, behavior problems)

Observational methods

- Research relies heavily on observational methods
- Assessment of ER would benefit from considering:
 - temporal perspective (Thompson, 1994)
 - relational perspective (Campos et al., 2004; Saarni et al., 2006)
 - contextual perspectives
 - cross-domain integration (Halberstadt, Denham, & Dunsmore, 2001)
 - cultural/social standards (Saarni, 1999)
 - developmental goals (Cicchetti et al., 1991)

Emotional Profile of a Troubled Preschooler

(Cole, Luby, & Sullivan, in press)

- *Mr. and Mrs. B sought outpatient services for their 4-year-old son's impulsivity and excessive crying. They reported that A.B. was **easily provoked**, and that **when provoked, he was impulsively aggressive**. To illustrate the seriousness of the problem, they described an incident in which A.B. became very frustrated because his 2-year-old brother would not relinquish a toy immediately. In his frustration, A.B. poked his brother's eye with a stick.*
- *In addition, A.B.'s parents stated that he was **always unhappy**, including **frequent periods of excessive crying**. They found him **inconsolable**, particularly during these periods, such that he required constant attention and support that disrupted family life. At these times, they tried unsuccessfully to soothe him or redirect his attention to pleasant activities. The **excessive crying often followed his misbehavior**, and their descriptions of his behavior suggested **intense guilt and shame**. This pattern of unhappiness, frustration, misbehavior, and excessive crying was so well established and disruptive that his parents established a "cry room" in the home where A.B. often **cried unabated for long periods**.*

Conceptualizing A.B.'s differences

Quick to anger, impulsively aggressive, excessive crying (guilt/shame?), inconsolable, anhedonia

- Temporal: latency to anger, latency to socially undesirable behavior (aggression), duration of distress
- Relational: anger/aggression followed by guilt/shame, loss of pleasure in previously enjoyable activities
- Contextual: risks to family relationships, immaturity relative to other children his age, compromising of later tasks of development

Using observational methods

- Procedures
- Coding
- Analytic Methods

Using observations to infer developmental changes in ER

- Analogue situations
 - Afford emotional responses observed in standard contexts
 - Allow contrast of situational contexts
- Independent coding of emotion & action
 - Emotion indices (expressions, physiological indices, reports)
 - Actions (strategies, other behaviors)
- Linking codes
 - Temporal sequences
 - Conditional probabilities

Procedures: Analogue Situations (Angry Emotions)

- **Disappointing Gift** (Saarni, 1984; adapted by Cole, 1986)
 - Goal: Receive 1st choice prize
 - Block: E gives last-choice prize
- **Waiting Task** (adapted from Block & Block, 1980; Vaughn et al., 1984)
 - Goal: Open a gift
 - Block: Child must wait until mother completes work
- **Transparent Box Task** (LabTab; Goldsmith & Rothbart, 1996)
 - Goal: Get desired toy
 - Block: Toy in locked box that won't open

Disappointing Gift

- In advance
 - E1 tells child about earning a prize for doing some work
 - E1 helps child rank 8 prizes, 2 of which are broken
 - E1 leaves, E2 comes & does 'work' with child
- Procedure
 - E2 leaves to get prize, returns w/ prize hidden in hand
 - E2 remains for 30-60 seconds, then leaves
 - Child alone for 30-60 seconds
 - E1 returns, interviews child about prize

Disappointing Gift

**LOW RISK GIRL-
MASKING WITH
E PRESENT**

030 11 54

Waiting Task

- In advance:
 - Mother instructed, shown materials (without child present)
- Procedure:
 - Mother given work to do (questionnaires)
 - Child given one boring toy
 - Child shown wrapped gift “for you”
 - Mother tells child “you have to wait until I finish my work”
- 8 minute procedure

Waiting Task



Transparent Box Task

- In advance
 - Child selects desired toy 'to take home' from set of 3
- Procedure
 - E puts toy in box, locks box
 - Child taught to open box with key
 - E puts toy in box, locks box again
 - E leaves child, child told to 'use key to open box'
- 3-5 minute procedure

Transparent Box Task



Generating Variables: Micro Coding

Temporal & Relational Codes

- Time-sensitive coding of emotion expressions or other indices
- Independent coding of actions in same time frames
- Creation of temporal variables, such as
 - latency to 1st bout
 - average bout duration
- Creation of relational variables
 - Temporal sequences (emotion A, emotion B, emotion A)
 - Conditional variables (likelihood of emotion A if action X observed, likelihood of action X if emotion A occurred)

Illustrations from the Development of Toddlers Study

- 120 children followed from ages 18 → 48 months
- 4 home visits
 - Ages 18, 30, 36, & 42 months
 - Naturalistic observations
- 4 lab visits
 - Ages 18, 24, 36, & 48 months
 - Standardized observations using challenging tasks

Generating Variables: Global Coding Contextual Variables

Example: Assessing child's behavior relative to future developmental standard

Developmental standard

being sufficiently able to manage ordinary frustrations & disappointments well enough to be able to learn and to get along with others in full day school program

(Blair, 2002; Denham, 2006; Fantuzzo et al., 2006)

