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The intergenerational transmission of relationship attributions

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The intergenerational transmission of relationship attributions

by

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CHAPTER 1

INTRODUCTION

Family researchers have long known that interpersonal relationships are a source of both great individual happiness and great personal distress. This common sense knowledge finds expression in one of the most robust findings in marital research of the past thirty years: when comparing individuals across all marital status groups, the married experience the highest levels of both physical and mental well-being, while the divorced experience the lowest (for a review, see Verbrugge, 1979). Marriage may serve as a protective health factor by providing social support, and by promoting good health behaviors, such as regular meals and sufficient sleep (Stack & Wasserman, 1993; Umberson, 1992; Wickrama, Lorenz, Conger, & Matthews, in press). In contrast, divorce may be a stressor that increases psychological distress, and encourages poor health habits and risky behaviors, resulting in elevated mortality rates (Bloom, Asher, & White, 1978; Hu & Goldman, 1990; Wickrama et al., in press). Furthermore, empirical studies indicate that it may be the quality of the relationship, rather than the simple fact of being married, that confers these health benefits (Gove, Hughes, & Style, 1983).

These research findings have led to an interest in identifying those factors that promote and help to maintain high quality, close relationships. One branch of research coming out of the study of marital relationships has examined the behavioral correlates of
marital satisfaction (Fincham & Bradbury, 1991). These studies have found that happy marriages are characterized by greater levels of positivity, and lower levels of negativity in interaction (for reviews, see Gottman, 1979; Schaap, 1984). However, models of close relationship are focusing increasingly on the cognitive component of social interaction (e.g., Berley & Jacobson, 1984; Bradbury & Fincham, 1990; Doherty, 1981a, 1981b). Cognitions, including attributions about a partner’s behavior, have been shown to influence interactions (Bradbury & Fincham, 1990).

Largely absent in this literature, however, is the question of whether adult intimate relationships may be influenced by experiences in earlier relationships (Benson, Arditti, DeAtiles, & Smith, 1992). After noting that "...possible determinants of spouses' attributions...[have] not been a topic of much speculation," Karney, Bradbury, Fincham, and Sullivan (1994) mention "the possibility that experiences in the family of origin (e.g., interparental conflict) may influence specific attitudes and expectations about marriage and attributions for a future partner’s behavior" (p. 421). The relationship between making hostile attributions and behaving in a hostile manner is well-supported in the literature (Crick & Dodge, 1994; Larrance & Twentyman, 1983), suggesting the possibility that parental behavior may provide a link between a parent's attributional biases toward children, and the child's attributional bias toward his or her peers.

Dissertation organization

In this dissertation, I address the question of whether attributions may be transmitted intergenerationally, and the pathways
through which such a transmission could take place. Chapter Two consists of a review of the literature regarding attributions in close relationships, and focuses on the theory and previous research pertaining to the possibility that attributions that parents make regarding their child's misbehavior influence the attributions that a child makes regarding peers. I examine the theoretical and empirical support for one specific pathway through which this intergenerational transmission could occur; namely, that attributions that parents make regarding their child's misbehavior influences their behavior toward that child, and that this behavior may influence the types of attributions that the child makes toward peers. Chapter Three is a manuscript suitable for submission to The Journal of Personality and Social Psychology. In it I present an empirical study examining the relationships between parent attributions regarding their adolescent child, their behavior toward that child, and the child's attributions regarding his or her sibling. The paper is formatted in the typical journal article style, with a literature review, a methods section, results, and a discussion. Lastly, in Chapter Four I discuss general conclusions for the entire dissertation.

References


CHAPTER 2

LITERATURE REVIEW

Any study that attempts to investigate the possibility that attributions may be transmitted intergenerationally through parental behavior as a mediator must provide theoretical and empirical support for two specific linkages. The first is the link between parents' attributions regarding their child's misbehavior, and the behavior that they display toward that child. The theory most relevant to this cognition-behavior linkage is attribution theory as it has been applied to the study of close relationships; in particular, to parent-child relationships (e.g., Dix & Grusec, 1985; Dix & Lochman, 1990). The second linkage that must be supported is the link between parental behavior and child attributions regarding peers. One theory that has been used to investigate the relationship between the family and peer domains is attachment theory (Bowlby, 1973, 1980, 1982). For example, attachment theory has been used to explain how early experiences within the family influence the cognitions children develop regarding peers (Elicker, Englund, & Sroufe, 1992; Parke, Cassidy, Burks, Carson, & Boyum, 1992). Another theoretical model providing a possible cognitive link between family and peers is social information processing. Dodge and his associates (Dodge, Bates, & Pettit, 1990; Dodge, Pettit, Bates, & Vallente, 1995; Weiss, Dodge, Bates, & Pettit, 1992) have provided the most comprehensive series of studies examining ways in which children's social
information processing mediates the relationship between parental mistreatment and children's deviant behavior in school.

In this chapter, I will review the theoretical and empirical support for both the parent attribution/parent behavior linkage and the parent behavior/child attribution linkage. In the first section of the chapter I will focus on the parent attribution/parent behavior linkage. First, I will outline the contributions of two classic attribution theorists, focusing on those aspects of attribution theory that have been relevant to studies of parent attributions, and attributional dimensions in general. Then, I will discuss empirical studies that have examined parent attributions regarding the misbehavior of children, and the ways in which parental behavior is influenced by attribution. In the next section of the chapter, I will discuss the theoretical and empirical support for the parent behavior/child attribution linkage, including the theories of attachment, social information processing, and attributional style. In addition, in this chapter I also discuss a major theoretical and methodological issue in the field of cognition in close relationships; namely, confusion regarding attributional dimensions. Lastly, I will outline directions for future study.

The parent attribution/parent behavior linkage

Classic attribution theory

Attribution theory originated in 1958 with the publication of Heider's *The Psychology of Interpersonal Relations*. Heider believed that people theorize about and try to predict events in their everyday world much as scientists do. Referring to people as "naive
psychologists," he asserted that individuals try to create a stable, predictable image of the world by attributing seemingly transitory, fleeting events to the stable, dispositional characteristics of individuals or the situation. "It is an important principle of common-sense psychology, as it is of scientific theory in general, that man grasps reality, and can predict and control it, by referring transient and variable behavior and events to relatively unchanging, underlying conditions, the so-called dispositional properties of his world" (Heider, 1958, p. 79). Individuals tend to attribute behavior either to the internal characteristics of an actor (i.e., attitudes, abilities, effort, etc.) or to elements in the external environment or situation (such as the difficulty of the task, stresses in the environment, etc.). For example, a parent may attribute her child's failure on a test either to the child's lack of ability (internal attribution), or to the fact that the test was too difficult (external attribution). By anchoring events in the dispositional characteristics of either the person or the environment, the individual can create a sense of order and stability in the world (Heider, 1958).

