

A Cognition (Attribution)-Emotion Model of Violence in Conflict Situations

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The present research was designed to examine the relationships between attribution processes and interpersonal emotions (anger and empathic emotions) as determinants of violent reactions in conflict situations. A model including the mediating role of attribution processes and emotions as well as all theoretically meaningful relationships among the variables was proposed and tested using Bentler's structural equations program (EQS). Results show that the model fits the data well and the mediating role of anger and empathic emotions is supported. In addition, the role of attributional thinking (e.g., perceived intentionality of an instigation and controllability of its cause) as a determinant of anger and empathic emotions is confirmed. Results are discussed in terms of potential extensions and applications of attribution theory and the role of interpersonal emotions in antisocial behavior and interpersonal relations in general.

The attribution theory of motivation and emotion (for reviews see Weiner, 1985, 1986) is based on the premise that a cognitive motivational process is initiated following a behavioral outcome. Beginning with a search for the cause of the outcome, this process normally leads to an attribution of causality, which, in turn, influences emotion and has important consequences for motivation and action.

Another important aspect of the theory, especially relevant for its generality beyond a particular behavioral setting, concerns the so-called dimensional properties of causes. Although the perceived causes of behavioral outcomes can be numerous and may vary between as well as within behavioral domains, these causes share properties that are associated with particular psychological consequences. Specifically, locus, stability, and controllability have been identified as general properties of the causes to which people attribute behavioral outcomes in a variety of domains. In addition, it has been proposed (see

Weiner, 1986) that other attributional properties, such as globality and intentionality, may be associated with psychological consequences in particular domains.

Although Weiner's theory was originally developed to explain achievement motivation, there is an increasing volume of research that uses it to examine a variety of phenomena in the area of social motivation and interpersonal relations. For example, attributional processes have been found to play a significant role in prosocial behavior (e.g., Betancourt, 1990a; Meyer & Mulherin, 1980; Schmidt & Weiner, 1988; Weiner, 1980a, 1980b), reactions to rape and pregnancy (e.g., Janoff-Bulman, 1979; Major, Mueller, & Hilderbrandt, 1985), parole decisions (e.g., Carroll, 1978), and loneliness (e.g., Cutrona, 1982; Peplau, Miceli, & Morasch, 1982; Peplau, Russell, & Heim, 1979). The common motivational process in all these phenomena includes a search to determine why the event occurred and a resulting attribution of causality, which influences subsequent motivation and action.

Among the interpersonal domains in which attribution processes have been identified as potentially relevant is that of human aggression. Some authors have explicitly or implicitly recognized the importance of attributional processes in the instigation of aggression and retaliation. For example, Ferguson and Rule (1983)

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provided a theoretical analysis of the importance of attributional processes in the study of aggression, particularly as determinants of anger. However, in their examination these authors made no use of Weiner's structural analysis of causality or the role of dimensional properties of causes and the proposed mediating emotions as determinants of action. Instead, they focused on the antecedents of causal attributions for instigating actions and based their analysis on the attribution theory concepts of Heider (1958), Jones and Davis (1965), Jones and McGillis (1976), and Kelley (1972).

The objective of the present research is to develop and test an attributional model for the study of violence in conflict situations. Beginning with theory-based predictions originating in Weiner's (1986) attribution theory of motivation and emotion, this research incorporates evidence concerning the role of anger and empathic emotions in antisocial behavior. The main purpose is to shed light on the psychological processes thought to influence violent reactions in conflict situations, mainly the relationships between attributional processes and interpersonal emotions. Because at this point the focus is on these psychological processes and because knowledge concerning multiple relationships among the variables under study is limited, the use of real-life or experimentally induced violence was considered premature and might have raised important ethical considerations. Hence, a simulational paradigm was used and judgments (expectations) of violent reactions instead of actual violent responses were measured.