Coding using developmental standard

Predominant emotional tone during each challenge (2)

Calm (neutral, happy, content)

Distressed (angry, sad)

Overall quality of action relative to developmental standard (3)

On task – acts according to developmental standard

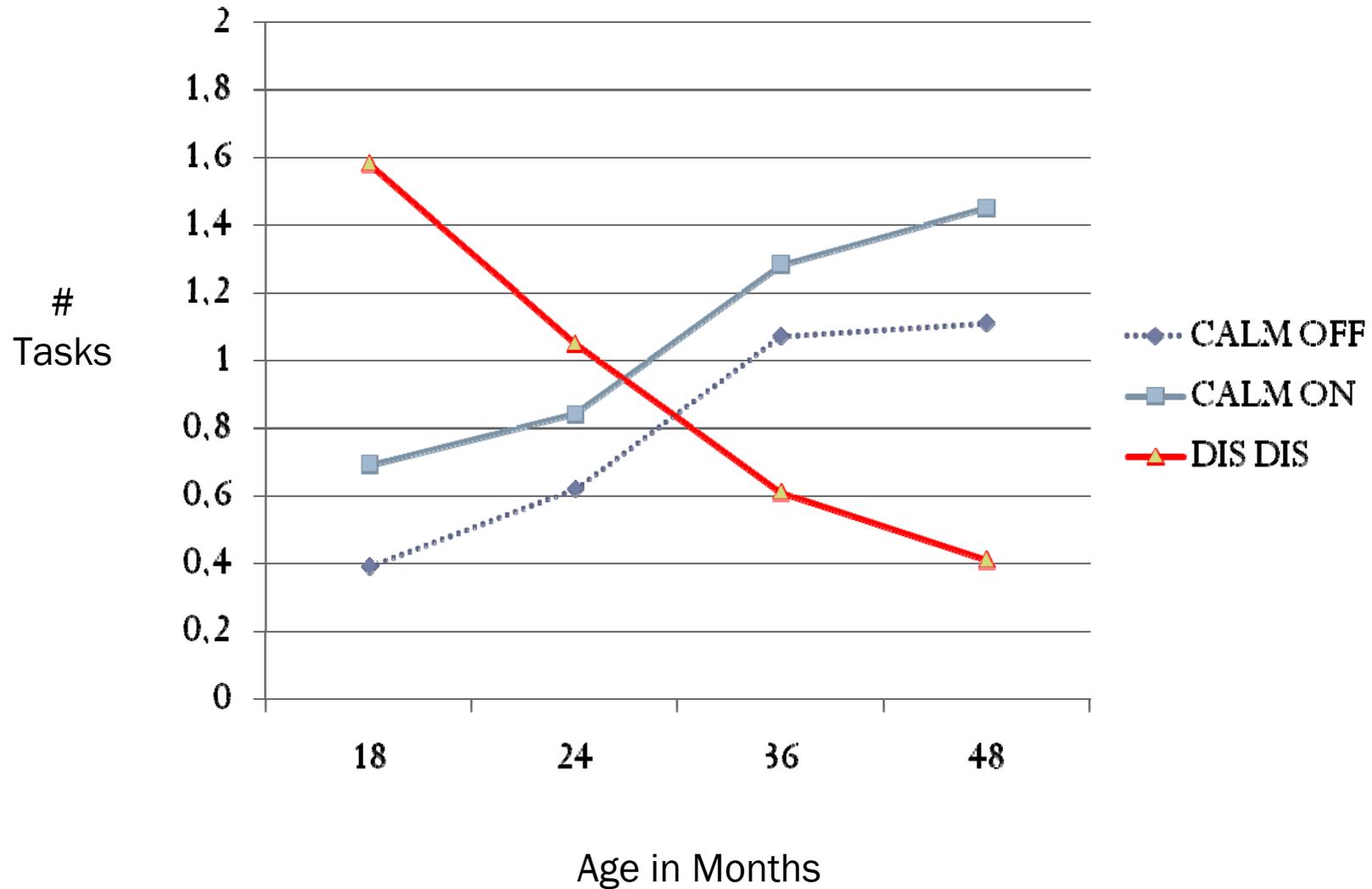
Disruptive – acts in ways that are socially inappropriate by standard
(e.g., tries to tear mother's papers during wait)

Off task – action is appropriate but does not achieve developmental standard

Does overall quality of ER change over early childhood relative to developmental standard?

OF COURSE

Age-related changes in ER relative to developmental standard



What is the nature of those changes?