Heider was also concerned with how the naive perceiver assigned responsibility for events. He hypothesized that one of the things influencing the attributional process was the perception of intent. Specifically, the perceiver was more likely to make internal attributions when he or she inferred that the actor was acting with intent. Under what conditions did the naive perceiver infer intent? According to Heider (1958), people are more likely to infer that an individual is acting with intent when they see that person striving toward a particular goal (equifinality), when they perceive that he
or she is the originator of the action (local causality), and when he
or she exerts a great deal of energy in pursuing the goal (exertion).

While Heider’s insights were provocative and influential, his
work did not lend itself easily to empirical evaluation. Jones and
Davis (1965) presented a more systematic exposition of attribution
theory with their theory of correspondent inferences. An inference
is considered to be correspondent when an individual infers a
dispositional trait based on an actor’s behavior. For example, a
person may explain an actor’s friendly behavior by assuming that he
or she has a friendly disposition. Correspondent inferences are made
in two steps. First, people make attributions of intent based on the
actor’s knowledge and ability. When a perceiver believes that an
actor knew the effect that the action would have (knowledge), and
that the actor had the ability to carry out the action (ability), he
or she will be likely to make an attribution of intent. In the
second step of the process, the perceiver makes a dispositional
attribution on the basis of the attribution of intent (Jones & Davis,
1965).

In making correspondent inferences, people rely on the presence
of noncommon effects (Jones & Davis, 1965). Jones and Davis defined
an effect as the distinctive consequence of an action. Actions can
have many effects; thus, deciding which effect was intended can be a
problem for the naive scientist. Jones and Davis (1965) asserted
that people make correspondent inferences based on noncommon effects.
That is, when an actor chooses between two alternatives, the naive
perceiver will rule out effects that are common to both of them, and
base his or her attribution on the noncommon effect that was present
in the chosen alternative. For example, if a person has two job
offers, and the only difference between them is that the job the actor chooses is located near the mountains, the perceiver may conclude that the actor likes mountains.

Jones and Davis (1965) also discussed two ways in which the personal involvement of the perceiver may influence attributions. An effect has hedonic relevance for the perceiver when it is supportive of, or goes against, the perceiver's interests. Perceivers tend to judge effects that have hedonic relevance as more correspondent than effects with little or no hedonic relevance. For an act to be hedonically relevant, it isn't necessary for the actor to realize that it is related to the perceiver's interests. When that awareness exists, an act possesses the quality of personalism. That is, an act becomes personal when the individual believes that it was directed specifically at him or her. As with hedonic relevance, acts believed to be personal are also more likely to be judged correspondent (Jones & Davis, 1965).

**Empirical findings regarding the parent attribution/parent behavior linkage**

Numerous studies on parents and children confirm that parents make attributions concerning their children's behavior (for a review, see Miller, 1995). As with other close dyads, parents may be particularly reactive to children's misbehavior and likely to make attributions because the parent/child relationship is such a close one. Children's misbehavior may provoke negative attributions because it has negative consequences for the parent (hedonic relevance), or because the parent may feel that the behavior is directed at him or her (personalism). In addition, parents' roles as
the primary socializers of children may make them particularly likely to look for explanations for children's behavior (Dix & Grusec, 1985).

Parent attributions about child behavior are likely to change over time as the child ages. Dix and Grusec (1985) hypothesized that parents' attributions regarding a child's behavior would become increasingly dispositional and blaming as the child grew older. One reason for this change is that as children mature, their knowledge and skill levels increase, leading parents to hold them more responsible for their actions. In addition, the rapidity of the developmental changes that occur in young children may preclude parental attributions of stability or globality. That is, because young children go through more developmental changes than older children, their behavior is likely to seem less consistent, resulting in fewer causal or dispositional attributions by parents (Dix & Grusec, 1985). These hypotheses are supported in two studies reported by Dix and his associates (Dix, Ruble, Grusec, & Nixon, 1986). These studies found that parents judged the behavior of older children to be more intentional, controlled, and dispositional than that of younger children, but not more internal, stable, or general.

**Parent attributions and parent behavior.** Several studies have found that parent attributions are related to parental affect and behavior. For example, researchers have found that physically abusive mothers are more likely than non-abusive mothers to make stable, internal attributions for their children's behavior (Larrance, Amish, Twentyman, & Plotkin, 1982). Larrance & Twentyman (1983) found that abusive mothers were more likely to attribute negative behavior in their children to stable, internal factors, and
positive behavior to external, unstable factors. In another study, mothers who attributed a greater balance of control over caregiving failures to the abused child than to themselves were found in an observational task to exhibit more dysphoria when interacting with the child than other mothers (Bugental, Blue, & Lewis, 1990). Non-abusive parents who make negative attributions for children's behavior have also been found to respond with negative affect (Bugental et al., 1990; Dix et al., 1986; Dix, Ruble, & Zambarano, 1989, Dix & Lochman, 1990; Scott & Dembo, 1993).

Parents who make negative attributions for their children's behavior may be more likely than other parents to feel that it is important to respond to misbehavior. For example, Dix et al. (1986) found that parents who felt that children's misbehavior was due to the personality characteristics of the child (dispositional attribution) or who thought that the behavior was deliberate, and with negative intent (attribution of intention), felt that it was important to discipline the child. Parents making negative attributions for child misbehavior also are more likely to advocate greater forcefulness of response, and to prefer punishment and a stern delivery, rather than a calm, inductive approach to discipline (Dix & Lochman, 1990; Dix et al., 1989).

There is some indication from empirical studies that parents may become established in a pattern of negative attributions and behavior that is self-sustaining. For example, Dix, Reinhold, and Zambarano (1990) found that mothers who were in angry moods (versus happy or neutral moods) were more likely to judge problems with their children to be more serious, to expect more negative behavior from their children, and to expect that greater sternness would be
required in dealing with misbehavior. Thus, while attributions may lead to negative affect, negative affect may bias parents toward making more negative attributions, creating a feedback loop. Physiology also may play a role in this process. Bugental and Cortez (1988) found that women who perceived children as having greater control over caregiving failures than themselves experienced an elevated heart rate and increased skin conductance when viewing videotapes of unresponsive children with whom they anticipated they would be interacting.

Children's reactions also may be a factor in these processes. In their studies of abusive mothers and their children, Bugental and her colleagues found that children who had been identified as "difficult" by abusive mothers exhibited more inappropriate and nonresponsive behavior than their siblings and were reported by stranger mothers to cause greater annoyance (Bugental, Blue, & Cruzcosa, 1989; Bugental et al., 1990). In addition, Dix and Lochman (1990) found that mothers of aggressive boys were more likely than mothers of non-aggressive boys to make negative attributions and to experience negative affect when viewing videotapes of stranger children, indicating that parental attributions can be independent of the child's actual behavior. These studies indicate that parents may become trapped in a cycle of negative attributions, negative affect and behavior, and aroused physiology that feed into each other, becoming self-sustaining over time. The findings also suggest, however, that the aversive behaviors of children may contribute to this cycle of negative emotions and interactions.
The parent behavior/child attribution linkage

Attributional style

The concept of attributional style provides one possible explanation for how parental behavior may influence child attributions about peers. Attributional style is "a tendency to make particular kinds of causal inference, rather than others, across different situations and across time" (Metalsky & Abramson, 1981, p. 38). The concept of attributional style was developed originally by Abramson, Seligman, and Teasdale (1978) in their reformulated learned helpless model. They hypothesized that there were stable, individual differences in the types of attributions that people made, and that individuals who consistently attributed negative events to their own internal, dispositional factors, and positive events to external, situational factors, were likely to become depressed. As applied to the linkage between family and peers, the concept of attributional style allows us to hypothesize that some children may display a consistency in attributions across individuals; that is, that children may make the same kinds of attributions for peers that they do for parents. While attribution theorists generally have not addressed the source of attributional style (Ickes, 1988), it may be the case that some individuals generalize the types of attributions that they make in their earliest relationships (that is, with parents) to individuals outside of the family.

