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Empathy in Individuals at Risk for Child Physical Abuse: The Effects of Victim's Pain Cues on Aggression

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Exposure of an aggressor to the suffering of his/her victim generally inhibits subsequent attacks [e.g., Baron, Aggression as a function of magnitude of victim's pain cues, level of prior anger arousal, and aggressor-victim similarity, J Pers Soc Psychol 18:48–54, 1971a], presumably because of an empathic process. Physically abusive parents and individuals at high-risk for child physical abuse are thought to present a deficit of empathy [e.g., Milner et al., Empathic responsiveness and affective reactivity to infant stimuli in high- and low-risk for physical child abuse mothers, Child Abuse Negl 19:767–780, 1995]. This study examined whether individuals at high-risk for child physical abuse show empathy and inhibit aggression when exposed to cues thought to be associated with victim suffering. Eighty undergraduate female students participated. A 2 × 2 factorial design based upon 2 levels of the participant's risk status (high, low) and 2 levels of victim's pain cues (present, absent) was employed. Findings suggest that high-risk participants in the pain cues condition selected higher intensities of shocks to aggress than high-risk participants in the absent cues condition. However, risk status was not associated with reports of personal distress or empathic concern. Aggress. Behav. 31:336–349, 2005.
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Physical abuse can be considered as an aggressive act and, therefore, could be explained using already existing models of aggression [Azar, 1991]. General models of aggression have suggested that a lack of empathy plays a role in aggression [e.g., Feshbach, 1964]. At least two mechanisms by which empathy can inhibit aggressive activity have been proposed, one focusing on cognitive, role-taking activity and the other on affective reactivity. From a cognitive perspective, Feshbach [1978] pointed out that aggression would be expected to occur less frequently in more empathic people. The ability or willingness to adopt the perspective of others, particularly in a conflict situation, leads to a greater understanding of and tolerance for that other's position or increasing awareness of other's suffering, in turn making hostile and aggressive reactions toward the other less likely. Moreover, it has been observed that taking the perspective of the target through empathy results in attributions that are relatively more situational and less dispositional than attributions provided by standard observers [e.g., Regan and Totten, 1975]. In essence, perspective taking may produce an

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attributional analysis of the behavior which is more actor-like in its emphasis on situational or uncontrollable factors, and which therefore assigns less blame and responsibility to the transgressor [Davis, 1996], thus decreasing the likelihood of subsequent aggression.

From the affective perspective, empathy's hypothesized inhibitory effect on aggression takes two forms [Davis, 1996]. One view is that observing the victim of one's own aggression, especially his or her pain and distress cues, leads to a sharing of the victim's distress. To escape this vicarious distress, the aggressor stops or reduces the aggression [Feshbach and Feshbach, 1982]. The second affective approach argues that the victim's distress cues sometimes lead aggressors to experience the reactive emotional response of empathic concern, and the resulting motive to increase the victim's welfare prompts the cessation of the aggression [Miller and Eisenberg, 1988].

Models of aggression empirically supported the hypothesis that the observation of a victim suffering will result in the inhibition of aggression. A number of investigations [e.g., Baron, 1971a,b; Buss, 1966a,b; Geen, 1970; Griffin and Rogers, 1977; Mehrabian and Epstein, 1972; Milgram, 1965; Tilker, 1970] reported that, under conditions where aggressors have not been subjected to prior anger arousal from the victim of their attacks, exposure to the pain and suffering of this individual may be highly effective in inhibiting subsequent aggression. However, research also has shown that under conditions in which aggressors have been subjected to prior anger arousal [e.g., Baron, 1974, 1979; Feshbach et al., 1967; Hartman, 1969] pain cues emitted by the victim may serve as reinforcing stimuli [Baron, 1974] for the aggressor.

One explanation for the inhibitory effect of victim's pain cues has been the subject's ability to empathize [e.g., Mehrabian and Epstein, 1972].