Scenes from the wait task

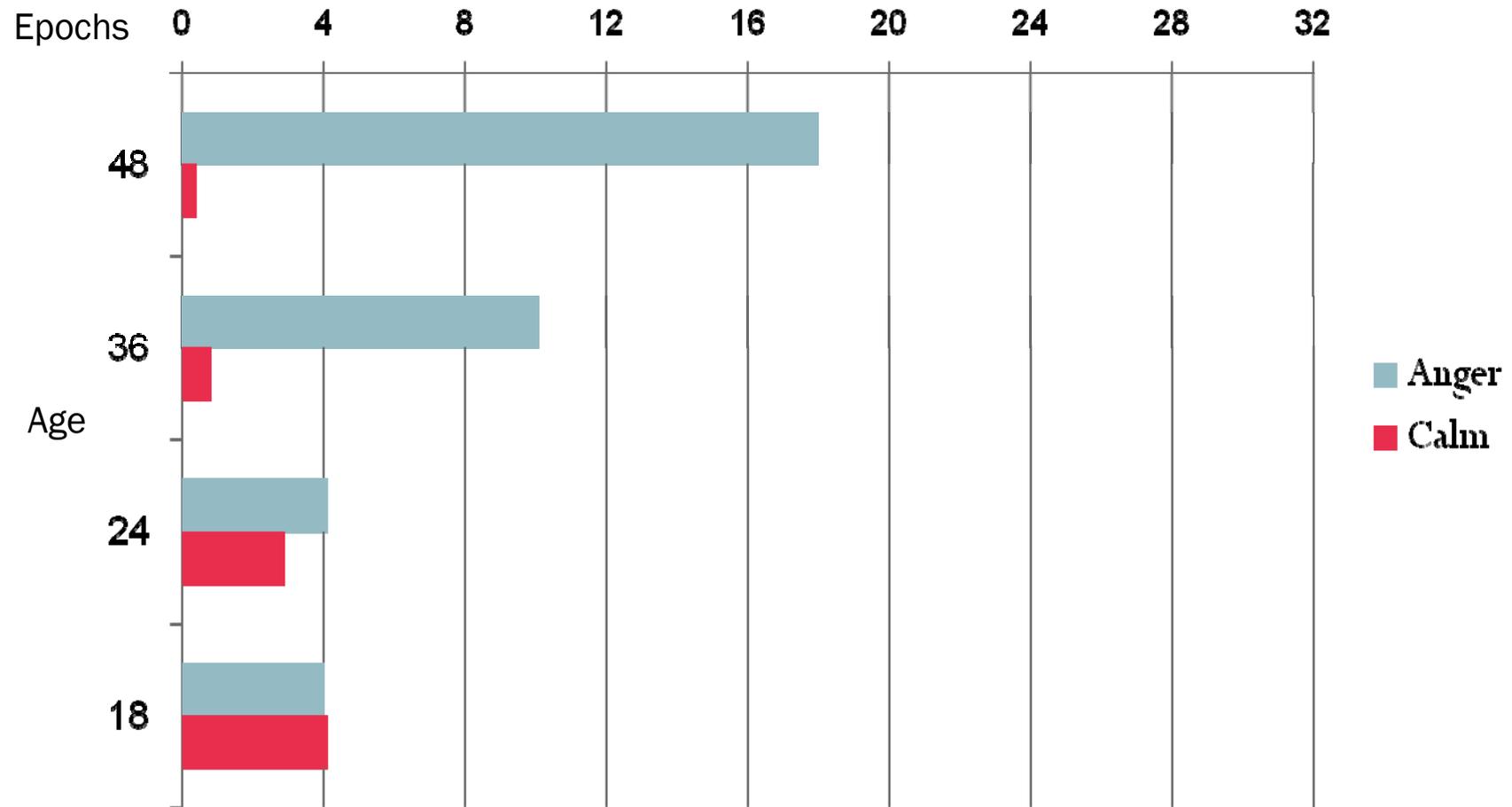
With age:

- Do children simply stop caring about not having the gift?
- Or are they increasingly able to deal with the wait without getting palpably angry?
- Or do they get angry but manage the anger such that anger bouts get briefer?
- Or is not that anger bouts get briefer but calm periods get longer and therefore anger bouts decrease in number?

