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Maltreated and nonmaltreated children's evaluations of emotional fantasy[★]

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Child abuse and maltreatment; Fantasy-reality distinction; Cognitive development; Mental representation

Introduction

A range of developmental consequences can result following children's exposure to maltreatment (see Cicchetti & Toth, 2003). Typically, consequences reflect delays in cognitive development and poor mental health functioning (e.g., Myers et al., 2002). However, maltreated children sometimes demonstrate superior performance relative to nonmaltreated children when engaged in emotion-relevant tasks (e.g., Pollak & Tolley-Schell, 2003). If maltreated children exhibit cognitive deficits, but strengths in some types of emotional processing, an important question arises as to how maltreated children would respond when given emotionally laden cognitive tasks, that is, tasks in which cognitive judgments may be affected by the emotional content inherent in the tasks. One such task concerns children's ability to discern fantasy and reality for positive and negative information.

Research on typically developing children suggests that, although even young preschoolers can successfully discern fantasy and reality for neutral information, they are often less successful when evaluating emotionally evocative information (Harris, 2000). Directly relevant to the present study, when children view images depicting positive and negative fantastic and real events and report whether the events can occur in real life, they tend to claim that positive events *can* occur and negative events *cannot* occur, regardless of the fantastic or real content (Carrick & Quas, 2006; Samuels & Taylor, 1994). At least two explanations for children's responses have been proposed. First, responses may reflect children's desires for only certain events to occur (Carrick & Quas, 2006; Woolley, 1997). That is, children find the positive events appealing and want them to occur, but perceive the negative events as potentially threatening and consequentially do not want them to occur. Second, children's responses may reflect their prior experiences and knowledge. Specifically, when rendering judgments regarding an event's possibility, children, like adults, rely in part on experiences, knowledge, and expectations (Hudson & Nelson, 1983). Typically developing children are

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often sheltered from negative events by their parents, or at least do not regularly experience such events. As such, they may not have the underlying knowledge and expectation that these events can occur. Also, children and adults exhibit an optimism bias, predicting positive outcomes for themselves and others (Lockhart, Chang, & Story, 2002; Weinstein, 1980). Thus, when considering children's fantasy-reality judgments, it is not surprising that typically developing children tend to report that positive events can occur and negative events cannot.

Unlike typically developing children, maltreated children may not exhibit similar response patterns. Maltreated children are exposed to a greater range of and more frequently to negative events (Margolin & Gordis, 2000), which may lead them to be more willing to endorse the negative events' possibility, regardless of the real or fantastic content (Dalenberg, Hyland, & Cuevas, 2002). Maltreated children also tend to have distinctive biases toward negative emotional information (e.g., anger; Ayoub et al., 2006), which is attributed to their frequent exposure to negative events and need to adapt to hostile and unpredictable environments (Dodge, Pettit, Bates, & Valente, 1995; Rogosch, Cicchetti, Shields, & Toth, 1995). This increased sensitivity may specifically affect their responses when asked about negative events' possibility.

Together, maltreated children's experiences with negative events and attention to negative emotions may lead to differences in their evaluations of real and fantastic negative events relative to those of nonmaltreated children. Specifically, maltreated children may report that negative (i.e., frightening and angry) events can occur more often than do nonmaltreated children, leading to the former's greater accuracy when judging real events but reduced accuracy for fantastic events. Of importance, these differences should emerge with cognitive ability controlled. That is, although maltreated children's general cognitive delays (Myers et al., 2002) should lead to consistently poorer performance on cognitive tasks, their unique reaction and exposure to negative events should lead to their differential performance, specifically for negative emotional information. Such a possibility would provide further support for maltreated children's unique processing of emotional information.