EMPATHY AND CHILD PHYSICAL ABUSE

Based on aggression literature, several authors have suggested that physically abusive parents lack empathy for their children [e.g., Miller and Eisenberg, 1988; Milner, 2000; Schetky et al., 1979; Steele, 1980; Wiehe, 1985]. Moreover, studies have been conducted to measure dispositional and situational empathy in abusive parents and those at high-risk for child physical abuse. ''High-risk for child physical abuse'' is a term commonly used in the scientific literature of child maltreatment [e.g., Balge and Milner, 2000; Crowe and Zeskind, 1992; Milner and Foody, 1994]. Subjects with risk factors for child physical abuse and/or high scores on screening instruments for child physical abuse, like the CAP Inventory [Milner, 1986], are considered as high-risk subjects for child physical abuse. These subjects have ''an array of personal and interpersonal characteristics that are similar to characteristics found in identified physical abusers'' [Milner, 1994, pp. 578]. Findings from studies analyzing dispositional and situational empathy in abusive and high-risk parents for child physical abuse are briefly summarized below.

First, the studies conducted to assess dispositional empathy in physical abusive parents and high-risk parents for child physical abuse have indicated, in general, that empathy is negatively related to child physical abuse. A number of studies have observed significant differences on measures of dispositional empathy between abusive and nonabusive mothers [Evans, 1980; Letourneau, 1981; Marino, 1992; Melnick and Hurley, 1969; Wiehe, 1985, 2003] and between high- and low-risk parents for child physical abuse [Milner et al., 1995; Perez-Albeniz and De Paul, 2003, 2004]. However, the utilization of questionnaires to assess

empathic emotions has received some criticism. Batson [1987] pointed out that the value of questionnaires rests on assumptions that research participants know what they are feeling and that they will relate these feelings accurately. Batson argued that each of these assumptions is doubtful. Moreover, it is difficult to know if responses to instruments used to assess dispositional empathy reflect true differences in emotional reactions or cognitive empathic skills, differences in what people are willing to report, or differences in the way people want to be seen either by themselves or by others [Batson et al., 1987].

Second, few studies have investigated the relationship between situational empathy and child physical abuse. Studies by Frodi [1981] and Frodi and Lamb [1980], focusing on transactional behaviors of abusive mothers and their infants, suggested that an inability to empathize may be a factor in abusive mothers perceiving certain infant attributes, such as crying, as aversive and aggression facilitating stimuli. Frodi and Lamb [1980] compared the responses of a group of child abusers with those of a matched sample of nonabusers to videotaped scenes of crying and smiling infants. The abusive group had difficulty in discriminating the crying infant scenes from the smiling infant scenes. In addition, abusive mothers displayed more anger and less sympathy than the control mothers when observing the videotapes of crying infants. That is, the abusers displayed fewer signs of empathy. Moreover, Milner et al. [1995] also found differences between high- and low-risk mothers for child physical abuse in their emotional reactions to child stimuli. High-risk mothers for child physical abuse did not show a significant change in empathy from baseline when they observed a crying infant, whereas low-risk mothers for child physical abuse displayed a significant increase in empathy. In contrast, high-risk mothers reported significant increases from baseline in sadness, distress, and hostility when they observed the crying infant, while the low-risk mothers reported no changes on these dependent variables.

The above review indicates that several studies suggest the existence of an empathic deficit in child physical abusers and individuals at high-risk for child physical abuse. The abusive behavior of some abusers may be explained by the existence of that deficit. However, none of those studies analyzed abusers and high-risk participant's aggressive behavior in laboratory simulated situations in which the participant's reaction to the suffering of his/her victim is examined. Additional research in this area may provide an important advance in the study of the relationships between child physical abuse risk and empathy.

The design of the present study was based on paradigms used in studies of aggression [e.g., Baron, 1971a,b; Buss, 1966a,b; Geen, 1970; Griffin and Rogers, 1977; Mehrabian and Epstein, 1972; Milgram, 1965; Tilker, 1970]. More specifically, the procedure follows the teacher/learner paradigm developed by Buss [1961]. Although the construct validity of this paradigm was recently criticized [Tedeschi and Quigley, 1996], it has provided an important amount of knowledge about aggressive behavior. Studies of aggression have shown that pain cues lower the likelihood of aggression by the observer through empathic or vicarious arousal of anxiety, which leads to aggression inhibition. To the extent that physically abusive parents lack empathy for their children, it would be expected that abusive parents and individuals at high-risk for child physical abuse would display lower levels of empathy, and consequently, less inhibition of aggression in the presence of a victim's pain cues. Moreover, characteristics of the victim could be an important factor. It is possible that the empathic deficit is a general one or may be a victim-specific deficit. As Marshall et al. [1995] proposed for sexual abusers, it seems likely that aggressors are not deficient in empathy toward all people, but rather have problems in being empathic toward their own specific victims, in this

case, children. However, as a first step, it would be reasonable to analyze if problems are also present in regard to peers.