DIFFERENT IMPLICATIONS FOR INTERVENTION

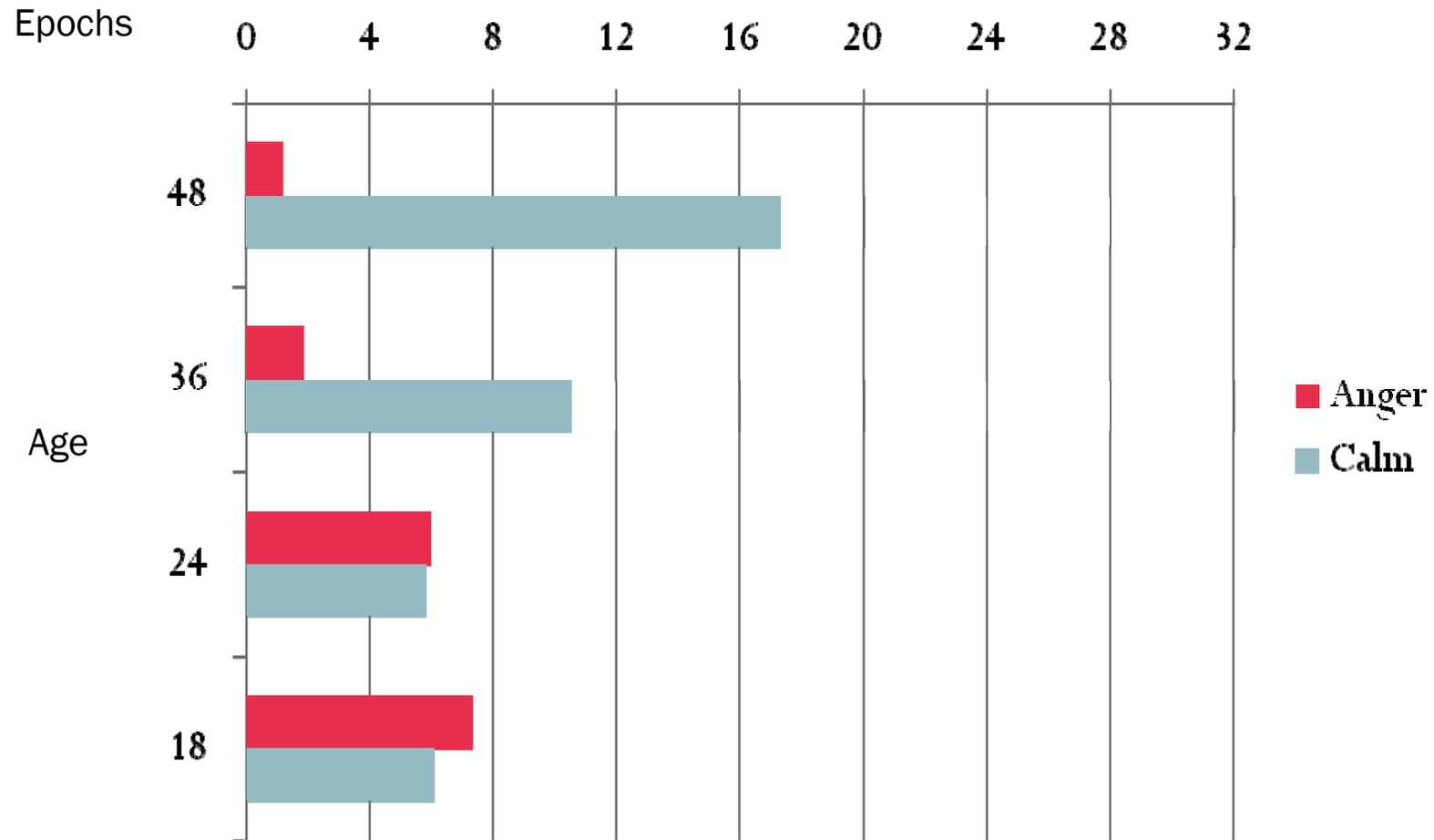
Temporal data:

Age related changes in latency to calm & angry



Temporal data:

Average duration of calm & angry periods



Summary

Age-related changes in emotion expression

1. Decrease in total time angry $18 > 24 > 36 > 48$
(not shown)
2. Decrease in duration of angry bouts $18 = 24 > 36 = 48$
3. Increase in latency to anger $18 = 24 < 36 < 48$
4. Parallel changes in calm periods
(not shown)

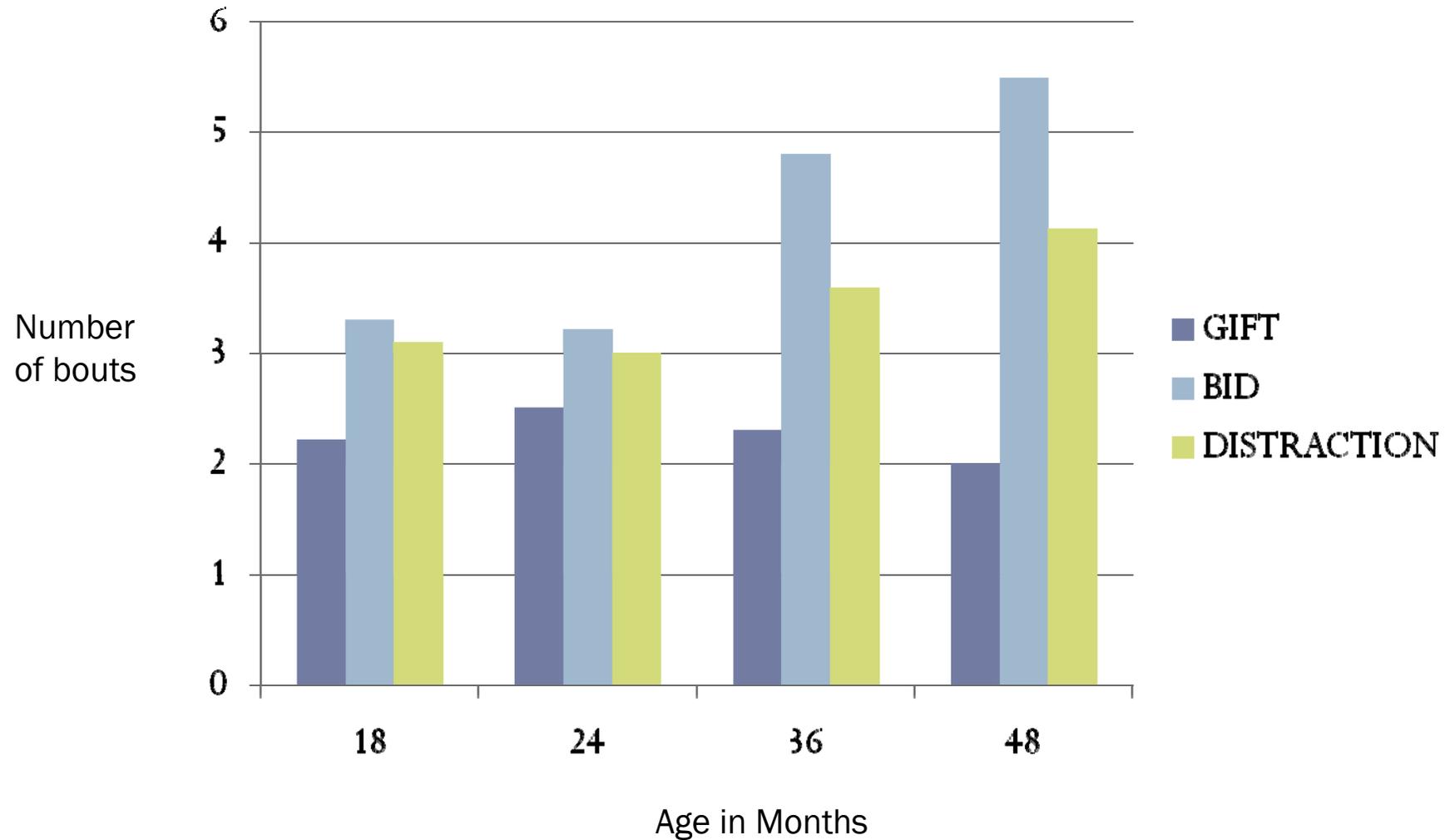
Are there age-related changes in children's actions? More scenes from the wait task