Some support for the existence of an attributional style has been found in studies of attribution in close relationships. For example, researchers examining the relationship between attributional style and marital distress have found consistently that marital-
distressed individuals are more likely than nondistressed individuals to attribute negative events to their spouse's dispositional characteristics and positive events to situational factors (Bradbury & Fincham, 1990; Fincham & O'Leary, 1983). In addition, some researchers have found that maritally distressed individuals show a smaller variance within attributional dimensions across events, indicating that these individuals have a greater consistency in attributions (Baucom, Sayers & Duhe, 1989; Horneffer & Fincham, 1995).

The concept of attributional style has been questioned, however (Arntz, Gerlsma, & Albersnagel, 1985; Cutrona, Russell, & Jones, 1984). For example, Cutrona et al. found only weak support for a cross-situational consistency in attributions among college students. In a series of structural equation models, they found that a model with both attributional dimensions and situations provided a better fit to the data than a model with only attributional dimensions. Even after selecting a subsample of the individuals with the smallest variance in their attribution scores, Cutrona et al. found that situational factors had a greater influence on attributions than did attributional style. This was the case for attributions assessed through both hypothetical stories and real life events. Other researchers have found support for the validity of attributional style assessed at a moderate level of specificity (Anderson, Jennings, & Arnoult, 1988). That is, while the prevailing view of researchers initially was that an attributional style would involve consistency in attributions across many different types of situations (i.e., achievement, interpersonal, etc.), other researchers have found
that individuals may be consistent only within certain situational domains (Anderson et al. 1988).

**Attachment theory**

Attachment theory postulates that, based on early experiences with caregivers, children develop working models or mental representations of how people are likely to respond to them. These working models are then thought to generalize to other relationships in the child's life, influencing his or her interpretations of the behavior of others. For example, Crittenden and Ainsworth (1989) assert that abused children may become overly sensitive to hostile cues in their social environment, and that "such vigilance resulting from internal models of conflict and dominance could easily lead the abused child to misinterpret the behavior of others..." (p. 453).

Empirical studies consistently have provided support for attachment theory (Booth, Rose-Krasnor, & Rubin, 1991; Cohn, 1990). For example, studies have found that children observed to have an emotionally secure relationship with their primary caregiver in infancy were more sociable, playful, positive, and responsive in interaction with adult strangers and other children several months later (Main, 1983; Main & Weston, 1981; Pastor, 1981). In addition, Rudolph, Hammam, and Burghe (1995) found that mental representations of mothers (i.e., expectations of indifference or hostility) were related to mental representations of peers in a sample of seven- to twelve-year-old children. These studies provide support for the hypothesis that children who encounter hostile behavior from parents may come to expect that others, including peers, will behave in a similarly negative manner.
Social information processing theory

While classical attribution theory depicts the average person as a naive scientist who uses reason in a dispassionate search for the truth, social information processing models depict him or her as a cognitive miser, who uses mental shortcuts and preconceived ideas in order to see things in a self-serving, biased way (Fiske & Taylor, 1991). The cognitive miser model originated with research findings from the 1970s and 1980s that found that people relied more upon stereotypes and preconceived ideas in making social judgments than had previously been thought (Nisbett & Ross, 1980). Models of social information processing examine how data from the social world are processed in a series of discrete steps (Fiske & Taylor, 1991). Attributional processes are often included as an element in social information processing models (i.e., Bradbury & Fincham, 1990; Crick & Dodge, 1994). By examining how people mentally encode and interpret social information, and how this process is influenced by previous experience, knowledge, and expectations, cognitive psychologists can pinpoint areas of potential error, bias, and misinterpretation (Fiske & Taylor, 1991). For example, researchers have found that the encoding and accurate interpretation of social cues is related to social rejection and aggression in children (Dodge, Murphy, & Buchsbaum, 1984; Dodge & Tomlin, 1987).

The social information processing model of Dodge and his colleagues (Crick & Dodge, 1994; Dodge, 1986) allows us to examine ways in which a child’s early experiences with caregivers can influence his or her social cognitions. The model consists of five information processing steps. According to Dodge (1986), each child
comes to every social event with a database of mental representations of past events stored in his or her memory. These mental representations may consist of schemas, scripts, or cognitive heuristics (Crick & Dodge, 1994). Mental representations serve both as knowledge storehouses, containing information regarding self, others, and relationships in general, and as filters and organizers of incoming social information (Baldwin, 1992; Crittenden, 1990). In Dodge's social information processing model, each step of the model is reciprocally related to the memory data base. That is, the memory base continually influences, and is influenced by, the child's social information processing. In steps one and two of the model, the child selectively attends to, encodes, and interprets social information from his or her environment. Interpretation of social information can include a number of processes, including attributions of cause and intent. In steps three and four, the child searches his or her memory for possible responses, evaluates them, and selects one. In the last step, the child performs the selected behavior (Dodge, 1986).

Key empirical findings regarding parent behavior and child attributions

In their early work, Dodge and his colleagues investigated attributional biases in children who were socially deviant (i.e., socially rejected, aggressive, and/or socially neglected). A consistent finding was that socially deviant children were characterized by a hostile attribution bias - the tendency to overattribute hostile intent to an actor when the situation does not warrant it; for example, in ambiguous situations (Dodge, 1985).
Dodge and his colleagues looked for the source of this hostile attribution bias in selective attention to social cues, and in encoding errors.

Most recently, Dodge and his colleagues have examined the relationship between early parental mistreatment and social information processing deficits, including encoding errors and hostile attribution bias (Dodge, Bates, et al., 1990; Dodge et al., 1995; Weiss et al., 1992). Dodge hypothesized that children who had been abused or subjected to harsh discipline were conditioned to respond to general social situations with negative affect. This negative affect, in turn, could disrupt normal social information processing, resulting in two specific deficits. First, processing could be short-circuited, resulting in over-rapid, careless processing of information with insufficient attention to cues. Second, interpretation of social cues could be biased in a negative direction (Dodge, 1985). Researchers have found that children in negative emotional states are less able to delay gratification (Schwartz & Pollack, 1977; Seeman & Schwartz, 1974), and less likely to consider alternative explanations or alternative courses of action in response to another's behavior (Mischel, 1974; Mischel & Baker, 1975). In addition, Schiffenbauer (1974) found that individuals in a negative emotional state were more likely to perceive hostile intent in the facial expression of others, and Gouaux (1971) found that individuals in experimentally induced negative emotional states rated others as less attractive. These studies suggest that children who are in a conditioned negative emotional state may be more likely than others to make negative attributions about the behavior of other people, and also less likely to be influenced by information that may
disconfirm the negative attribution because of deficits in social perception and encoding.