The Present Research

The objective was to investigate whether participants at high-risk for child physical abuse show a deficit on situational empathy and analyze if this deficit is associated with the lack of inhibition of aggression.

A simulation in which high- and low-risk participants were given the opportunity to aggress physically against another person was used. The experimental paradigm employed in the present study was basically the same as those used by Buss [1966a, b], Geen [1970], and Baron [1971a, b].

In the present study, the effects of participants' risk status (high versus low) and victim's pain cues (present versus absent) on subsequent aggression and on levels of situational empathy (empathic concern and personal distress) were analyzed. A significant interaction between risk status and pain cues was expected. Low-risk participants were expected to aggress less in the presence than in the absence of victim's pain cues. This difference was not expected for high-risk participants.

In regard to the empathic reactions, several effects were expected. First, a significant main effect for pain cues was expected. Participants in the pain cues condition, compared with participants in the non-pain cues condition, were expected to report more empathic concern toward the victim and more personal distress. Moreover, a significant main effect for risk status was expected. High-, compared to low-risk participants, were expected to report more personal distress and less empathic concern toward the victim. Moreover, it was expected that both main effects would be qualified by a significant interaction between risk status and pain cues. High-risk, compared to low-risk participants, were expected to report less empathic concern toward the victim and more personal distress when the pain cues were present while shocking the victim.

METHOD

Participants

Eighty (40 high- and 40 low-risk for child physical abuse) undergraduate females enrolled in courses at the University of the Basque Country participated in the experiment. They were selected from a pool of 685 participants based on their scores on the Abuse Scale of the Child Abuse Potential (CAP) Inventory [Milner, 1986]. High-risk participants were defined as those participants earning scores higher than 32 (89^{th} percentile for this sample) in the Abuse Scale, a cut-off score described in the Spanish version of the CAP Inventory technical manual [De Paul et al., 1999]. Low-risk participants were defined as participants with an Abuse Scale score below 11 (29^{th} percentile for this sample). Only female participants were used because they were more available than male participants.

Design

A 2 $\times$ 2 factorial design based upon 2 levels of participant's risk status (high, low) and 2 levels of victim's pain cues (present, absent), was employed. Participants were randomly assigned to each of the pain cues conditions as they appeared for their experimental

appointments. The experimenter was blind to each participant's risk status. The mean intensity of shocks delivered to the supposed victim over 10 trials and the empathy reported by the participants were the dependent variables.

Test Instruments

The Child Abuse Potential Inventory Spanish version [De Paul et al., 1999; Milner, 1986]. The CAP Inventory is a 160–item, self-administered questionnaire that is answered in a forced choice, agree-disagree format, which was designed to screen for physical child abuse [Milner, 1986]. The questionnaire contains a 77–item physical child abuse scale that can be subdivided into six factor scales: distress, rigidity, unhappiness, problems with the family, problems with the child, and problems with others. Factors from the Spanish Abuse Scale are similar to factors from the original version [De Paul et al., 1999; Milner, 1986]. The CAP Inventory also contains three scales (lie, random response, and inconsistency) to detect response distortion (e.g., faking good, faking bad, or random responding). In the present research, in order to select participants with valid answers to the CAP Inventory, participants scoring higher than cut-off scores on the Lie, Random, and Inconsistency Scales of the Spanish version of the CAP Inventory were removed from the total sample.

More than 50 construct validity studies supporting the abuse scale are summarized in the technical manual [Milner, 1986] and elsewhere [Milner, 1994]. The CAP Abuse Scale has adequate internal consistency and temporal stability [Milner, 1986]. Internal consistencies for the Abuse Scale range .92 to .96 for the original English version and .95 for the Spanish version. Abuse Scale classification rates are generally in the mid–80% to low–90% range for the English version [Milner, 1986] and close to 85% (scoring at cut-off score of 32) for the Spanish version [De Paul et al., 1999]. In addition, elevated abuse scores are predictive of later reported and confirmed physical child abuse [Milner et al., 1986].