With age:

- Do children spend less time focused on trying to have the gift?
- Do they engage in putative strategies?
 - getting absorbed in alternative, appropriate activity (focused distraction)
- Do their bids to mother change in function?

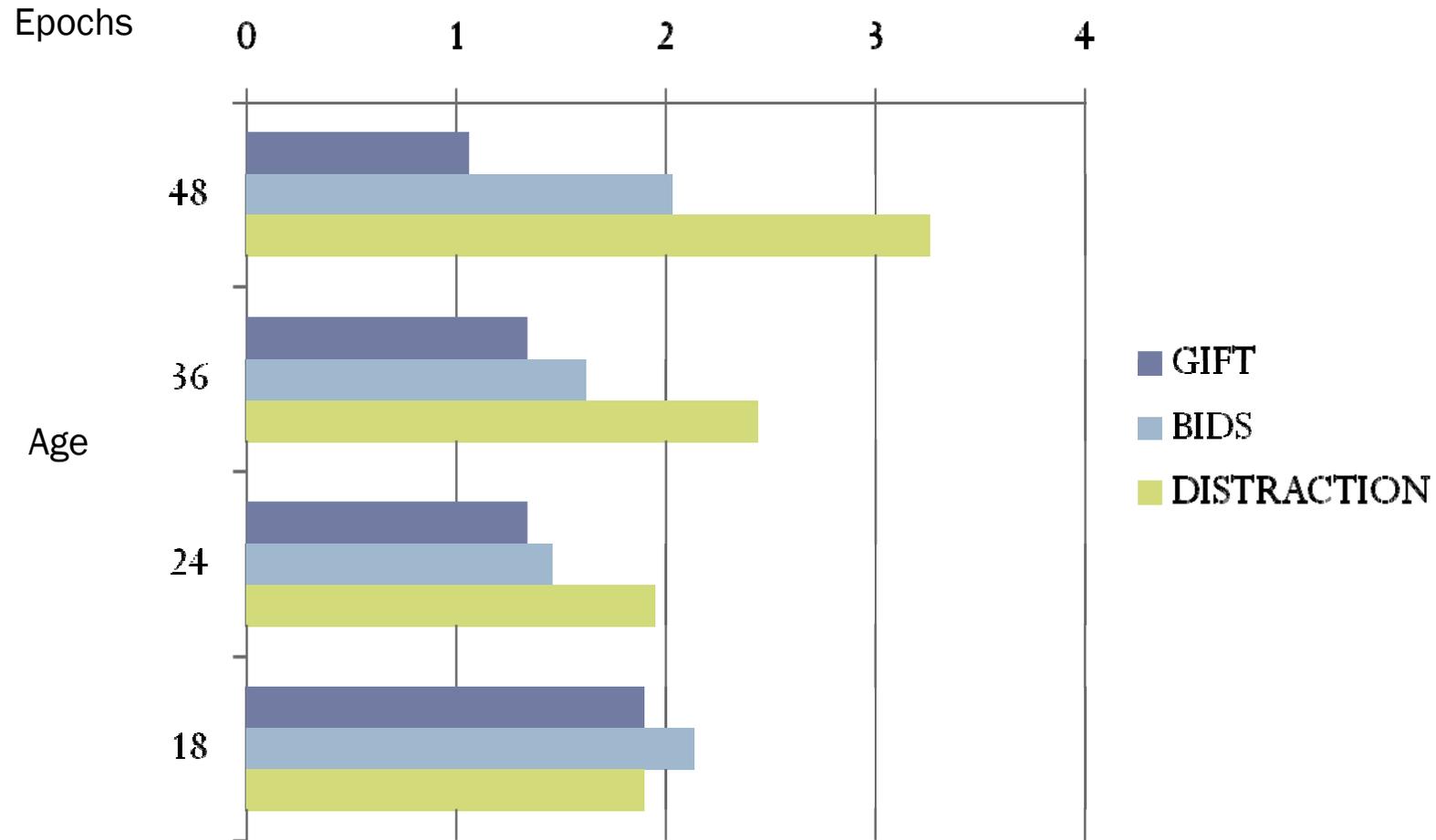
Temporal data:

Frequency of 3 child actions



Temporal data:

Average duration of 3 child actions



Summary

Age-related changes in actions during wait

1. Focus on gift: peaks at 24
slight linear decrease 24 to 48 $18 < 24 > 36 > 48$
2. Bids: increase between 24 & 36 $18 = 24 < 36 = 48$
3. Focused distraction: increase at 48 $18 = 24 = 36 < 48$

Are age-related changes in children's actions associated with age-related changes in emotion?

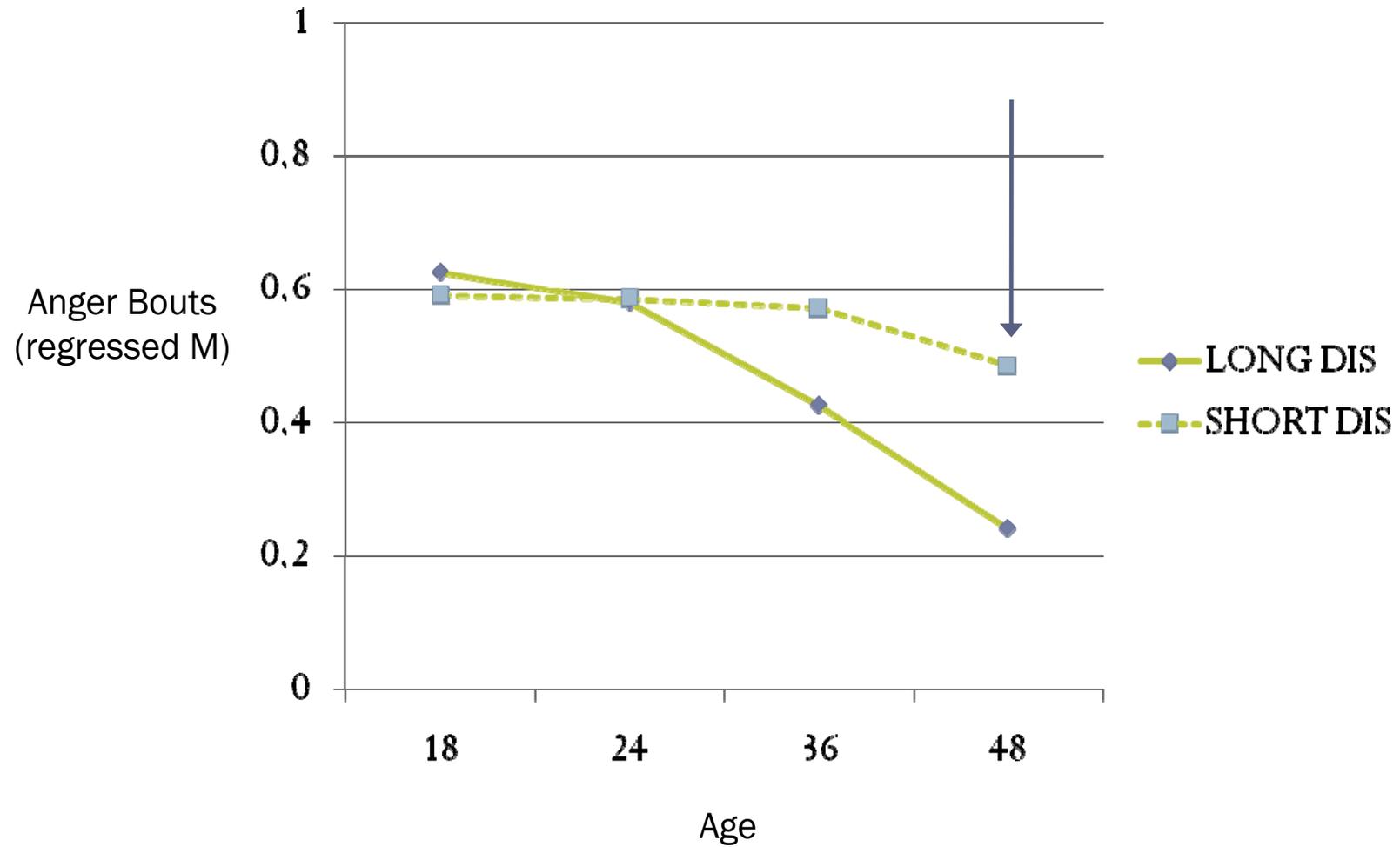
With age:

- Is anger less frequent, briefer, or delayed because children:
 - are less interested in the gift?
 - use a putative regulatory strategy more often (get absorbed in an alternative, appropriate activity, i.e. focused self-distraction)?
 - rely more on mother to support self-regulation than to support getting the gift?