**Hostile attribution bias.** Dodge examined hostile attribution biases in socially deviant children in a series of papers (for a review, see Crick & Dodge, 1994; Dodge, 1985). In a typical experiment, Dodge would identify children who were socially deviant (i.e., socially rejected, aggressive, and/or socially neglected) through peer sociometric analysis and teacher selection. For example, each child in a classroom might be asked to name the three children he or she liked the most, the three he or she liked the least, and two that fit descriptions of both aggressive and prosocial behavior (i.e., "This child starts fights and hits other kids"). Teachers also would indicate each child's aggressiveness and level of popularity. Using this information, Dodge would select subgroups of socially deviant and nondeviant children.

In a typical procedure, each child would be told hypothetical stories involving children their own age engaged in an act with either a negative outcome (getting hit in the back with a ball), or an ambiguous outcome (losing a pencil and later seeing a peer holding it). Children were then asked what they thought had caused the outcome. Perceived intention (hostile, neutral, or benign) was coded from their open-ended responses. These experiments have been done with samples of school-aged boys (Dodge, 1980; Dodge & Newman, 1981), school-aged girls (Dodge et al., 1984; Dodge & Price, 1994), African-American males and other minority children (Dodge & Coie, 1987; Dodge et al., 1995), clinical samples (Milich & Dodge, 1984), socially neglected children (Feldman & Dodge, 1987), adolescent offenders (Dodge, Price, Bacharowski, & Newman, 1990), severely aggressive
adolescents outside of a correctional facility (Lochman & Dodge, 1994), and normal adolescents (Dodge & Tomlin, 1987).

Experiments consistently revealed that socially deviant children were characterized by a hostile attribution bias. Specifically, Dodge and others found that while socially deviant children are similar to adjusted children in attributing hostile intent to people displaying hostile social cues, they tend to attribute hostile intent to others in situations that are ambiguous (Dodge, 1980; Waas, 1988), or situations with negative outcomes that others identify as clearly accidental (Dodge & Somberg, 1987). They found hostile attribution biases in aggressive, as compared to nonaggressive, children and adolescents (Dodge, 1980; Dodge & Coie, 1987; Dodge & Frame, 1982; Dodge & Somberg, 1987; Dodge & Tomlin, 1987; Milich & Dodge, 1984; Steinberg & Dodge, 1983; Waas, 1988), popular, as compared to unpopular, boys and girls (Aydin & Markova, 1979), socially rejected and neglected, as compared to socially accepted, boys and girls (Feldman & Dodge, 1987), emotionally disturbed, as compared to emotionally adjusted, boys (Nasby, Hayden, & DePaulo, 1980), and in violent adolescents both within and outside correctional facilities (Dodge, Price, et al., 1990; Lochman & Dodge, 1994).

**Encoding errors.** Dodge and his colleagues examined errors in encoding through experiments of cue recall, cue identification and discrimination, and cue relevancy (Dodge & Frame, 1982; Dodge & Newman, 1981; Dodge et al., 1995; Dodge & Price, 1994; Lochman & Dodge, 1994; Milich & Dodge, 1984). In a typical cue recall experiment, children participated in a “detective game” in which they could choose the number of clues they could listen to before deciding
whether or not the accused child in the story was guilty or not. They were then questioned as to how they had arrived at their decision, and asked to repeat as many of the clues as they could in a free recall (Dodge & Newman, 1981). Cue identification and discrimination experiments involved videotapes of actors engaged in activities judged by experimenters to be clearly hostile or benign. After watching the tapes, children were asked what they thought the intention of the actor in each story was, and were judged on their accuracy (Dodge et al., 1984). In a typical cue relevancy experiment, children listened to hypothetical stories, and were asked to recall important aspects of the stories. Their responses were then coded for relevancy (Dodge et al., 1995).

Dodge found that socially deviant children, compared to socially adjusted children, recalled fewer cues altogether, fewer neutral cues (Milich & Dodge, 1984), and fewer relevant cues (Lochman & Dodge, 1994). In addition, when given the opportunity, they chose to listen to fewer cues than adjusted children before making a decision regarding the guilt of a hypothetical child in a story (Dodge & Newman, 1981; Milich & Dodge, 1984). Researchers also tested whether children would recall cues not present in the stories (intrusions), and whether they would recognize cues suggested to them by experimenters that had not appeared in the stories. While Dodge and Frame (1982) found that socially deviant and younger boys exhibited more intrusions than adjusted and older boys, Milich and Dodge (1984) found no differences between socially deviant and adjusted boys. However, socially deviant boys were found to be significantly more likely to report that they recognized a statement suggested to them by the researcher, but not present in the stories.
(Dodge & Frame, 1982). Socially deviant children also displayed poorer cue identification and discrimination skills than adjusted children. These researchers also found greater cue discrimination and accuracy among popular and average children, as compared to socially neglected and rejected children (Dodge et al., 1984), and nonaggressive children, as compared to aggressive children (Dodge & Coie, 1987; Dodge & Somberg, 1987). Furthermore, socially deviant children tend to err by misinterpreting non-hostile cues as hostile (Dodge et al., 1984).

The relationship of parental mistreatment to hostile attribution bias and encoding errors. Dodge and his associates examined the relationship between harsh discipline and child social information processing in a prospective, longitudinal study (Dodge, Bates, et al., 1990; Dodge et al., 1995; Weiss et al., 1992). The sample consisted of 584 boys and girls entering kindergarten in three geographical locations: Nashville TN, Knoxville TN, and Bloomington, IN. Children were recruited in two cohorts (in April, 1987 and April, 1988). The children and their parents were first interviewed a few months prior to the time that the children entered kindergarten. Data on social information processing, including encoding and attributions, was collected from the children each summer, starting with the summer prior to kindergarten, to the summer prior to Grade 3. During the first wave of data collection, fathers and mothers were asked about the child's developmental history and ecological factors. The developmental history data included information regarding health problems during pregnancy and at birth, and the amount of fussiness, adaptability, and resistance to control the child exhibited as an infant. Fathers and mothers were also
asked about child misbehavior, and the amount and kinds of
discipline, including physical abuse, the child had received from
caregivers during two time periods prior to age five. Ecological
factors included family SES, family status (parents married or not),
and the child's exposure to violence (such as marital violence).
Parents were also asked about family stress factors, and mother's
social support.