Method

Participants

One hundred forty-five 4- and 5-year olds ($M = 4$ years, 10 months; 54% girls) served as participants. Three groups of children were included (Cicchetti, Rogosch, Maughan, Toth, & Bruce, 2003). A maltreated sample included 50 children (8% Caucasian, 20% African-American, 64% Hispanic, 6% Asian-American, and 2% other) removed from home because of physical or sexual abuse or neglect that was substantiated by social services. Children were recruited from the Juvenile Court of the Los Angeles County Department of Children and Family Services. A low-income (LI) comparison sample included 51 children (41% Caucasian, 6% African-American, 41% Hispanic, 10% Asian-American, and 2% other) recruited from preschools serving low-income families located in neighborhoods demographically similar to those of the maltreated sample. A high-income (HI) comparison sample included 44 children (41% Caucasian, 0% African-American, 12% Hispanic, 45% Asian-American, and 2% other) recruited from preschools serving high-income families. To minimize the inclusion of maltreated children in the comparison samples, comparison children were excluded if a nonparent was their legal guardian ($n = 2$).

Materials

Vocabulary subtest from the Woodcock–Johnson Revised Test of Achievement (Woodcock & Johnson, 1989)—This standardized vocabulary test was included as an

index of verbal ability. The task requires children to label a series of increasingly complex objects.

Fantasy Reality Images Interview—This interview is a modified version of that employed by Samuels and Taylor (1994). Children were shown 24 images, half depicting real events (e.g., children playing) and half depicting fantastic events (e.g., cats talking) (see Appendix A). Within the real and fantastic images, an equal number of images depicted four emotional states: neutral, happiness, fear, and anger. Images were selected via two methods: six images from Samuels and Taylor’s (1994) study were used with the authors’ permission and 18 images were taken from storybooks. To be included, images had to be drawn in a realistic, line drawn style (no cartoons) and could not depict popular characters (e.g., Santa Claus). Fantastic events depicted animals engaged in human activities and humans engaged in fantastic activities, and real events depicted animals and humans engaged in naturalistic activities. Images were copied in black and white. Twenty-five undergraduate students evaluated the images to confirm that they depicted real or fantastic events and the target emotions. Students rated the likelihood that the events could occur on a 5-point scale (*definitely cannot occur* to *definitely can occur*) and identified the target emotion. Mean scores for real events ranged from 4.5 to 4.9 and 1.1 to 1.4 for the fantastic events. The target emotion was correctly identified for all images.

After viewing each image, children were asked: “What do you see in this picture?” “How does this picture make you feel?” (while presented with a face scale depicting five faces—large smiling face to large frowning face—to which children pointed accordingly) and “Can this happen in real life?” Children’s ratings of their emotional reaction to the images were scored on a 1 (more positive) to 5 (more negative) scale. Mean scores were calculated for each emotion separately for real and fantastic events (total of eight scores). Children’s responses to the question, “Can this happen in real life?” were coded as 1 if they correctly replied that real events *can* occur and fantastic events *cannot* occur, or 0 for incorrect responses. Higher scores indicate a greater proportion of correct responses. Mean fantasy-reality distinction scores were calculated for each emotion, separately for real and fantastic events. One frightening real image was excluded from scoring because 13% of the children labeled the depicted man as a monster before hearing the test question.

Procedure

Study procedures were approved by appropriate Institutional Review Boards. Written Judicial permission for the maltreated children and parental consent for the comparison children were obtained. Children were tested individually and their verbal assent was secured. Maltreated children were tested in an area of the courthouse (Shelter Care) designated exclusively for children awaiting court appearances. Shelter Care is isolated from courtrooms and resembles a daycare center, including a playground, arts center, and play area. Children were invited to participate while they were engaged in free play and were tested in a quiet area. All children who were tested had appeared at court before and thus were familiar with Shelter Care and court procedures. Also, children were tested in the morning before they were called for any court-related meetings. Comparison children were also invited to participate while they were engaged in free play and were tested in a quiet area of their school.

Testing began with a researcher administering the vocabulary test. Next, she presented four practice images of the Fantasy Reality Images Interview. Errors on the practice images were corrected. The researcher then presented the 24 test images in succession and asked the three questions. Children who responded, “I don’t know” to the last question were encouraged to pick yes or no. Incorrect answers were not corrected. The order of the images was randomized.

