


**Social Cognition and  
Child Physical Abuse Risk:  
Research Updates and Future Directions**

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### What is child physical abuse?

- Child physical abuse is any action committed by a caregiver that involves the intentional use of physical force against a child that results in, or has the potential to result in, physical injury.



### Theories of CPA

- Psychological
  - Depression, psychosis
- Sociological
  - Stress, isolation, poverty
- Interactional
  - Parent-child interaction
- Social Cognitive/Information Processing
  - Focuses on the parent and incorporates factors within and outside of the parent

### Social Information Processing Model (Milner, 1994)

- High risk parents process social information in a manner that increases their risk of aggressive and abusive parenting behavior.
  - Components of the model include:
    - Pre-existing schemata
      - Perceptions
      - Interpretations and evaluations
      - Information integration and response selection
      - Response implementation and monitoring
    - Automatic and controlled processing
    - Other processing components

### Measures

- Child Abuse Potential (CAP) Inventory
  - Milner, 1986
  - The CAP Inventory is a 160-item, agree-disagree, self report questionnaire designed to screen for CPA risk
  - Scores range from 0 to 486
  - Clinical cut score is 215

### Social Cognition and CPA risk...

- Most of the early social cognitive research in family violence utilized self report measures of key constructs (e.g., interpretations, attributions, evaluations, behavior)
- Alternate methodologies are needed to assess implicit processes:
  - Cued Recall task
  - Supraliminal and subliminal priming techniques
  - Evaluative priming paradigm

## Social Information Processing Model

- Components of the model include:
  - Pre-existing schemata
  - **Perceptions**
  - Interpretations and evaluations
  - Information integration and response selection
  - Response implementation and monitoring

## SIP Model: Encoding

- Encoding proposition:
  - High risk parents are more likely to encode ambiguous social behavior in negative/hostile terms.
  - Cued recall task (Crouch, Milner, Skowronski, Farc, Irwin, & Neese, 2010):
    - Parents were instructed to memorize 20 sentences that described ambiguous caregiving situations.
      - "Please read each sentence that appears on the screen. Try to remember as much as you can of each sentence."

Hannah slapped her hand on the tray as her mother fed her.

Riley kicked his legs as his mother changed his diaper.

## SIP Model: Encoding

- Recall Instruction:
  - "Please recall as many and as much of each of the sentences you saw earlier. Below is a list of words that were **not** used in the sentences but which may help you recall the sentences. Following each word, write down any sentences or parts of sentences that come to mind. Try to remember as much as you can."
- Cue Words
  - Negative: uncooperative, difficult, irritable, negative, hostile, unfriendly
  - Positive: peaceful, accepting, loving, happy, sweet, friendly
- According to the cued-recall paradigm, to the extent that recall is facilitated by cues, it can be inferred that cue meaning was activated when the ambiguous sentences were encoded.

## SIP Model: Encoding

Table 1  
Mean (SE) recall scores for low and high CPA-risk parents by cues type.

Cue Type	CPA-risk Status		F(1,62)
	Low (n = 41)	High (n = 25)	
Negative Cues	6.81 (0.60)	7.75 (0.79)	0.83
Positive Cues	4.47 (0.53)	3.11 (0.70)	2.14*
Difference score	2.34 (0.66)	4.64 (0.87)	4.03*

\* p = .075, \* p < .05

## SIP Model: Encoding

- All parents tended to encode information about the ambiguous caregiving scenarios in more negative, relative to positive, terms.
- This difference was significantly greater in high, compared to low, CPA risk parents.
- Among high CPA risk parents, the relative lack of encoding in positive terms suggests that high CPA risk parents may have difficulty generating positive/benign interpretations in caregiving contexts.