Dodge and his associates analyzed data from this study in three
papers (Dodge, Bates, et al., 1990; Dodge et al., 1995; Weiss et al.,
1992). Parental mistreatment was measured variously as the
probability that the child had been physically harmed (Dodge, Bates,
et al., 1990), as harsh discipline (measured on a 5-point scale: 1 =
non-restrictive discipline, mostly positive guidance, 5 = severe
discipline, often physical) (Weiss et al., 1992), and as physical
abuse (measured on a 5 point scale: 1 = definitely no abuse, 5 =
authorities involved) (Dodge et al., 1995). In all three papers,
parental mistreatment prior to kindergarten was found to be related
to both encoding deficits and hostile attribution bias measured
during the school years. Importantly, Dodge et al. (1995) found that
mistreatment prior to kindergarten influenced child social
information processing up through the fourth grade.

Discussion

Summary of theory and empirical findings

In discussing the possibility that attributions are transmitted
intergenerationally through parental behavior, several questions are
paramount. First, do the attributions that parents make regarding
their child influence the behavior that they display toward that child? Second, is it possible that the attributions that children make regarding peers are influenced by the behavior that they receive from parents? Third, if parental behavior does influence child attributions, what are the pathways through which this influence may occur?

Both theory and empirical findings provide support for the contention that parents act on the basis of the attributions that they make about their children. Parents may be especially likely to respond behaviorally to attributions that they make regarding child misbehavior because their close relationship makes their children's behavior both hedonically relevant and personal, and because of their roles as the primary socializers of children (Dix & Grusec, 1985). Furthermore, empirical studies have found repeatedly that parents who attribute misbehavior to deliberate intent or selfish motives on the part of the child respond with greater negativity in affect and behavior (Bugental et al., 1989; Bugental et al., 1990; Dix et al., 1986; Dix et al., 1989; Dix & Lochman, 1990; Larrance & Twentyman, 1983; Scott & Dembo, 1993). The empirical evidence for the relationship between parental mistreatment and child attributions regarding peers is equally strong. Longitudinal studies by Dodge and his associates (Dodge, Bates, et al., 1990; Dodge et al., 1995; Weiss et al., 1992) found that parental mistreatment was related to child social information processing variables, including attributions. That is, children who were punished physically or who received harsh discipline from their parents during the preschool years were found to have encoding deficits and to exhibit a hostile attribution bias.
toward peers up to three years later (Dodge, Bates, et al., 1990; Dodge et al., 1995; Weiss et al., 1992).

While empirical support for the relationship between parent behavior and child attributions about peers is fairly straightforward, the mechanism by which parent behavior may influence child attributions is an empirical question that has remained largely unexplored. Attachment theory suggests that children who are mistreated by their parents may develop a working model of people in general as hostile, and may come to believe that individuals other than their parents have hostile intent (Crittenden & Ainsworth, 1989). Alternatively, children who are treated in a hostile manner by their parents may become conditioned to respond to social situations with negative affect. As discussed earlier, negative affect could disrupt normal social information processing, resulting in an inaccurate reading of social cues and attributions that are negatively biased (Gouaux, 1971; Mischel, 1974; Mischel & Baker, 1975; Schiffenbauer, 1974; Schwartz & Pollack, 1977; Seeman & Schwartz, 1974).

The last linking mechanism between parent behavior and child attributions that was considered was attributional style. It may be the case, for example, that children who are treated in a hostile manner by their parents may generalize attributions of hostile intent from their parents to peers. While some studies have demonstrated that situational factors seem to be more important than attributional style in determining the kinds of attributions that an individual will make (Arntz et al., 1985; Cutrona et al., 1984), the work of Dodge and others shows that when situational cues are absent — that is, when an actor's intent is ambiguous — some children will show a
hostile attributional bias (Dodge, 1980; Dodge & Coie, 1987; Dodge & Frame, 1982; Milich & Dodge, 1984; Steinberg & Dodge, 1983). Thus, attributional style as a linking mechanism for the intergenerational transmission of attributions deserves further study.

A major issue in the field

One of the main concerns expressed by researchers of cognition in close relationships is that there has been a lack of consensus regarding which attributional dimensions are important and how they should be measured. Fincham (1985, p. 105) refers to this as "the single most significant barrier to progress" in the study of attributions in close relationships. One result of this difficulty has been a profusion of attributional measures. For example, in their review of attributions in marriage, Bradbury and Fincham (1990) found that although no one study used more than a few attributional dimensions, altogether researchers have utilized ten different attributional dimensions in research on attribution in marriage. As a result, it has been difficult to compare results across studies. The situation in studies of cognition in other types of close relationship (i.e., the parent/child relationship) has been similar. For example, one study examining parental attributions assessed six attributional dimensions: dispositional causation, intentionality, external causation, lacks self-control, lacks behavioral knowledge, and rule knowledge (Dix et al., 1986), while another assessed only three: dispositional, intent, and responsibility (Dix & Lochman, 1990).

Yet another complication added to the problem of attributional dimensions concerns attributions that are made regarding the
relationship itself, rather than about the individuals within the relationship (Bradbury & Fincham, 1990). In an example from the literature on cognitions in marital relationships, Newman (1981) lists two levels of attribution that a husband may make for an unfaithful wife. One level is a dispositional attribution made about the person ("my wife is an untrustworthy person"). The second level is an attribution about the relationship itself, which Newman (1981) terms an interpersonal attribution ("my wife doesn't love me anymore"). Similarly, Bugental and her colleagues examined the relationship of caregivers’ perceptions of the balance of control over caregiving failures (self versus child) to caregiver affect and physiological reactivity (Bugental et al., 1990; Bugental & Cortez, 1988). Given the different ways that attributional dimensions have been conceptualized in the literature, it is difficult to see how results across studies can be compared, and how a comprehensive understanding of attributions within close relationships can be achieved.

In response to these concerns, researchers have offered overall classifications of attributions (Bradbury & Fincham, 1990; Fincham & Bradbury, 1992). According to Fletcher and Fincham (1991), the term "attribution" has been used in at least three different ways: general attributions that are descriptive, but make no reference to causality or responsibility, causal attributions, and responsibility attributions. An example of a general attribution is the trait attribution used in one study by Fichten, in which husbands and wives assigned trait descriptors (i.e., aggressive, kind) to their partner (Fichten, 1984). Causal attributions concern the perceiver’s explanation regarding the source of a behavior (Weiner, 1986).
Weiner's classification of causal attributions includes locus (internal versus external), stability (fluctuating versus relatively constant), and controllability (controllable versus uncontrollable). A fourth causal dimension, mentioned by Abramson et al. (1978), is globality, which is concerned with whether an individual attributes a cause to something that is specific to the situation (such as a poor ability in math) versus something that generalizes to other settings (such as low intelligence).