Results

Preliminary analyses revealed that, with verbal ability controlled, age was unrelated to children's fantasy-reality distinction scores or emotional ratings. Thus, age is not considered further. Next, an analysis of variance (ANOVA) revealed that maltreated children ($M= 19.82$) had significantly lower verbal ability scores than did LI ($M= 21.65$) and HI ($M= 22.86$) children, $F(2, 142) = 11.56, p \leq .001$. Children's verbal ability was significantly correlated to several distinction scores (r s ranged from .17 to .35): Greater verbal ability was generally associated with greater accuracy. Verbal ability was not correlated with emotional ratings. Nonetheless, verbal ability was covaried in all analyses. Finally, ethnicity was considered. Children's distinction scores and emotional ratings were entered into separate 4 (Ethnicity: Caucasian, African-American, Hispanic, Asian) \times 2 (Image Type: Reality, Fantasy) \times 4 (Emotion: Neutral, Happy, Frightening, Angry) mixed model analysis of covariance (ANCOVA), verbal ability controlled. No significant effects involving ethnicity emerged.

Maltreated children were expected to perform better than comparison children when evaluating negative *real* images but more poorly on negative *fantastic* images. No group differences were expected in children's evaluations of neutral or happy images. To test these predictions, children's fantasy-reality distinction scores were entered into a 3 (Group: Maltreated, LI, HI) \times 2 (Image Type: Reality, Fantasy) \times 4 (Emotion: Neutral, Happy, Frightening, Angry) mixed model ANCOVA. Group served as a between subjects factor, image type and emotion served as within subject factors. Verbal ability was covaried. A significant three-way interaction emerged, $F(6, 405) = 3.56, p = .002; \eta_p^2 = .05$. Simple effects were conducted to examine the interaction (Table 1).

For images depicting *real* events, as predicted, group differences emerged for frightening and angry events. Pairwise comparisons revealed that maltreated children were more likely than LI ($p = .04$) and HI ($p = .02$) children to accurately report that real frightening events could occur, and more likely than LI children ($p = .007$) to report that real angry events could occur (with a similar trend between maltreated and HI children, $p = .08$). No significant differences emerged for distinctions concerning real neutral and happy events. For images depicting *fantastic* events, significant group differences also emerged, specifically in children's responses to images depicting frightening and neutral events. Pairwise comparisons revealed that maltreated children were more likely than HI children ($p = .01$) to incorrectly report that fantastic frightening events could occur. Maltreated children also provided fewer correct responses than LI children, but differences were not significant. Also, and somewhat surprisingly, HI children were more likely than maltreated ($p = .027$) and LI children ($p = .006$) to report that fantastic neutral events could not occur. No group differences emerged for fantastic happy and angry events.

To examine whether the aforementioned findings were due to variability across the group's emotional reactions to the images, children's mean emotional rating scores were entered into a 3 (Group) \times 2 (Image Type) \times 4 (Emotion) mixed model ANCOVA with verbal ability covaried. No significant group differences emerged, indicating that children across groups did not systematically differ in their emotional reactions to the images. However, a significant main effect of emotion emerged, $F(3, 399) = 2.28, p = .039; \eta_p^2 = .02$. Children reacted differently across emotions. Pairwise comparisons revealed that children rated happy images ($M= 2.11$) more positively than the others, and frightening ($M= 3.80$) and angry images ($M= 3.60$) more negatively than neutral images ($M= 2.32$). Children rated frightening and angry images as comparably negative, all p s $\leq .004$.