## Social Information Processing Model

- Components of the model include:
  - Pre-existing schemata
  - Perceptions
  - Interpretations and evaluations
  - Information integration and response selection
  - Response implementation and monitoring

## SIP Model: Interpretations

- Interpretation proposition:
  - High risk parents are more likely to interpret ambiguous social behavior in negative/hostile terms.
  - Priming task (Farc, Crouch, Skowronski, & Milner, 2009):
    - Parents were primed with negative/neutral word sets and asked to rate ambiguous photos of children.

## SIP Model: Interpretations

- Parents were primed supraliminally or subliminally with either negative or neutral words.
  - Supraliminal priming:
    - Scrambled sentence task: Select three words from a list of four words to form a sentence.
      - Neutral: he away is present -> He is away
      - Negative: child the slap whip -> Slap the child
  - Subliminal priming:
    - Vigilance task: Participants were instructed to focus on a fixation cross in the middle of the screen; words were presented in the parafoveal region for 80 ms

## SIP Model: Interpretations

- Following the priming procedures, parents were asked to rate ambiguous child pictures on nine traits
  - hostile, negative, difficult,
  - friendly, cooperative, sweet,
  - content, lively, attached.
- Trait ratings were made on a 10-point scale, ranging from 1 (*not at all*) to 10 (*extremely likely*).



## SIP Model: Interpretations

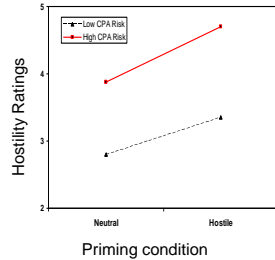
Hostility ratings varied by:

➤ CPA risk:

$F(1,84) = 4.81, p < .05$

➤ Hostile priming:

$F(1,84) = 9.03, p < .01$



## SIP Model: Interpretations

- High, compared to low, CPA risk parents rated ambiguous child pictures as more hostile.
- Exposure to hostility-related words independently increased hostile ratings.
- Chronic and temporary activation of hostile schema was additive.

## Social Information Processing Model

- Components of the model include:
  - Pre-existing schemata
  - Perceptions
  - Interpretations and **evaluations**
  - Information integration and response selection
  - Response implementation and monitoring

## SIP Model: Evaluations

- Evaluation Proposition
  - High, compared to low, CPA risk parents evaluation stimuli associated with children more negatively.
  - Evaluative Priming Task (Risser, Skworonski, & Crouch, 2011)
    - Parents complete a series of reaction time trials in which a photo (either child or adult) is followed by either a positive or negative adjective.
    - On each trial the parent indicates whether the word presented is a positive or negative adjective.



Pleasant

## SIP Model: Evaluations

- If the evaluation associated with the photo is positive, then responses to positive adjectives will be facilitated.
- If the evaluation associated with the photo is negative, then responses to negative adjectives will be facilitated.

## SIP Model: Evaluations

Table 2

Response latency means (*SDs*) for the standard evaluative priming effect.

Adjective type	Face valence			
	Positive face		Negative face	
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )
Positive adjectives	752.77	(168.39)	810.20	(273.02)
Negative adjectives	807.98	(195.77)	782.66	(213.33)

Note: Parent sample,  $N = 95$ ; Adjective type  $\times$  Face Valence interaction,  $F(2, 180) = 13.85, p < .001, \eta^2 = .113$ . The same pattern was obtained for the undergraduate sample,  $N = 90$ .

## SIP Model: Evaluations

Table 1

Response latency means (*SDs*) for the adjective valence by face type.

Adjective type	Face Valence			
	Adult face		Child face	
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )
Positive adjectives	760.57	(181.93)	783.17	(205.59)
Negative adjectives	815.26	(221.40)	786.09	(211.03)

Note: Parent sample,  $N = 95$ ; Adjective type  $\times$  Face Valence interaction,  $F(1, 90) = 4.14, p < .045, \eta^2 = .044$ . The same pattern was obtained for the undergraduate sample,  $N = 90, F(1, 86) = 7.32, p < .01, \eta^2 = .078$ .