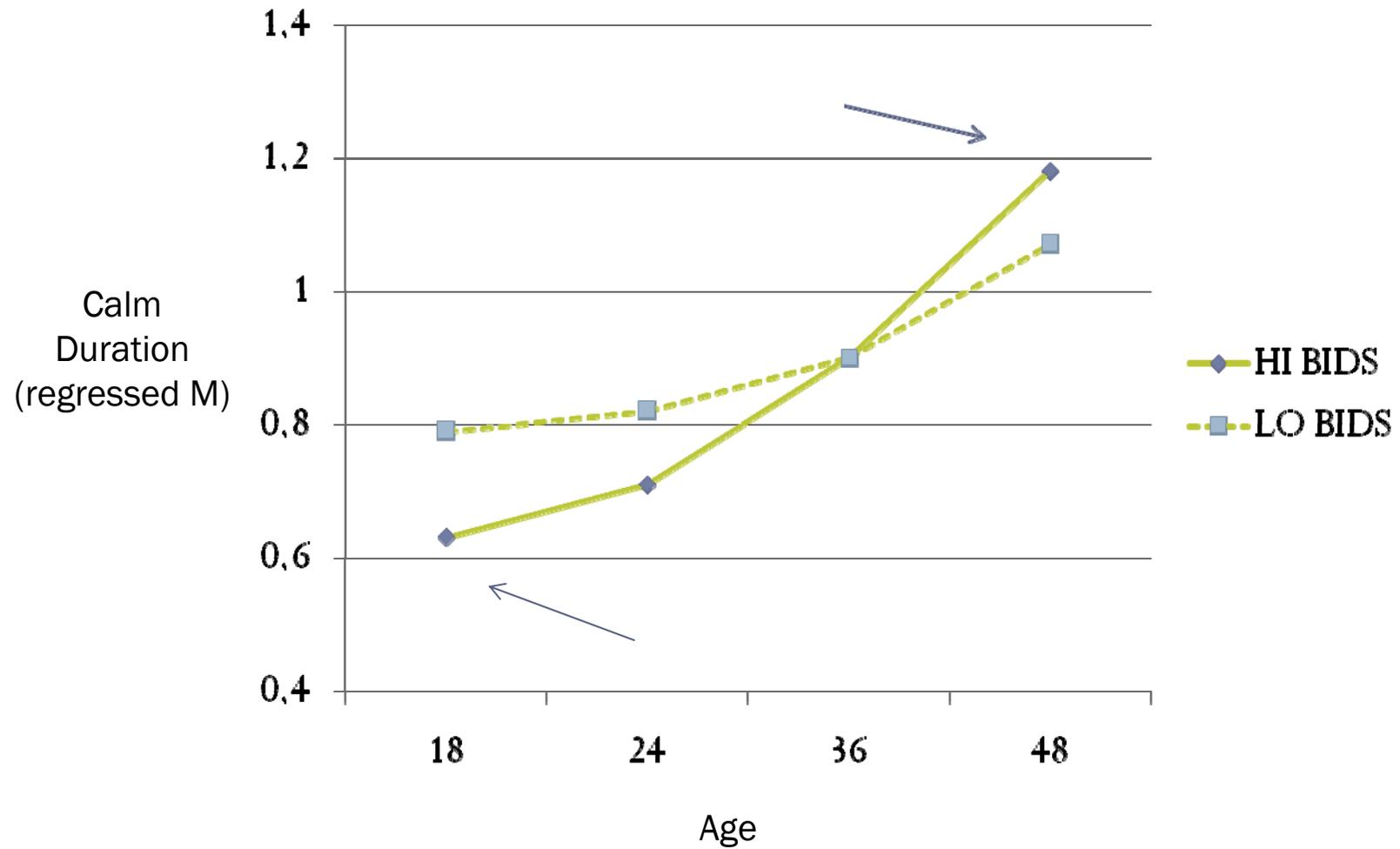
Associated age-related changes in action & in emotion

- | | | | |
|----|--|---|--------------------|
| 1. |  focused distraction |  calm duration | at ALL ages |
| 2. |  bids to mother |  # anger bouts | at ALL ages |
| 3. |  focused distraction duration |  anger bouts | only at 48 |
| 4. |  bids to mother |  calm duration | 18 & 24 |
| | |  calm duration | 36 & 48 |