Discussion

The present study compared maltreated and nonmaltreated children's ability to discern emotional fantasy and reality. Previous research indicates that nonmaltreated children show a bias to report that fantastic and real positive events *can* occur and negative events *cannot* occur (Carrick & Quas, 2006; Samuels & Taylor, 1994). The present study provides preliminary evidence that maltreated children may not exhibit the same response bias. Maltreated children were more likely to correctly report that negative *real* events could occur but more likely to incorrectly report that frightening *fantastic* events could occur. No differences among groups emerged for happy events, but maltreated and LI children compared to HI children were more likely to report that fantastic neutral events could occur. Of importance, analyses controlled for verbal ability. Had general cognitive impairment accounted for findings, maltreated children should have performed worse across all images, regardless of emotional content. Also, the fact that LI and HI children's judgments rarely differed (except for neutral fantastic events) suggests that some facet of maltreated children's experiences per se rather than socio-demographic characteristics common to maltreated samples (e.g., low socio-economic status) likely led to group differences in judgment.

Maltreated children's response pattern may reflect their increased knowledge that negative events can occur. They have most likely witnessed negative events and formed representations that include frightening and angry events, at least to a greater extent than have nonmaltreated children. Furthermore, when negative events arise, maltreated children likely do not benefit from having parents who actively attempt to mediate the effects of exposure to negative events. That is, nonmaltreating parents usually facilitate their children's coping with negative events (Saarni, Campos, Camras., & Witherington, 2006). In contrast, maltreating parents may be dealing with their own experiences of violence, lack the skills to help their children, or neglect them (Rogosch et al., 1995), affecting their children's ability to regulate responses to and possibly experiences while viewing negative events.

Parental strategies when discussing negative information in stories may also vary between families with and without a history of maltreatment. For instance, when exposed to negative information, nonmaltreating parents may direct children's attention away from the information, which for negative fantasy may include explicitly telling children that the events cannot occur. Anecdotal evidence from Fivush, Berlin, Sales, Mennuti-Washburn, and Cassidy (2003) provides some support for this interpretation. The authors note that, when discussing fantasy, several parents told children entities such as monsters were not real to regulate children's reactions. Whether maltreating parents also use this strategy is unknown; however, research on parent-child interactions during pretend play suggests that young maltreated children receive less verbal input from their mothers (e.g., guiding children's attention; Valentino, Cicchetti, Toth, & Rogosch, 2006) and engage in less fantasy play than do nonmaltreated children (Alessandri, 1991). More broadly, maltreating parents tend not to teach their children general strategies to disengage from negative information (Cole, Michel, & Teti, 1994). Thus, the maltreated children in the present study may not have the ability to psychologically distance themselves from the negative images, leading to their increased willingness to report that certain events can occur. However, further research is necessary to examine group differences in parent-child narratives of negative information.

Another explanation for the findings concerns maltreated children general bias toward a range of negative information (Ayoub et al., 2006). They display negative emotions earlier than do nonmaltreated children (Sroufe, 1997), develop negative representations of themselves and others (Toth, Cicchetti, Macfie, & Emde, 1997), and exhibit a heightened sensitivity to negative information in narratives (Buchsbaum, Toth, Clyman, Cicchetti, & Emde, 1992). In this study,

a similar negativity bias may have led to their greater willingness to assent that negative real and frightening fantastic events can occur.

Two unexpected findings emerged. First, HI children compared to other children were more accurate in stating that fantastic neutral events could not occur. Perhaps LI and maltreated children attributed positive emotions to neutral images, biasing them to report these events can occur, in a manner similar to happy images. However, children's emotional ratings of neutral images did not vary across groups, and children rated neutral images as less positive than happy images. Thus, this interpretation is tentative without additional research. Second, maltreated and nonmaltreated children's distinctions differed for fantastic frightening but not fantastic angry events. When judging angry events, HI children's performance decreased relative to their performance for frightening events, making their performance more comparable to that of maltreated children. Perhaps, compared to less well educated or maltreating parents, highly educated parents spend more time discussing negative emotions, like fear, within the context of stories, leading to HI children's performance on frightening relative to angry images. This interpretation, however, is speculative and further research is needed to clarify how familial background influences children's reactions to emotions depicted in images.