Responsibility attributions concern the perceiver's inference of blame or culpability, and are considered by Fincham and Bradbury (1992) to include the dimensions of intent, motive, and blame. In general, researchers who study close relationships have gravitated toward emphasizing attributions of responsibility and blame rather than causality. In part, this is due to a growing realization that people generally react to others on the basis of judgments of blame and culpability, rather than whether or not a person caused a particular event (Fincham & Jaspars, 1980; Shaver, 1985; Weiner, 1995). Most recently, some researchers have begun to draw a distinction between responsibility attributions and blame attributions (Fincham & Bradbury, 1992). Responsibility attributions are concerned with a person's accountability for an event, while blame attributions consist of evaluative judgments regarding a person's culpability (Bradbury & Fincham, 1990). Thus, a wife may attribute her husband's irritability to work stress (causal attribution), and feel that he's responsible because he shouldn't bring problems home with him (responsibility attribution). Nevertheless, she may decide that since he did not intend to make her feel bad, he's not to blame for the event (Bradbury & Fincham, 1990).
Directions for future study

Future studies of attribution in close relationships should pay careful attention to attributional dimensions. Current research seems to indicate that the responsibility dimensions (intent, motive, and blame) have a greater influence on behavior within close relationships than causal attributions (Dodge, 1985; Fincham & Bradbury, 1991; Fincham & Jaspars, 1980; Shaver, 1985; Weiner, 1995). In addition, some researchers have proposed an "entailment" model of attributions, in which whether or not an individual makes an attribution of blame for the actor in a particular event is dependent upon his or her prior attribution of responsibility for the same actor and event, which in turn is dependent upon his or her prior attribution of cause (Fincham & Bradbury, 1992). Thus, there are two directions that future research should take with respect to attributional dimensions. The first is to specify and test how the different attributional dimensions relate to each other (for example, whether attributions of blame are dependent upon earlier attributions of responsibility, as suggested by the entailment model), and how the different attributional dimensions relate to individual affect and behavior. In addition, researchers should strive toward a greater consistency in attributional dimensions, to make studies comparable to each other.

Another direction that future research on attributions in close relationships should take is in examining the direction of influence between attributions and behavior. Marital researchers examining the relationship between attributions and behavior typically have assumed that attributions have a greater influence on behavior than the
reverse (Fincham & Bradbury, 1993). However, it is likely that behavior also influences the kinds of attributions that people make. For example, individuals may make attributions that justify their behavior (I got angry; therefore he must have intended to insult me). Thus, it is likely that there is a reciprocal relationship between attributions and behavior (Bradbury & Fincham, 1990). Relatively few studies on attributions in close relationships have examined direction of influence between attributions and behavior. Given the interest expressed by researchers, it is likely that future studies will examine causal direction closely.

References


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CHAPTER 3

THE INTERGENERATIONAL TRANSMISSION OF RELATIONSHIP ATTRIBUTIONS

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Lisa Suzanne Matthews

Abstract

This study explores the possibility that attributions in close relationships are transmitted intergenerationally. Using structural equation modeling with 380 intact families, we found that the relationship between parent attributions regarding an adolescent child and the adolescent’s attributions regarding a sibling is mediated by the level of observed negative behavior the parents direct toward the adolescent. Parent attributions of intent for adolescent misbehavior are related to increasing negativity in parents’ behavior, even after controlling for the adolescent’s observed behavior. Parents’ negative behavior is related to increases in adolescent negative attributions regarding a sibling, even after controlling for the sibling’s observed behavior. Tests of causal direction reveal that parent attributions and parent behavior
have an equal influence on each other. Implications for intervention are discussed.

Introduction

In recent years, social scientists have shown an increasing interest in the role that cognition plays in the course and quality of interpersonal relationships. Although it is now well established that overt behaviors, such as hostility or warmth, are related to the quality and maintenance of interpersonal relationships (Birchler, Clopton, & Adams, 1984; Conger et al., 1990; Gottman, 1979, 1994; Matthews, Conger, & Wickrama, 1996; Robinson & Price, 1980; Schaap, 1984), social scientists have become increasingly aware that any model of close relationships is incomplete without an understanding of how cognitions may mediate behavior in social interaction (Arias & Beach, 1987; Bradbury & Fincham, 1990, 1992; Doherty, 1981a, 1981b; Fletcher & Kininmonth, 1991; Matthews, Wickrama & Conger, 1996; Newman & Langer, 1988; Weiss, 1984).

One type of cognition that has received a great deal of attention in the literature on interpersonal relations is attributions. Researchers have found consistently that people who attribute aversive behavior to the internal, stable characteristics of an actor, rather than to situational or unstable factors (for example, attributing irritability to a character flaw rather than to a difficult situation at work), also are more likely to experience negative affect, to exhibit hostile behavior, and to experience poorer relationship quality (Bradbury & Fincham, 1990; Bugental, Blue, & Cruzcosa, 1989; Crick & Dodge, 1994; Dix, Ruble, Grusec, &
Despite the scholarly attention given to attributions and the role they play in interpersonal relations, the question of how people develop a tendency toward making particular types of attributions has attracted surprisingly little attention (Karney, Bradbury, Fincham, & Sullivan, 1994). Some researchers have examined the possibility that attributional tendencies may be transmitted across generations. For example, researchers have looked at the concordance of attributions regarding school achievement between parents and children (Bar-Tal & Guttman, 1981; Cashmore & Goodnow, 1986; Holloway & Hess, 1982), and at the ways in which attributions that individuals make regarding their parents may relate to the attributions they make toward romantic partners (Benson, Arditti, DeAtiles, & Smith, 1992). However, no study that we know of examines how attributions that parents make within close relationships influence the types of attributions that children make about their peers. In this study, we attempt to fill this gap in the literature by examining how the attributions that fathers and mothers make regarding their adolescent child's behavior influences the attributions that the adolescent makes about a sibling.

The Theoretical Model

Figure 1 presents the theoretical model to be tested. Each of the constructs was measured at two time points, separated by a period of two years. This allowed us to do several things. First, we could examine the strength of the relationship between the variables of
interest by examining the correlation at Time 1. For example, a significant correlation between parent attributions and parent behavior at Time 1 would tell us that these two variables covary with each other. However, a concurrent correlation tells us nothing about whether one variable is related to change in another, or about direction of influence (for example, whether attributions influence behavior, or vice-versa). To find evidence indicative of change, we have to look for significant relationships between variables after controlling for earlier levels of the dependent variable. For example, a significant path from parent attributions to parent behavior at Time 2 would indicate that parent attributions are related to change in parent behavior (Kessler & Greenberg, 1981). In addition, by measuring the variables at two time points, we were able to test direction of influence by comparing two models: one in which the reciprocal paths had been constrained to be equal, and one in which the reciprocal paths had been allowed to be estimated freely. This allowed us to determine, for example, if parent attributions and behavior had an influence on each other than was equal in magnitude, or if one had a greater effect than the other.