Emotional Response Questionnaire [Batson and Coke, 1981]. Participants completed the emotional response questionnaire that consisted of a list of 28 adjectives describing emotions. Participants were asked to indicate on 7–point scales (1 = not at all, 7 = extremely) how much they were experiencing each emotion as a result of the shocks they had delivered to the other participant. The list of emotions included adjectives that had been found in past research [e.g., Batson and Coke, 1981; Coke et al., 1978] to reflect two distinct vicarious emotions: personal distress and empathy. A pilot study was conducted, in order to determine whether the Spanish version of the emotional response questionnaire included the two theoretical factors of the original version. A sample of 198 participants answered the questionnaire after reading two empathy-evoking stories. A two-factor varimax-rotated principal component analysis of all the emotional response adjectives confirmed (with the exception of items 2 and 8) the empathy and personal distress dimensions found in previous studies [see e.g., Batson et al., 1983; Toi and Batson, 1982]. These two factors accounted for 51.57% of the total variance. Internal consistencies (alpha coefficients) for the two scales were .85 for the empathy dimension and .87 for the personal distress dimension.

Apparatus

Two adjacent rooms were arranged for the experiment. The first laboratory was prepared with equipment that was located in full view of participants and ostensibly switched on at this time [Baron and Bell, 1976]. In reality, however, it had no real function in the task and was employed solely to lend credibility to the experimenter. The equipment in this lab consisted of

one computer, a green lamp, a device for the delivery of shock to participants (Slendertone Standard Model), and a polygraph (Lafayette Model 76102).

The second room was equipped with a computer and a table at which the participant completed questionnaires. The computer was equipped with software designed to replicate the aggression machine originally designed by Buss [1961] and the psychoautonomic pain meter by Baron [1971a,b, 1974, 1979]. The aggression machine was similar to ones employed in previous experiments [e.g., Baron, 1971a]. It contained 5 push-buttons (instead of 10 in the original version), which could be depressed by participants to administer shocks of varying intensities to another participant on occasions when he/she made an error. The original version of the psychoautonomic pain meter consisted of a voltmeter mounted on a steel cabinet. The face of the meter had been altered to include five labels (none, mild, moderate, strong, and very strong), which ostensibly referred to the degree of pain experienced by the victim on occasions when he/she was shocked by the participant. In reality, the position of the voltmeter needle was completely under the control of the experimenter and varied with the particular shock button the participant depressed. Thus, by means of this device, it was possible to attain very precise control over the magnitude of pain cues ostensibly emitted by the victim of the participant's aggression.

The software designed for this research allowed the participant to see on her screen (a) two indicators that signaled right or wrong responses presumably made by the victim in the adjacent room, (b) five shock buttons in order to punish the victim and a button in order to give the victim a green light, and (c) the new version of the psychoautonomic pain meter, only present in the pain cues condition (see Figure 1 for sample screen in the pain cues condition and Figure 2 for sample screen in the no pain cues condition). This new version consisted of a vertical column of four different colors. At the top of the column was a label that read Suffering Level. Each of the colors bore a label that ostensibly referred to the degree of pain experienced by the victim when the participant administered a shock. These colors where

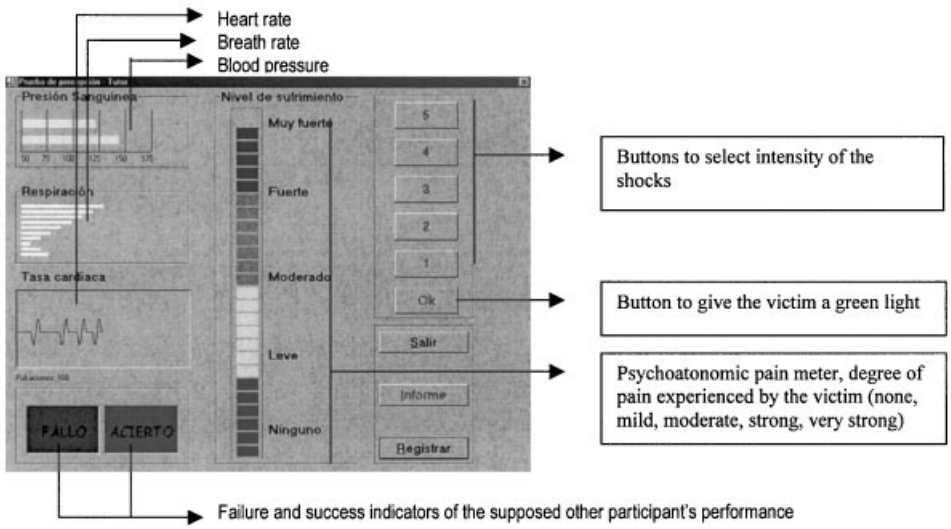

Fig. 1.