It is expected that the understanding gained through simulational studies using the present methods of analysis will contribute to the future analysis of the same psychological processes measuring or manipulating actual violent behavior in real-life situations. Although simulational studies are thought to provide information not otherwise available, real-life evidence is necessary to understand other aspects of violent behavior, such as its situational determinants.

As developments in the study of attributional processes and emotions in this area make a more cognitive analysis of human violence possible, insights gained from such research may allow for a variety of applications to socially relevant problems. For example, research in this area might result in applications to phenomena such as antisocial and abusive behavior, jury decisions concerning violent crimes, and interpersonal, intergroup, and international conflict.

THE ROLE OF ATTRIBUTIONAL PROPERTIES

According to theory (see Weiner, 1986), the dimensional properties of causes constitute the key antecedents of phenomena such as expectancy of success, esteem-

related affects, interpersonal emotions, and subsequent actions. Among these general properties of attributions, controllability is the one found to influence interpersonal emotions and behavior the most.

Concerning the attributional study of interpersonal relations, helping behavior is the topic that has stimulated more research than any other. In essence, attributing a person's need to uncontrollable causes increases the probability of helping (for a review see Weiner, 1986). Looking at this relationship from another perspective, controllability also influences neglecting: The lower likelihood of helping associated with attributing the need to controllable causes implies a higher probability of neglecting.

It is conceivable that perceived controllability of attributions for a negative (e.g., instigating) action influences violent responding in the same way perceived controllability of attributions for an individual's need influences neglecting. If this is the case, it seems possible that a negative action by one person may elicit more violent reactions from another when the cause is perceived as controllable than when it is perceived as uncontrollable. In support of this possibility, pioneer research by Weiner and associates (e.g., Weiner & Kukla, 1970) suggested that perceived controllability of causal attributions for success and failure influences teachers' allocation of punishment to students. In more recent studies, it has been proposed that perceiving the causes of a violent action as controllable is associated with the preference for violent responding in conflict situations (Betancourt, 1990b).

According to Weiner (1986), in addition to the three general properties of attributions, other properties may exist that could be relevant in a particular behavioral domain. Specifically, intentionality has been suggested as a relevant property in the study of aggression. Even though it has not been systematically studied within the context of attribution theory, there is evidence that the perception of frustration or pain as intentionally caused by others increases the intensity of an aggressive response (e.g., Averill, 1983; Bandura, 1973, 1983; Dodge & Crick, 1990; Feshbach, 1964; Greenwell & Dengerink, 1973). An examination of research in this area (e.g., Ferguson & Rule, 1983) suggests that intentionality should be considered a relevant attributional property in the area of conflict and aggression.

For the purpose of this research, controllability and intentionality are conceived as components of the same attributional (thinking) process. It is assumed that to some extent measures of these two variables capture distinct aspects of the attributional process. For example, controllability is conceived as the presence or absence of the ability to cause an event, whereas intentionality is conceived as the presence or absence of the motivation

to bring about specific consequences. However, the two variables are assumed to influence emotion and action in a similar manner.

It is also possible that in addition to attributions of intentionality and controllability, other aspects of the attribution process might play a role as determinants of emotion and action in conflict situations. Moreover, it is possible that other cognitive processes, related or not to attributional thinking, may also play a role. In no way is it assumed here that the aspects of attributional thinking under study represent the only way in which cognitive processes are involved in conflict and violence.

ATTRIBUTION-RELATED EMOTIONS

Among the various interpersonal emotions studied in relation to attributional processes, anger is probably the most relevant in the study of violence (see Averill, 1982, 1983; Baron, 1971; Berkowitz, 1983; Novaco, 1986). Although anger has received a great deal of attention in the study of aggression, very little attention has been given to its possible cognitive determinants (Ferguson & Rule, 1983). Anger has traditionally been conceived as a mediating factor between aggression and its situational determinants (e.g., Berkowitz, 1983), disregarding the possibility that the effect of situational determinants, such as frustration, may be mediated by cognitive processes triggered by the situation, such as a search concerning why the frustration occurred.