## SIP Model: Evaluations

- Negative attitudes associated with child stimuli were evident regardless of parenting experience (i.e., appeared in both the undergraduate and parent samples).
- These negative child-related attitudes did NOT vary by the extent to which the parent was at risk for problems in parenting.

## SIP Model: Evaluations

- Negative evaluative reactions to children, but not adults, may be construed as an “out-group” bias.
- Behavioral manifestations of out-group bias depend on a number of other personality factors
  - Empathy, negative affect, differentiation of self may moderate association between out-group bias and aggressive behavior
    - Out-group bias + low empathy = aggression
    - Out-group bias + high empathy = compassion

## SIP Model: Evaluations

- Although both high and low CPA risk parents may experience implicit negative evaluative reactions toward children, they may differ in how they manage such reactions.
  - Low CPA risk parents may switch their attention to positive or benign aspects of the situation, thus preventing escalation of negativity.

## SIP Model: Other components

- Attentional control
  - Proposition: High, compared to low, CPA risk parents exhibit lower levels of attentional control.
    - Stroop task
    - Attentional control self report
    - Attention network task
    - Dot Probe task (attentional bias)

## SIP Model: Attentional control

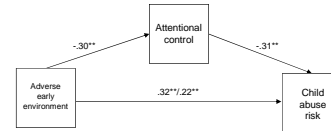


Figure 1

Standardized weights for the final model examining attentional control as a mediator of the relationship between adverse early environment and child abuse risk. \*\*  $p < .01$ .

## Summary

- Negative evaluative reactions to child-related stimuli appears to be fairly universal.
- High CPA risk parents may lack mechanisms (e.g., attentional control, empathy) to override initial negative evaluative biases.
- As a result, high CPA risk parents are more likely to encode and interpret child-related stimuli in more negative/less positive terms.

## Limitations

- The extent to which these findings generalize to more dynamic interpersonal interactions is not clear.
- In order to advance our understanding of the role of implicit processes in CPA risk we need to examine how these processes unfold in the context of interpersonal exchanges that involve the potential for aggressive behavior.

## Laboratory-induced aggression paradigms

- Taylor Aggression Paradigm
  - Taylor, 1967
  - Participants are told they are competing in a reaction time task.
  - The player who is slower to release the reaction time key is the "loser."
  - The "winner" gets to select a punishment (e.g., shock, sound blast) to be inflicted on the loser.
  - Game was preprogrammed and there was not really an "opponent" playing

## Taylor Aggression Paradigm

- Levels of aggressive behavior observed in the TAP are significantly associated with:
  - self report of physical and verbal aggression (Giancola & Parrott, 2008)
  - self report of hostility and anger (Giancola & Parrott, 2008)
  - level of provocation from opponent (Taylor, 1967)
  - hostile and instrumental motives for aggression (Anderson, Buckley, & Carnagey, 2008)

## An idea...

- The TAP uses a reaction time task as the basis for the competitive interaction
  - However, the response latencies are not assessed.
- Common measures of implicit processes (e.g., lexical decision making, evaluative priming) are based on reaction times – but these tasks are not embedded in an interpersonal context.
- Could procedures used to measure implicit processes (e.g., lexical decision trials) be used to measure implicit processes during a competitive reaction time task?

## The *Word Game*...

- The *Word Game* is a variant of the TAP
  - The reaction time task involves a series of lexical decision making trials.
  - After a round (12 turns) of lexical decision making trials, a winner is declared.
  - The loser receives a sound blast, the level of which is determined by the winner

## The *Word Game*...

- The words used in the lexical decision making trials are used to establish the accessibility of aggression-related constructs (e.g., negativity).
- As the game proceeds, it is possible to assess over the course of the interaction:
  - how aggressively the participant behaves
  - how construct accessibility changes

## The game...

Positive Round:

Sound blast selection	ofig	nice	ihon	other	few	kuoi	from	kind	nho	hug	fkra	the	You win! -or- You lose!	Sound blast delivered
	1	2	3	4	5	6	7	8	9	10	11	12		
Reaction Time Trials (12 turns)													Feed back	

## The game...

Negative Round:

Sound blast selection	ofig	some	ihon	hate	few	mean	what	kuoi	nho	from	fkra	hit	You win! -or- You lose!	Sound blast delivered
	1	2	3	4	5	6	7	8	9	10	11	12		
Reaction Time Trials (12 turns)													Feed back	

## The game...

- Participants are told that they are playing a game against another person; however, the game is actually preprogrammed and there is no opponent.
- For each turn, participants need to decide if a letter string is a word or a non-word.
- The winner of the turn is the person who makes the correct response (word/non-word); if both players make the correct response the faster respondent is deemed the winner.

## Questions...

- If lexical decision making trials are embedded in a competitive reaction time task are reaction times still sufficiently sensitive to discern changes in schema accessibility?
- Does embedding the reaction time trials in the context of lexical decision making trials interfere with the provocation effects evidenced in the TAP?

## Hypotheses

- All participants would evince higher sound blast selections as their opponent became more provocative.
- High, compared to low risk, parents would:
  - Evince higher initial sound blast selections.
  - Select higher sound blasts on average.
  - Respond faster to negative words and slower to positive words following lost (compared to won) rounds.
  - Rate their opponent as engaging in more aggressive motives.
  - Report engaging in more aggressive motives.

## Future directions

- Varying the parameters of the *Word Game* will allow additional questions to be addressed:
  - Vary sound blast selections made by opponent so they appear less clearly provocative and more ambiguous
  - Vary the win/loss ratio to increase or decrease perceived threat or frustration
  - Change target words to examine accessibility of other constructs.
  - Utilize other reaction time tasks to assess other aspects of information processing (e.g., attentional bias) over the course of the interaction.

Questions???

## Measures

- Motives Survey
  - Anderson & Murphy, 2003
  - Designed to assess motives related to sound blast selections
  - Responses range from 1 (not true) to 6 (very true)
  - Six items ask about participant's motives and six items as ask about perceive motives of opponent
    - I wanted to make my opponent mad.
    - My opponent wanted to make me mad.



## Measures

- Stimulus Word Sets
  - Target words in the lexical decision making trials consisted of 10 positive/neutral/negative words
    - Positive: positive, playful, peace, happy, sweet, love, care, nice, kind, and hug
    - Negative: negative, hostile, enemy, angry, spank, hate, mean, slap, kick, and hit
    - Neutral: something, number, other, every, small, long, what, many, from, and the

## Participants

- 50 low and 20 high CPA risk parents
  - Mean CAP scores:
    - Low CPA risk group,  $M = 83.8$ ,  $SD = 44.8$
    - High CPA risk group,  $M = 284.7$ ,  $SD = 47.9$
  - CPA risk groups did not differ with respect to gender, race, marital status, age, highest grade completed, or number of children ( $p$ 's > .05)

## The game...

- Each round of the game consisted of twelve turns.
- At the beginning of each round, the players were instructed to select a sound blast level to be heard by their opponent if the opponent lost the round.
  - Sound blast levels ranged from 1 (50 db) to 9 (90 db)
    - 0 was included as a "no sound blast" option
  - Sound blasts were delivered via head phones

## The game...

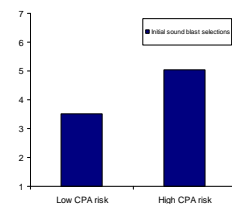
- Each game consisted of 24 rounds
  - 12 turns per round
- Half the rounds were positive/negative
- Half the rounds were won/lost
- Sound blast levels heard by participant were predetermined:
  - Rounds 1-8: sound blast levels 2's and 3's
  - Rounds 9-16: sound blast levels 5's and 6's
  - Rounds 17-24: sound blast levels 7's and 8's

## Results

- Respondents were asked to indicate whether they thought the opponent was male/female and to estimate their age:
  - 55.7% thought opponent was female.
  - 60% thought opponent was 20-30 years old
    - 10% said less than 20
    - 30% said older than 30 years old
  - Perceived gender and age of opponent did not vary by CPA risk status, nor were these variables associated with mean sound blast selections.