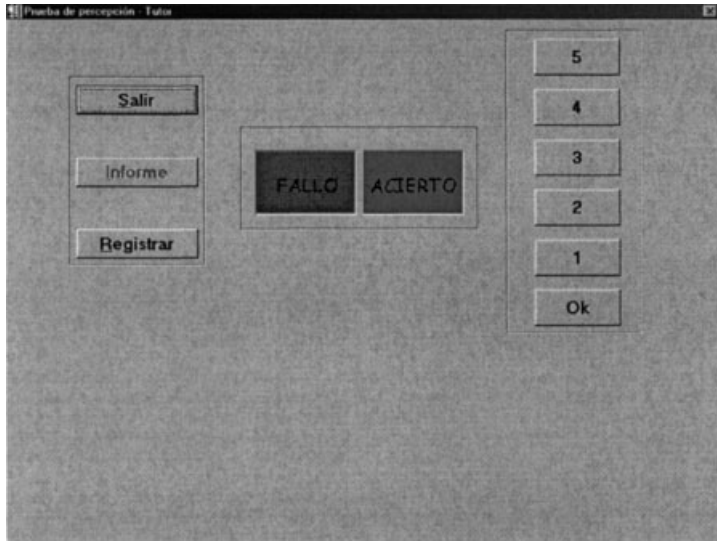

Fig. 2.

labeled (from bottom to top) as none, mild, moderate, strong, and very strong. The new version also contained simulated ongoing physiological information, which was meant to provide additional information regarding to victim's response to the shocks (heart rate, breath rate, and blood pressure).

PROCEDURE

Questionnaire Sessions: Measuring Participant's Risk Status

From 1 to 20 days before participating in the experimental session, participants took part in a questionnaire session. The questionnaire completed at that session was the Child Abuse Potential Inventory Spanish version [De Paul et al., 1999]. When originally scheduled, participants were told that they wouldn't get anything for participation but, in order to reward them in some way, they would be included in a drawing to participate in an unrelated study (a visual detection task), so they should write a secret code in order to insure anonymity and freedom to participate in the second study. Supposedly randomly selected participants who participated in the other study would receive 6 € (euros). This second study was actually the experimental session. Participants were scheduled for the experimental session in this way to reduce the likelihood that they would perceive a relationship between the two sessions. A list of participants' secret codes was posted in their classroom, with the the lab's telephone number, in case they were interested in participating. Eighty high-risk and 200 low risk participants were selected. Eighty participants (40 high- and 40 low-risk participants) consented to participate in the second study at the lab. Five additional students were excluded from the sample and replaced because they expressed suspicion that the confederate was not actually receiving shocks.

Experimental Sessions

Experimental sessions were conducted individually by a female experimenter. The participant was taken to the first experimental room and, after a general introduction by the experimenter (which explained how little scientists know about the effect of punishment on visual perception), each was informed that she would participate with another volunteer and that one of them would serve as teacher and one as learner. The study was structured to convince the participant of the existence of a learner. The learner didn't exist, and what participants in the pain cues present condition saw on a computer screen was her/his simulated psychophysiological reactions. Each participant was told that she was chosen to be the teacher by a drawing. Each participant was told that the other participant was in a third adjacent room [Greenwell and Dengerink, 1973] waiting with the other experimenter. Each participant was told that she would not meet the other participant (fictitious) to assure that gender and age would not influence her behavior. Moreover, each participant was assured that the location of the participants in separate rooms would insure anonymity [Hartmann, 1969]. The act of administering shock was set in the context of a perception experiment, ostensibly designed to study the effect of punishment on visual perception [Zillmann and Cantor, 1976; Zillmann et al., 1975]. Then, the experimenter explained the task to be conducted by the other participant; each participant was shown samples of stimuli used in visual perception research [e.g., Carrasco et al., 1998; Treisman and Gelade, 1980]. Participants were told that each time the learner responded correctly to the detection task, the teacher (participant) should reward him by pushing a button on the computer screen. This would switch on a green light to inform this individual that he/she had responded correctly. However, when the learner made an error, the teacher (participant) was instructed to choose and depress 1 of the 5 shock buttons in order to punish the person [Greenwell and Dengerink, 1973; Shortell et al., 1970]. The experimenter carefully explained that the higher the number of the button chosen by the participant, the stronger the shocks to the learner. In addition, participants were told that although the Button 5 could be extremely painful, no permanent damage could be done [Shortell et al., 1970; Tilker, 1970]. In order to convince the participant that the aggression machine was operational, the experimenter administered a shock [Baron, 1971a, b, 1974, 1979; Buss, 1966a, b; Greenwell and Dengerink, 1973; Milgram, 1965; Tilker, 1970] from Button 1 (as a sample). This button gives a shock so mild that it is not aversive [Buss, 1966a]. The participant was told that she was free, however, to vary the intensity of shock administered from 1 to 5.