One of the main aspects guiding the present research is that anger is conceived, at least in part, as a function of the cognitive processes that take place when an instigating action occurs in a conflict situation. Although it is possible that situational factors do influence anger directly, it may also be that this effect is at least in part cognition (attribution) mediated. In fact, the attribution literature (see Weiner, 1986) shows that anger has been positively related to both perceived controllability of causal attributions for a person's need and neglect.

In addition to anger, empathic emotions (e.g., sympathy) have also been studied in relation to antisocial behavior (e.g., N. Feshbach & S. Feshbach, 1982; S. Feshbach & N. Feshbach, 1969). After a review and meta-analysis of research on the relationship between empathy and antisocial behavior, Miller and Eisenberg (1988) concluded that empathic responding (characterized by the experience of empathic emotions) is negatively related to aggression and other forms of antisocial behavior. Hence, it is proposed here that in addition to anger, empathic emotions play a mediating role as determinants of violence. In this case, higher levels of empathic emotions would inhibit violent reactions and facilitate nonviolent ways of dealing with an instigation. Further, on the basis of evidence from the literature on prosocial behavior, it

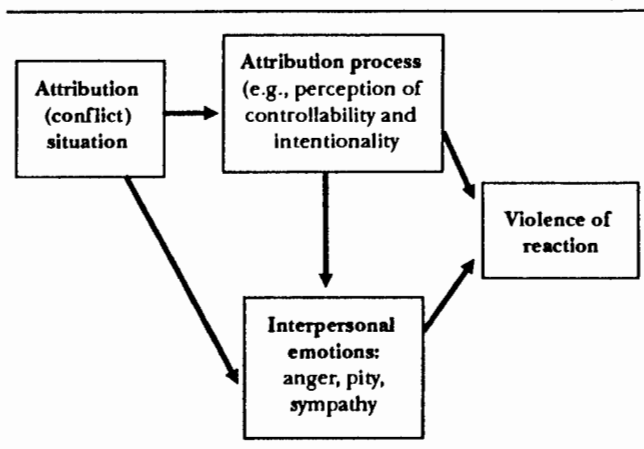


Figure 1 Relationships proposed for an attribution-emotion-reaction model of violence in conflict situations.

is expected that as in the case of anger, empathic emotions will be influenced by attributional thinking.

RESEARCH PROPOSITIONS

The present research was guided by three general propositions. First, perceived controllability of causal attributions for a negative action and perceived intentionality of that action are proposed to relate positively to the violence of reactions (judgments or expectations) to a negative (instigating) event in a conflict situation. Second, it is expected that higher levels of anger and lower levels of empathic emotions (pity and sympathy) will be associated with a higher probability of violent reactions to an instigating action in conflict situations. Finally, consistent with the sequential organization of cognition, emotion, and action as conceived by attributional theorists, interpersonal emotions are proposed to mediate between cognitive (attribution) processes and the reactions to an instigation in conflict situations. Specifically, the two perceived attributional properties and violence of the reactions are expected to relate positively to anger and negatively to empathic emotions. In addition to these propositions, the present research also considered the possibility that anger and empathic emotions, independent of the cognition-mediated effect, are directly influenced by aspects of the situation. These propositions are summarized in Figure 1, which is a graphic representation of all the proposed relationships.

It is important to understand that the proposed mediating role of attribution processes as determinants of anger is not conceived as an alternative to the traditional view of anger as determined by the stimulus situation. Instead, this research aims at correcting an important deficit observed in traditional theories that consider anger as an antecedent of aggression without any consid-

eration of cognitive processes or other interpersonal emotions. This is why the direct effect of the eliciting (frustrating) situation on interpersonal emotions is also included in the model, even though the focus of the present research is on the mediating role of cognitive (attribution) processes and related interpersonal emotions.

The following experiment was designed to test the previously stated propositions and the resulting theoretical model. Using a simulational paradigm, two experimental conditions (vignettes) were created in which levels of intentionality of a violent action and controllability of its cause were manipulated. In both conditions, one of the characters (instigator) commits a negative action, and the potential for a violent reaction is apparent. The information in the vignettes for the two conditions suggests either high controllability and high intentionality or low controllability and low intentionality.