The study's limitations must be considered when interpreting findings. First, children not under parental guardianship were excluded from the comparison samples to reduce the likelihood that these children had been maltreated. This exclusion criterion is not without the potential for error, but including a few maltreated children in the comparison samples would have made it more difficult to obtain significant effects. Second, testing the maltreated children at the courthouse may have influenced their judgments. However, given that they were familiar with the testing location and, like the comparison children, were tested in a child-friendly setting during free play, it is unlikely, but still not impossible, that their emotional reactions to their setting affected their judgments. Also, Quas, Wallin, Horwitz, Davis, and Lyon (2009) found that, when children are asked how they feel while waiting for dependency hearings, they tend to rate themselves as somewhat positive ($M=3.94$ on a 5-point negative to positive scale). Third, ethnicity was not evenly represented among the samples, making it difficult to examine cultural differences in children's judgments independent of income or maltreatment status. Future research should focus on cultural factors that may influence children's evaluations of fantasy, for instance, how parents from different cultural backgrounds discuss fantasy in stories or fables. Finally, one should be cautious in interpreting children's judgments as indicative of a global ability to discern fantasy and reality. Children's distinctions are task-dependent (Woolley, 2006). Thus, the present findings should be replicated using other procedures (e.g., behavioral responses).

In closing, the present study has implications for practitioners and theories concerning emotional and cognitive development in maltreated children. For one, the data suggests that it is inappropriate to assume that findings from studies of nonmaltreated children are directly applicable to maltreated children, particularly when children are engaged in emotionally laden tasks. Maltreated children may not perform uniformly worse than nonmaltreated children due to cognitive delays. Instead, they may process emotional information fundamentally differently than do nonmaltreated children, setting them along a different developmental trajectory (Cicchetti et al., 2003). Also, in clinical or legal settings, it is necessary to consider maltreated children's sensitivity to negative information when assessing their understanding of prior events. Finally, by providing insight into how these children evaluate emotionally laden cognitive information, this study reveals some of the complexities that contribute to young children's mental representational skills. Maltreated children's frequent exposure to negative events appears to affect their evaluations of whether negative emotional events can occur in unique and important ways.

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Table 1

Analysis of covariance of children's fantasy-reality distinction scores across emotions, adjusted for verbal ability.

	Maltreated children, mean (standard error)	Low-income children, mean (standard error)	High-income children, mean (standard error)	F	p	η_p^2
Real events						
Neutral	.77 (.05) _a	.79 (.05) _a	.66 (.05) _a	1.22	.30	.017
Happy	.83 (.04) _a	.82 (.04) _a	.79 (.05) _a	.18	.84	.003
Frightening	.63 (.07) _a	.45 (.06) _b	.41 (.07) _b	3.13	.048	.044
Angry	.67 (.06) _a	.45 (.06) _b	.50 (.06) _a	3.86	.028	.052
Fantastic events						
Neutral	.55 (.05) _a	.51 (.05) _a	.70 (.06) _b	4.30	.015	.059
Happy	.53 (.06) _a	.47 (.06) _a	.60 (.06) _a	1.40	.23	.021
Frightening	.65 (.06) _a	.72 (.05) _a	.84 (.06) _b	3.28	.04	.045
Angry	.62 (.06) _a	.71 (.06) _a	.67 (.06) _a	.78	.46	.011

Note. Higher scores indicate greater ability to judge that fantastic events cannot occur and real events can occur. Subscripts in the same row depicted significant group differences.

Appendix A

Description of events depicted in images

	Fantastic events	Real events
Neutral	Family sleeping in a nest in a tree	Squirrel in a tree
	Cats wearing clothing	Cow eating
	Mouse walking to school	Butterflies
Happy	Dancing mice wearing clothing	Happy mother and daughter
	Panda wearing clothing laughing with a child	Mother hugging child
	Happy giant laughing with people	People celebrating
Frightening	Frightening giant	Frightening man in bed
	Fire-breathing dragon	Wolf chasing child
	Giant scaring children	Police arresting child
Angry	Mother cat yelling at kittens	Grandmother yelling at child
	Ducks arguing	Mother yelling at baby
	Raccoons arguing	Children arguing