Following these procedures, the participant was then taken to the second experimental room and was told about the psychoautonomic pain meter [Baron, 1971a, b, 1974, 1979]. This explanation was provided only for participants in the victim's pain cues condition. The manipulation of the pain-cues factor, then, simply involved the presence or absence of such feedback on the computer screen (see Figures 1 and 2). In the pain cues condition, the experimenter indicated that this device compiled physiological information from the learner's heart rate, respiration, and blood pressure to provide an objective index of the amount of pain that the learner experienced on each occasion he/she was shocked. As an explanation for the presence of this apparatus, the experimenter indicated that in order to determine the precise relationship between magnitude of punishment and performance, it would be necessary to record the amount of pain experienced by the learner on each occasion when he/she was shocked. Such information was supposedly needed because individuals differ greatly in their sensitivity to electrical shock. Participants were then requested to keep a record of the

readings shown on the meter each time the learner was shocked or rewarded. In reality, this was done to ensure that participants would pay careful attention to the pain cues from the victim. The experimenter explained that this record would be examined after the completion of the session in order to determine exactly how much pain had actually been experienced by the learner during the experiment. The readings shown in the pain meter were completely preprogrammed and varied depending on the shock buttons depressed by the participant [Baron, 1971a, b, 1974, 1979]. In order to assure that all the participants in this condition would see how people react to the electrical shocks, samples from 1, 3, and 5 intensities, supposedly coming from a database, were shown.

The experimenter explained each participant's rights to refuse participation or to stop the procedures at any time. If the participant agreed to participate, she was asked to sign a consent form that indicated that the procedures had been explained and that she agreed to participate. Following completion of these instructions, the experimenter went to the first room where the victim and the other experimenter were supposedly waiting and instructed them to start the task whenever they wanted. The experimenter returned in order to stay in the same room with the participant. However, the experimenter sat down at a desk on the other side of the room and wrote in order to help the participant feel free in the task. During the series of 20 visual detection trials, the screen signaled 10 errors according to the prearranged computer program. After the completion of the teaching task, participants completed the emotional response questionnaire. Immediately following the questionnaire completion, the participant answered a series of questions in an attempt to elicit information concerning the credibility of the experiment. Each participant was then fully debriefed about the experimental situation, and her cooperation in maintaining secrecy about the experiment was requested. No information about the criteria selection of participants was given.

RESULTS

Aggressive Behavior

The major dependent variable in the study was the mean intensity of shocks which the participant selected to give to the other participant during the trials.

Based on aggression literature [Baron, 1971a, b; Buss, 1966a, b; Geen, 1970; Milgram, 1965; Tilker, 1970], a significant interaction between pain cues and risk status was expected. Low-risk participants were expected to aggress less in the pain cues present than in pain cues absent condition. However, this difference was not expected for high-risk participants. These hypotheses were tested using a two-factor 2×2 analysis of variance (ANOVA) with both factors between-subjects. The first factor was the high- and low-risk groups. The second factor was the present and absent pain cues conditions.