Insert Figure 1 about here

In this model (Figure 1), we hypothesized that there would be a statistically significant relationship between parent attributions and parent behavior. For the purposes of this study, we defined a parent’s attributions as negative if he or she posits that the target child’s aversive behavior is intentional or selfishly motivated. In addition, we used a difference score (hostility minus warmth) as our
measure of behavior. We expected that the level of negativity in parental attributions made regarding the adolescent’s behavior at Time 1 would be positively related to the concurrent level of hostility, net of warmth, the parents displayed toward the adolescent, and to the level of negativity in the attributions that the adolescent makes about the sibling. In addition, we also expected that Time 1 parental hostility, net of warmth, would be related to the concurrent level of negativity in the attributions that the adolescent made regarding a sibling. Specifically, we proposed that negative behavior from parents would be positively related to negative attributions made by the adolescent regarding the sibling’s behavior.

For each of the relationships outlined in Figure 1, we also hypothesized that the independent variable would be related to change in the dependent variable. As shown by the reciprocal paths (see Figure 1), we tested for bidirectional relationships between the variables of interest. For the relationship between parental attributions and parental behavior, we hypothesized that both paths would be statistically significant. That is, we hypothesized that parent attributions would be significantly related to parent behavior after controlling for earlier levels of parent behavior, indicating that attributions are related to change in parent behavior. We also hypothesized that parent behavior would be significantly related to parent attributions, even after controlling for earlier levels of attributions, indicating that parent behavior is related to change in parent attributions. In addition, we expected that both paths would remain significant even after controlling for adolescent’s Time 1 hostility, net of warmth, toward the sibling (not shown in Figure 1).
Similarly, we hypothesized that both paths between parent’s negative behavior and adolescent’s negative attributions toward the sibling at Time 2 would be statistically significant. That is, we expected that parent’s behavior would be related to change in adolescent’s attributions, and that the adolescent’s attributions would be related to change in the parents’ behavior. In addition, we expected that both paths would remain significant even after controlling for sibling’s Time 1 hostility, net of warmth, toward the adolescent (not shown in Figure 1). Lastly, we expected to find that parents’ behavior would completely mediate the relationship between parents’ attributions and adolescent’s attributions. The rationale behind these hypotheses will be explained in the following paragraphs.

Literature Review

**Parent Attributions and Child Attributions**

Parent attributions may influence child attributions in at least two ways (Parke, MacDonald, Beitel, & Bhavnagri, 1988; Pettit, Harrist, Bates, & Dodge, 1991). The direct effect model hypothesizes that parents articulate, model, or directly instruct their children in making attributions about the behavior of others (e.g., Dix & Grusec, 1983; Grusec, Kuczynski, Rushton, & Simutis, 1978; Grusec & Redler, 1980; Parsons, Adler, & Kaczala, 1982). For example, a child may learn how to make particular types of attributions regarding the behavior of others (for example, attributions of hostile intent) from listening to his or her parents articulate their own attributions about the child’s behavior.
The indirect model suggests that parent attributions may influence child attributions indirectly through a mediator, such as parent behavior (Parke et al., 1988). That is, it may be the case that children acquire characteristic styles of social cognition through their daily interactions with their parents (Pettit et al., 1991). At least two theoretical perspectives provide support for a link between parent behavior and child attributions. The first is attachment theory (Bowlby, 1982; Crittenden & Ainsworth, 1989). Attachment theory postulates that children develop mental working models of human relationship based on early experiences that then affect social interaction. For example, Crittenden and Ainsworth (1989) assert that abused children may become overly sensitive to hostile cues in their social environment, and that "such vigilance resulting from internal models of conflict and dominance could easily lead the abused child to misinterpret the behavior of others and to respond with aggression himself" (p. 453).

A second approach concerns the biasing effects of emotional state (Dodge, 1985). In this approach, a child who has been conditioned to respond to particular stimuli with negative emotions may exhibit two social information processing deficits. First, processing may be short-circuited, resulting in over-rapid, careless processing of information with insufficient attention to cues and a conditioned negative response. Second, negative affect may lead to an interpretation of social cues that is biased in a negative direction (Dodge, 1985). Empirical studies support both of these hypotheses. Researchers have found that children in negative emotional states are less able to delay gratification (Schwartz & Pollack, 1977; Seeman & Schwartz, 1974), and less likely to consider
alternative explanations or alternative courses of action (Mischel, 1974; Mischel & Baker, 1975). In addition, Schiffenbauer (1974) found that individuals in a negative emotional state were more likely to perceive hostile intent in the facial expressions of others, while Gouaux (1971) found that individuals in experimentally induced negative emotional states rated others as less attractive. These studies suggest that children who are in a conditioned negative emotional state may be more likely than others to make negative attributions about the behavior of other people. At the same time, they also are less likely to be influenced by information that may disconfirm the negative attribution because of deficits in social perception and encoding.

**Parent Attributions and Parent Behavior**

Establishing the presence of an indirect effect of parent attributions on child attributions requires that two links be supported: the link between parent attributions and parent behavior, and the link between parent behavior and child attributions regarding peers. Several studies have found that parent attributions are related to parental affect and behavior. For example, researchers have found that physically abusive mothers are more likely than non-abusive mothers to make stable, internal attributions for their children’s behavior (Larrance, Amish, Twentyman, & Plotkin, 1982), especially when the behavior is negative (Bugental et al., 1989). Larrance & Twentyman (1983) found that abusive mothers were more likely to attribute negative behavior in their children to stable, internal factors, and positive behavior to external, unstable factors. In another study, mothers who attributed a greater balance
of control over caregiving failures to the abused child than to themselves were found in an observational task to exhibit more dysphoria than other mothers when interacting with the child (Bugental, Blue, & Lewis, 1990). Non-abusive parents who make negative attributions for children’s behavior also have been found to respond with negative affect (Bugental et al., 1990; Dix et al., 1986; Dix & Lochman, 1990; Dix, Ruble, & Zambarano, 1989; Scott & Dembo, 1993).

Parents who make negative attributions for their children’s behavior may be more likely than other parents to feel that it is important to respond to misbehavior. For example, Dix et al. (1986) found that parents who felt that children’s misbehavior was due to the personality characteristics of the child (dispositional attribution) or who thought that the behavior was deliberate, and with negative intent (attribution of intention), felt that it was important to discipline the child. Parents making negative attributions for child misbehavior also are more likely to advocate greater forcefulness of response, and to prefer punishment and a stern delivery, rather than a calm, inductive approach to discipline (Dix & Lochman, 1990; Dix et al., 1989).

There is some indication from empirical studies that parents may become established in a pattern of negative attributions and behavior that is self-sustaining. For example, Dix, Reinhold, & Zambarano (1990) found that mothers who were in angry moods (versus happy or neutral moods) were more likely to judge problems with their children to be more serious, to expect more negative behavior from their children, and to expect that greater sternness would be required in dealing with misbehavior. Thus, while attributions may
lead to negative affect, negative affect may bias parents toward making more negative attributions, creating a feedback loop. Physiology also may play a role in this process. Bugental and Cortez (1988) found that women who perceived children as having greater control over caregiving failures than themselves experienced an elevated heart rate and increased skin conductance when viewing videotapes of unresponsive children with whom they anticipated they would be interacting.