Causal modeling techniques were used to examine how well the observed data fit the proposed theoretical model. Bentler's (1989) program for the analysis of structural equations (EQS) was used to test the model and simultaneously examine all proposed cause-effect relationships.

METHOD

Subjects

Participants were 59 male and 95 female college students enrolled in introductory psychology who participated in partial fulfillment of a course requirement. The subjects were randomly assigned to the two experimental conditions, controlling for similar proportions of males and females in the two conditions.

Instrument

A cover letter described the objective of the study as to evaluate written material and to understand how reactions to stories are formed. The first part of the instrument itself was a vignette that described a stone-throwing competition among a group of male college students. In the story, the competition escalates between two of the students. As it becomes obvious that one of them is the better thrower, the other becomes increasingly frustrated. Finally, a potentially violent situation is at hand when the losing student throws a rock that shatters the windshield of the other student's car.

Subjects in each experimental condition were given one of two versions of this story, each one created by manipulating information leading to the perception of different degrees of intentionality of the negative action (breaking the windshield) and controllability of its cause. The manipulation was accomplished in the controllable and intentional version by describing the instigating

behavior as intentionally destructive and the actor (instigator) as volitionally causing it. In the uncontrollable and unintentional version, the instigator behaves in the spirit of the competition but misses his target, and the rock falls away, hitting the car. The approximate levels of controllability and intentionality induced by the two vignettes were estimated through pilot testing using upper-division psychology students.

The second part of the instrument consisted of a few questions consistent with the stated objective of the study and a number of items designed to record the perceived controllability of the given cause, intentionality of the action, and interpersonal emotions. Answers to all these items were recorded on 7-point scales, anchored at the extremes. For example, one of the items designed to assess perceived intentionality of the instigating action was "Did Tim intentionally damage John's car?" Responses were then reported on the corresponding scale from 1 (*absolutely not intentional*) to 7 (*absolutely intentional*). One of the items concerning interpersonal emotions was "While reading the story, how much did you experience anger toward Tim?" In this case, responses were recorded on a scale ranging from 1 (*not at all*) to 7 (*very much*).

Finally, for the measurement of the dependent variable (violence of reactions), subjects were given a scale of possible reactions ranging from nonviolent to extremely violent (e.g., physical aggression), on which they were to indicate their most likely reaction. This part of the questionnaire was developed and pretested using the responses to an open-ended question from a previous experiment in which subjects were asked to report their judgment of the most likely response to an instigation in the same type of scenario. On the basis of the ratings given by upper-division psychology students, those responses were used to develop the present scale representing different degrees of violence.

Procedure

Participants were randomly assigned to experimental conditions and tested in groups of up to seven. After they had read and signed the consent form, the subjects were told to read the story and answer the questionnaire. After their participation, subjects were fully debriefed and allowed to ask questions. They were also given a telephone number to call in case they had any future questions concerning the study or the nature of their participation.

RESULTS

A preliminary analysis was conducted to compare responses of males and females. As no significant effect

TABLE 1: Mean Ratings of Perceived Controllability, Perceived Intentionality, and Subjects' Reported Emotions and Reactions Toward the Instigator for Each Condition

	<i>Uncontrollable/ Unintentional</i>	<i>Controllable/ Intentional</i>
Controllability	3.22	4.89
Intentionality	1.77	5.34
Anger	2.78	4.82
Sympathy	4.62	2.83
Pity	4.65	3.64
Violence of reaction	1.82	3.18

NOTE: Ratings were made on scales from 1 to 7; higher numbers indicate greater perceived controllability and intentionality, more intense emotions, and more violent reactions.