The main effect of pain cues was not significant, $F(1, 76) = 1.26$; $p > .05$, which means that participants used the same intensity of aggression with and without pain cues. A significant main effect for risk status was found, $F(1, 76) = 4.06$; $p < .05$. High-risk, compared to low-risk participants, had a higher mean intensity for shocks selected. Moreover, as expected, this main effect was qualified by a significant risk status by pain cues interaction, $F(1, 76) = 4.69$; $p < .05$. Follow-up analyses of the risk group by pain cues interaction were conducted in order to examine differences between the four groups of participants (high-risk with pain cues, high-risk without pain cues, low-risk with pain cues, and low-risk without pain cues) on the mean intensity of shocks delivered (see Fig. 3). The

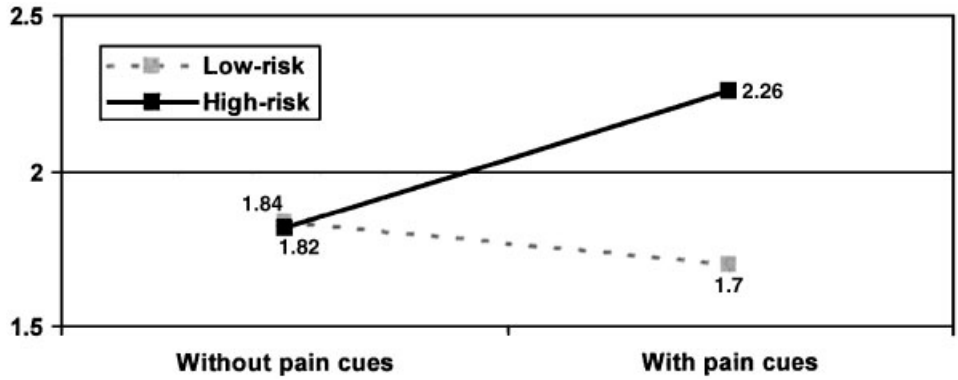

Fig. 3.

univariate ANOVAs revealed significant differences between groups for aggression, $F(3, 79) = 3.34$; $p < .05$. Following the ANOVA, significant differences were analyzed using Tukey's tests ($p < .05$). It was observed that the differences between pain conditions were only present for high-risk participants. High-risk participants in the pain cues condition selected higher intensities ($p < .05$) of shocks than high-risk participants in the absent pain cues condition. However, in contrast to expectations, low-risk groups did not differ depending on pain cue condition (present vs. absent).

Empathic Concern and Personal Distress Reports

Differences in personal distress and empathic concern were tested using a two-factor (2×2) multivariate analysis of variance (MANOVA) with both factors between-subjects. As expected, a significant main effect for pain cues (Wilk's Lambda = .874; $F(2, 75) = 5.39$; $p < .01$) was found. Follow-up one-way ANOVAs were conducted for each measure of empathy. For the empathic concern dimension, no significant difference between pain cues conditions was found ($p > .05$). Therefore, participants reported experiencing similar levels of empathic concern with and without pain cues. For the personal distress dimension, a significant difference between pain cues conditions, $F(3, 76) = 10.23$; $p < .01$, was found. Participants in the pain cues present condition reported more personal distress than in the pain cues absent condition. However, contrary to expectations, neither the main effect for risk status (Wilk's Lambda = .93; $F(2, 75) = 2.54$; $p = .085$) nor the interaction between risk status and pain cues (Wilk's Lambda = .96; $F(2, 75) = 1.51$; $p = .225$) were significant (see Table I for empathic concern and personal distress mean scores). Present findings failed to show that high-risk subjects, compared to low-risk subjects for child physical abuse, experienced less empathic concern and more personal distress in the presence of a victim's pain cues.

Finally, in order to analyze the possible relationship between empathic concern, personal distress, and the level of shocks administered in each of the four cells, correlational analyses were conducted. It was expected that high levels of aggression would be associated with high levels of reported personal distress and with low levels of reported empathic concern. However, as can be seen in Table II, no significant associations were found, either for high-risk parents or for low-risk parents.

Table I. Means (Standard Deviations) of Empathic Concern and Personal Distress for High- and Low-Risk Participants in Both Conditions

	Experimental condition	High-risk	Low-risk	Total
Empathic concern	Present pain cue condition	3.15 (1.43)	2.69 (1.25)	2.92 (1.35)
	Absent pain cue condition	2.90 (1.09)	2.25 (.65)	2.57 (.95)
Total		3.03 (1.26)	2.47 (1.01)	
Personal distress	Present pain cue condition	3.52 (1.40)	2.80 (1.15)	3.16 (1.31)
	Absent pain cue condition	2.47 (.98)	2.27 (.77)	2.37 (.88)
Total		3.00 (1.31)	2.53 (1.00)	

Table II. Correlation Between Emotional Response Measures and Mean Intensity of Shocks Delivered by High- and Low-Risk Participants in the Present and Absent Victim's Pain Cue Conditions

		Mean intensity of shocks	
	Experimental condition	High-risk	Low-risk
Empathic concern	Present pain cue condition	−.37	.27
	Absent pain cue condition	.16	−.04
Personal distress	Present pain cue condition	−.20	.18
	Absent pain cue condition	.43	−.01

DISCUSSION

As expected, results from the present study revealed that individuals at high-risk for child physical abuse, compared to low-risk individuals for child physical abuse, exhibited higher levels of aggressive behavior. That is, high-risk individuals for child physical abuse utilized higher levels of punitive responses (i.e., shocks) when instructed to provide feedback in a learning context.