## Results

- Sound blast selections
  - Initial sound blast selection
    - High CPA risk parents selected higher initial sound blasts than low CPA risk parents,  $t(68) = 2.59$ ,  $p = .012$

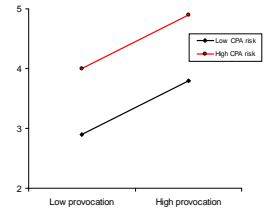


## Results

- Mean sound blast selections
  - 2 (CPA risk: low, high) x 2 (Provocation: low, high) x 2 (Word type: positive, negative) x 2 (Outcome: won, lost) ANOVA with repeated measures on the last three factors.

## Results

- Mean sound blast selections:
  - Provocation effect:
    - $F(1, 68) = 24.52, p < .001, \eta_p^2 = .265$
  - CPA risk effect:
    - $F(1, 68) = 5.64, p = .020, \eta_p^2 = .077$



## Results

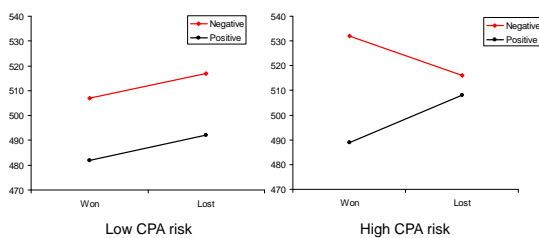
- Response latency data
  - 2 (CPA risk: low, high) x 2 (Provocation: low, high) x 2 (Word type: positive, negative) x 2 (Outcome: won, lost) ANOVA with repeated measures on the last three factors.

## Results

- Response latency results:
  - CPA risk by word type by outcome,
    - $F(1, 68) = 5.24, p = .025, \eta_p^2 = .071$
  - Word type by outcome,
    - Low CPA risk,  $F(1, 49) = 0.01, p = .927, \eta_p^2 < .001$
    - High CPA risk,  $F(1, 19) = 4.69, p = .043, \eta_p^2 = .198$

## Results

CPA risk by word type by outcome:



## Results

- Motives data
  - 2 (CPA risk: low, high) x 2 (person: self, other) x 6 (motive items: items 1 to 6) ANOVA, with repeated measures on the last two variables

## Results

### ■ CPA risk x Person:

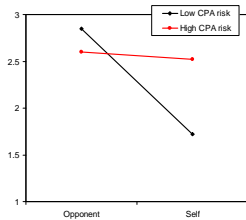
- $F(1, 68) = 15.42, p < .001, \eta_p^2 = .185$

#### ■ Self motives:

- CPA risk,  $F(1, 68) = 7.94, p = .006, \eta_p^2 = .105$

#### □ Opponent motives:

- CPA risk, ns



## Discussion

- Results of the preliminary study support the utility of the *Word Game* as a procedure for assessing both aggressive behavior and implicit processes during interpersonal exchanges in the laboratory.

## Discussion

### ■ To recapitulate,

- The expected provocation effects were obtained.
- CPA risk group differences in aggressive behavior and hostile motives were observed in this task.
- Schema accessibility varied as expected, indicating that the lexical decision making task remained sensitive to shifts in schema accessibility despite being embedded in a competitive task.

## Limitations

- Parents were not playing against children in this study, so the extent to which these findings generalize to interactions with children remains to be addressed.
- Only positive and negative schema accessibility were examined in this study. Future research should examine other schema thought to be associated with aggressive behavior (e.g., power, control, threat).
- Motives were assessed only after completion of the game, so reverse causal interpretations cannot be ruled out.

## Contact information

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