TABLE 2: Correlations Between Attribution Situation, Perceived Attributional Properties, Emotions Toward the Instigator, and Reactions ($N = 154$)

	1	2	3	4	5	6
1. Attribution situation						
2. Controllability	.46**					
3. Intentionality	.79**	.50**				
4. Anger	.55**	.27**	.54**			
5. Sympathy	-.48**	-.33**	-.55**	-.35**		
6. Pity	-.26*	-.25*	-.37**	-.12	.69**	
7. Violence of reaction	.55**	.32**	.53**	.47**	-.44**	-.29*

* $p < .01$; ** $p < .001$.

of sex was observed on the relevant variables, this variable was not examined further.

The proposed model, including all relevant cause-effect relationships (see Figure 1), was tested using Bentler's (1989) program for the analysis of structural equations (EQS). A latent-variable approach was used to represent the role of the attributional process (perceived controllability and intentionality) and empathic emotions (pity and sympathy). One latent variable represented the conception of attributional properties as parts of an underlying thinking (attributional) process; the other represented pity and sympathy as part of an empathic emotion response. Mean ratings of the variables under study by condition are shown in Table 1; correlations of all variables are shown in Table 2.

In order to check normal theory assumptions, skewness and kurtosis were estimated for the measured variables. All of these were within the ± 2 range, indicating that the present sample size is appropriate for the use of EQS.

The results of testing the proposed model are shown in Figure 2. On the basis of the maximum likelihood method used in the EQS program, the model fit the data

very well, $\chi^2(9) = 11.48$, $p = .24$, NFI = .977 (NNFI = .988; CFI = .995).

To further examine the role of theoretically meaningful causal relationships within the model, three additional models were tested. First, in order to examine the importance of the cognition (attribution) process as a determinant of emotions, a model was tested that was identical to the one presented in Figure 2 except that the causal paths from the attribution process to the emotions (anger and empathic emotions) were fixed to zero. Results show that the fit of this model is not adequate, $\chi^2(11) = 35.32$, $p < .001$, NFI = .929 (NNFI = .902; CFI = .949). In this case, as indicated by the significance level of the chi-square statistics, there is significant variance not accounted for. In addition, the difference in chi-square between this and the proposed model is significant, $\chi^2(2) = 23.84$, $p < .001$, demonstrating that the effects of the attribution process on emotions represent an important contribution to the fit of the model.

Second, a model without the "attribution process" latent variable was tested. This model, intended to examine the importance of the attribution process variable as a whole, included anger and empathic emotions as the only mediators between the situational manipulation and the reactions. The EQS test showed that this model did not fit the data, $\chi^2(5) = 24.05$, $p < .001$, NFI = .913 (NNFI = .853; CFI = .928), and there is a significant difference in chi-square between this model and the one in Figure 2, $\chi^2(4) = 12.57$, $p < .05$, suggesting that an emotion-only approach does not satisfactorily account for the present data. Finally, a model representing anger as the only mediating variable between the situational manipulation and violence of the reactions was tested. According to the EQS results, this model is extremely far from a fit of the data, $\chi^2(1) = 27.13$, $p < .001$, NFI = .773 (NNFI = .328; CFI = .776).

DISCUSSION

Overall, the results strongly support the propositions of the present research (see Figure 2). The effects of attributional processes and mediating interpersonal emotions as determinants of violent reactions in conflict situations are supported, and some light is shed on the nature of the relationships between cognitive (attribution) processes and emotions in antisocial behavior. It is particularly interesting to observe that the structure of relationships (e.g., the cognition-emotion-action sequential organization) was similar to that observed in the area of prosocial behavior (see Betancourt, 1990a).