Contrary to expectations, the presence of pain cues was not directly related to the level of aggressive behavior exhibited by respondents. The lack of an association between the presence of pain cues and level of aggressive behavior lies in contrast to previous studies that reported that feedback from a victim reduces the intensity of aggression directed toward the victim [Baron, 1971a,b; Buss, 1966a, b; Geen, 1970; Griffin and Rogers, 1977].

The present study also failed to support the hypothesized interaction between risk for child physical abuse and presence of pain cues. More specifically, it was expected pain cues would reduce the level of aggressive behavior among participants at low risk for child physical abuse, but not among those at high risk for child physical abuse. Contrary to expectations, inspection of the mean level of shock administered by high and low risk for child physical abuse individuals revealed that pain cues were not related to level of aggression in low risk individuals. For individuals at high risk for child physical abuse, the presence of pain cues was associated with higher levels of aggressive responding. Data did not suggest lack of inhibition, but an increase in the tendency for high-risk participants to shock when pain cues are present.

This effect supported the hypothesis that high-risk people may not inhibit aggression in presence of pain cues from a victim. Moreover, the result showed that they aggress with more intensity in that condition. Pain cues appeared to facilitate subsequent attacks against the victim, apparently because they find such feedback somehow rewarding [Baron, 1974]. In aggression literature, this later effect was only found under conditions in which aggressors have been subjected to prior anger arousal [e.g., Baron, 1974, 1979; Feshbach et al., 1967; Hartman, 1969].

Taking into account criticism of the teacher/learner paradigm [Tedeschi and Quigley, 1996], findings of the present study could be interpreted in a different way. Participants could interpret shock delivery as a method to improve learner's performance. Then, the participant's intention in delivering a shock could be prosocial and not aggressive. However, findings of the present study show that only high-risk participants for child physical abuse in the presence of victim's pain cues delivered higher intensity shocks. It would be difficult to interpret that the observation of pain cues increases prosocial behavior in high-risk for child physical abuse participants.

Although previous research has suggested that high-risk individuals for child physical abuse exhibit lower levels of empathy, the present study failed to replicate this finding. The presence of pain cues was associated with increased levels of personal distress, but not empathic concern, and this pattern of findings did not vary by child physical abuse risk status.

Some limitations of the present study must be pointed out. First of all, participants were individuals at high risk for child physical abuse, instead of actual abusers. Although the utilization of risk samples has the advantage of allowing analysis of cognitive and behavioral differences prior to the abuse event [Milner, 2000], conclusions derived from these studies cannot be generalized and studies must be replicated with actual abusive samples in order to establish direct associations with child physical abuse perpetration.

Second, the lack of an association between the presence of pain cues and level of aggressive behavior found in groups of individuals at low risk for child physical abuse could be the restricted range of aggression measure. Procedure changes (i.e., a wider range of intensities to select or introduce a non-aggressive response as a choice) could show different results.

Third, it must be noted that there was no confederate in the present research and participants were not told the gender and age of the other supposed participant. Buss [1966a] showed that harming a victim tended to cause a drop in subsequent aggression, but the extent of the decrease is determined by both the gender of the subject and of the victim. The decrease was larger when the subject was a female and also when the victim was a female. In the present research, no attempt was made to control this variable and there is the chance that this could account for the results.

Finally, in regard to the absence of the results of a significant relation between empathy and aggression, it must be taken into account that deficits in empathy could be victim-specific. It would be interesting to design studies to analyze the effects of different potential victims.

As can be seen, future research is guaranteed and needed in this area. For the present, these findings, although preliminary, suggest that those at high-risk could find rewarding pain cues exhibited by their own victims. These results, if replicated with abusive parents, could be useful for research and practice, and could be a base on which to design interventions for the treatment of perpetrators of child physical abuse.

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