Duration of focused distractions * anger bouts

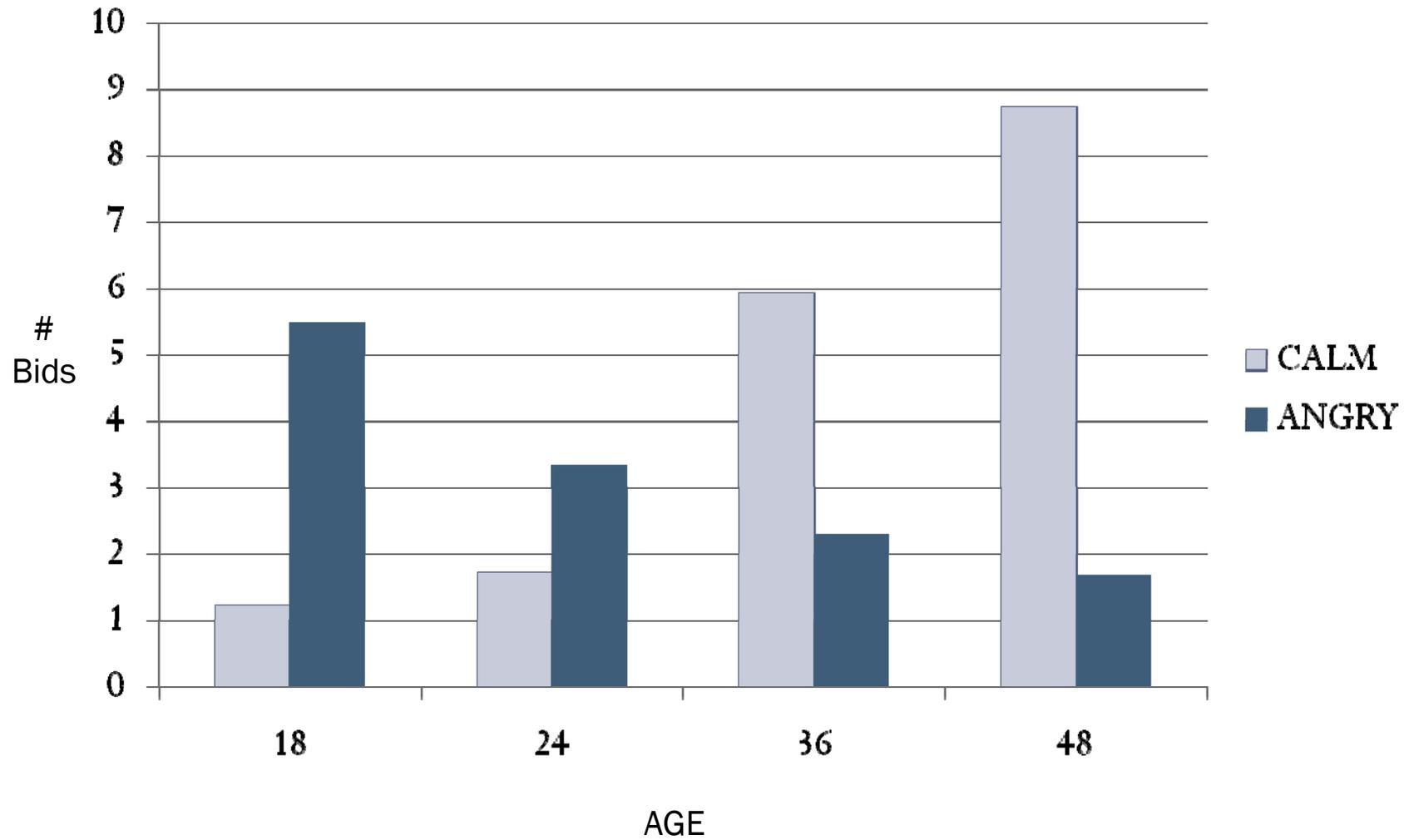


Frequency of bids * duration of calm bouts



Conditional variables:

Age related changes in calm & angry bids



Summary

- Contextual Data (Developmental Standard)
 - Shift between ages 2 & 3 years, on average
 - At 18 & 24 months, likelihood of becoming predominantly distressed and disruptive highest
 - At 36 & 48 months, likelihood is greater of being calm & behaving according to developmental standard for specific tasks
 - Seeming improvement in skill between 36 & 48 months of age

Summary

- **Temporal Data**

- With age, children become progressively less angry
- Nature of change depends on age:
 - Briefer duration of anger, increased bids to mother (24 > 36)
 - Longer latency to anger, increased self-distraction (24 < 36 < 48 months)
- Self-distraction is associated with longer initial and later periods of calm at all ages; by 48 months, with fewer anger bouts

Summary

Conditional data

- Function of bids to mother changes
 - Toddlers are angry when bidding; the more angry, the more bids perhaps; the more bids, the longer the anger
 - Typical emotional tone of bids shifts between 36 & 48 months (calm > angry)
 - By age 48 months, children's bids promote longer calm periods (perhaps when self-distraction is hard to sustain)

Future Directions

- Survival analyses: predicting 'life' or 'mortality' of an emotion, action, or conditional pairing
- Hidden markov modeling: using multiple codes to characterize individual or dyadic behaviors
- Cluster analyses: grouping codes to characterize individual differences
- Second-by-second coding
- Linking developmental changes in ER to cognitive development, including role of parenting