The present results are particularly meaningful in that in addition to confirming the role of anger as a mediating determinant of violent reactions to an instigation, they clearly demonstrate the role of empathic emotions

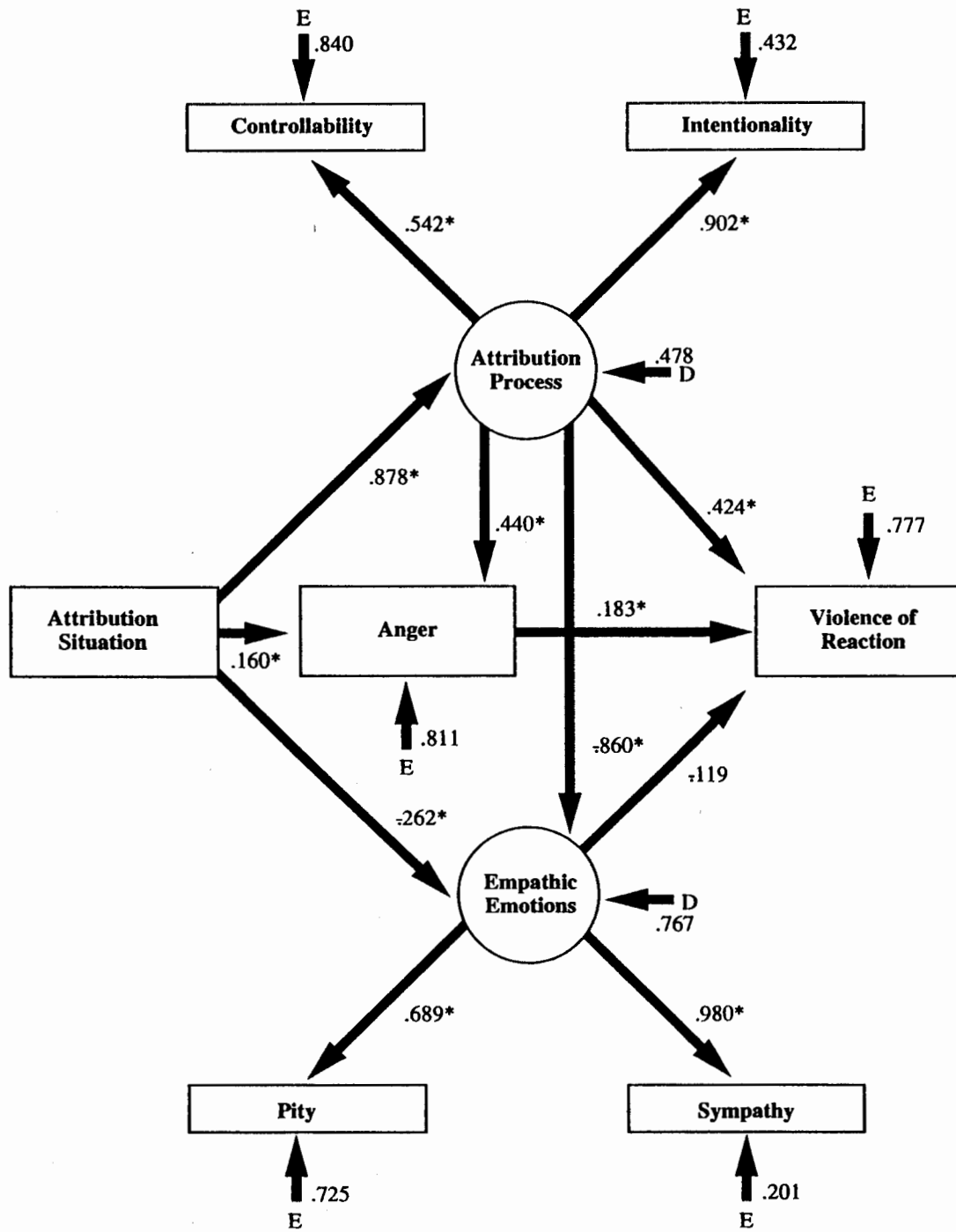


Figure 2 EQS results from testing the proposed attribution-emotion-reaction model of violence in conflict situations. $\chi^2(9) = 11.48, p = .24; NFI = .977.$
 * $p < .05.$

as well as the influence of cognitive (attributional) processes on these two types of emotions. For example, the analysis of alternative models shows the importance of attributional thinking as a determinant of anger and

empathic emotions. Specifically, when the attribution process is included within the model as a direct determinant of violence (path from attribution process to violence of reactions) but its role as a determinant of

emotions is not included (paths from attribution process to anger and to empathic emotions), the fit of the model is not adequate. In addition, consistent with the comparative analysis, it is important to note (see Figure 2) that even though anger appears to be in part a function of direct situational determinants, the cognitive (attribution) process seems to be far more important in determining both anger and empathic emotions.

From an attributional perspective, it is interesting to observe that intentionality of the instigating action and controllability of causes strongly influenced violent reactions in two ways: directly and through their influence on anger and empathic emotions. The present causal model suggests that similar mediating processes and structural relationships can account for results in both prosocial and the type of antisocial behavior studied here. It seems that even though the elements may be different, there is a symmetry in the way similar cognitive processes and emotions mediate between antecedent factors and both prosocial and antisocial behavior. Perhaps comparative studies in these two areas would shed light on commonalities that may lead to a more general understanding of the role of cognition and emotion in social behavior.

Concerning previous conceptions of the relationship between anger and aggression, the present results raise several questions about theories that have failed to consider cognitive processes. First, in classic studies of violence, researchers have viewed anger as determined by situational aspects such as the prevention of goal attainment. Such situational determinants of anger are confirmed here and are represented in the model by the direct path from the eliciting situation to anger (see Figure 2). This is obviously consistent with the prominent role given to anger in the study of human aggression (e.g., Averill, 1982; Berkowitz, 1983; Novaco, 1986). However, the same analysis also shows that attributional processes, represented by perceived controllability of causes and intentionality of actions, have a major influence on anger. This suggests that cognitive processes, generally not included in classical studies of anger and aggression, deserve more attention in this area.

Second, empathic emotions, which, like anger, are subject to the influence of both situational factors and attribution processes, were also observed to influence violence of the reactions. This suggests that theories of aggression based on anger as a mediator should also consider the possible mediating effects of empathic emotions.

Third, an interesting aspect of the present results is the importance of the direct effects of attribution processes on the reactions (see Figure 2). Although it can be argued that the cognitive nature of the task and the salience of the attribution manipulation overpowered the emotional reactions, these results suggest that inde-

pendent of the emotion-mediated effects, there are direct cognitive determinants of aggression and reactions to violence which should be studied.

On the basis of these considerations, one may argue that in previous studies concerning the relationship between anger and aggression, researchers may have attributed the effect of the mediating attribution or other cognitive processes to anger. For example, this could be the case when the stimulus situation intended to elicit anger also influences the attribution processes (e.g., perception of intentionality and controllability), which, according to the present results, influence violence both directly and through mediating emotions.

In addition, one may speculate that at least part of the variance observed in traditional studies of aggression that has been attributed to anger is actually the result of variations in empathic responding associated with aspects of either the eliciting situation or attributional thinking. This argument is consistent with a meta-analysis of the research on empathy and aggression (see Miller & Eisenberg, 1988), which suggests a negative relationship between empathy and antisocial behavior.

These observations are even more pertinent when methodological issues concerning classic studies of aggression are considered. For example, it can be argued that in some instances research on anger and aggression has used S-R methodology to test S-O-R theories, which has been an important problem in past psychological research (see Taylor, 1976). In addition, it has been argued (e.g., Bentler, 1980) that even when mediating variables are studied using traditional methods, experimental manipulations may activate other variables that may actually be responsible for the mediating effects. It is possible to argue that this could have been the case in early research on anger and aggression in which cognitive processes or other emotions were not examined or an S-R methodology was used.

These methodological considerations highlight the potential contribution of multivariate techniques such as causal modeling in this area. Of course, in order to examine the underlying psychological processes using the present causal modeling techniques, a simulational paradigm had to be used. Given the existing level of knowledge and ethical considerations, it would have been difficult and premature to do the same using an actual act of aggression in a real-life setting. However, the present results are expected to provide a basis for future studies that may use measures of actual violence in real-life situations and at the same time use techniques to properly analyze mediating psychological processes.

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