Children's reactions also may be a factor in this cycle of negative attributions and aversive behaviors. In their studies on abusive mothers and their children, Bugental and her colleagues found that children who had been identified as "difficult" by abusive mothers exhibited more inappropriate and nonresponsive behavior than their siblings and were reported by stranger mothers to cause greater annoyance (Bugental et al., 1989; Bugental et al., 1990). In addition, Dix and Lochman (1990) found that mothers of aggressive boys were more likely than mothers of non-aggressive boys to make negative attributions and to experience negative affect when viewing videotapes of stranger children, indicating that parental attributions can be independent of the child's actual behavior. These studies indicate that parents may become trapped in a cycle of negative attributions, negative affect and behavior, and aroused physiology that feed into each other, becoming self-sustaining over time.

**Parent Behavior and Child Attributions**

The second link that needs to be established in order to postulate that parent behavior mediates the relationship between
parent attributions and child attributions is the direct effect of parent behavior on child attributions. Dodge's social information processing model allows us to examine in closer detail ways in which a child's early experiences with caregivers can influence his or her social cognitions. The model consists of five information processing steps. According to Dodge (1986), each child comes to every social event with a database of mental representations of past events stored in his or her memory. These mental representations may consist of schemas, scripts, or cognitive heuristics which make information processing more efficient, but also more prone to bias and error (Crick & Dodge, 1994). In Dodge's social information processing model, each step of the model is related reciprocally to the memory data base. That is, the memory base continually influences, and is influenced by, the child's social information processing. In steps one and two of the model, the child selectively attends to, encodes, and interprets social information from his or her environment. Interpretation of social information can include a number of processes, including attributions of cause and intent. In steps three and four, the child searches his or her memory for possible responses, evaluates them, and selects one. In the last step, the child performs the selected behavior (Dodge, 1986). Because our primary focus here is on how parents may influence child attributions, we will focus mostly on the first two steps of the model: encoding social cues and hostile attribution bias.

The sample consisted of 584 boys and girls entering kindergarten in three geographical locations: Nashville, TN, Knoxville, TN, and Bloomington, IN. Children were recruited in two cohorts (in April, 1987 and April, 1988), and were first interviewed with their parents a few months prior to the time that they entered kindergarten. Data on social information processing, including encoding and attributions, was collected from the children each summer, starting with the summer prior to kindergarten, to the summer prior to Grade 3. During the first wave of data collection, fathers and mothers were asked about the child's developmental history, ecological factors, child misbehavior, and the amount and kinds of discipline, including physical abuse, the child had received from caregivers during two time periods prior to age five. Parents also were asked about family stress factors, and mother's social support. Finally, child aggression in school was measured with teacher reports and peer nominations.

Dodge and his colleagues found that child mistreatment occurring prior to kindergarten was significantly related to encoding deficits and hostile attribution biases in children. A hostile attribution bias is the tendency to over-attribute hostile intent to an actor when the situation does not warrant it - for example, in ambiguous situations (Dodge, 1985). Dodge and his colleagues found that children who had been abused or subjected to harsh discipline recalled fewer relevant social cues from hypothetical stories, and were more likely to exhibit a hostile attribution bias than children who had not been harmed and had not received harsh discipline (Dodge, Bates, et al., 1990; Weiss et al., 1992). Importantly, Dodge et al. (1995) found that child abuse occurring prior to kindergarten was
related to social information processing deficits up to four years later. Physical child abuse was related to relevancy of encoded cues and hostile attribution bias assessed at kindergarten, first, second, third and fourth grades, and averaged across all years of the study (Dodge et al., 1995).

These findings were consistent with results from Dodge's earlier studies on socially deviant children. Using groups of socially deviant and socially adjusted children identified through peer sociometric analysis and teacher selection, Dodge and his colleagues examined errors in encoding through experiments of cue recall, cue identification and discrimination, and cue relevancy (Dodge & Frame, 1982; Dodge & Newman, 1981; Dodge et al., 1995; Dodge & Price, 1994; Lochman & Dodge, 1994; Milich & Dodge, 1984). Dodge found that socially deviant children, compared to adjusted children, recalled fewer cues altogether, fewer neutral cues (Milich & Dodge, 1984), and fewer relevant cues (Lochman & Dodge, 1994). In addition, when given the opportunity, they chose to listen to fewer cues than socially adjusted children before making a decision regarding the guilt of a hypothetical child in a story (Dodge & Newman, 1981; Milich & Dodge, 1984).

In addition, Dodge and his associates have found consistently that socially deviant children are characterized by a hostile attribution bias. Specifically, Dodge and others have found that while socially deviant children are similar to adjusted children in attributing hostile intent to people displaying hostile social cues, they tend to attribute hostile intent to others in situations in which the actor's intent is ambiguous (Dodge, 1980; Waas, 1988). Researchers have found greater hostile attribution bias in aggressive
compared with nonaggressive children and adolescents (Dodge, 1980; Dodge & Coie, 1987; Dodge & Frame, 1982; Dodge & Somberg, 1987; Dodge & Tomlin, 1987; Milich & Dodge, 1984; Steinberg & Dodge, 1983; Waas, 1988), popular compared with unpopular boys and girls (Aydin & Markova, 1979), socially rejected and neglected compared to nonrejected boys and girls (Feldman & Dodge, 1987), emotionally disturbed boys compared to emotionally stable boys (Nasby, Hayden, & DePaulo, 1980), and with violent compared to nonviolent adolescents both within and outside correctional facilities (Dodge, Price, Bacharowski, & Newman, 1990; Lochman & Dodge, 1994).

Summary

The weight of the evidence just summarized suggests that the kinds of attributions that parents make regarding the behavior of their child (i.e., whether intentional, or motivated by selfish concerns, etc.) may influence the kinds of attributions that children make regarding the behavior of peers. Parents may directly influence the attributions that their child makes by articulating their own attributions regarding the child's behavior, which the child could then model when making attributions about the sibling. Alternatively, parental attributions may influence the child's attributions through the effect that they have on the levels of hostility and warmth that parents direct toward their child. Empirical studies indicate that parents who make negative attributions regarding their children's behavior react with greater hostility and less warmth, both in affect and behavior, toward their child. This negative behavior, in turn, may result in the child
creating a working model of social relationships as characterized by hostility and conflict. Alternatively, parental negative behavior may result in a child having a conditioned negative response to social situations in general, creating a bias in the child toward making hostile attributions about the behavior of others in situations in which other people's motives and intent are ambiguous.

This process may intensify over time for several reasons. First, researchers have hypothesized that due to a growing child's increasing knowledge and skill levels, parents' attributions may be more dispositional and blaming for older versus younger children (Dix & Grusec, 1985; Dix et al., 1986), suggesting that adolescence may be a time of particular risk. Furthermore, there is some indication that parents may become involved in a cycle of hostile attributions and negative affect that is self-reinforcing, leading to increasing levels of hostility in behavior toward children. Thus, negative attributions on the part of parents may lead to increases in the level of hostility and decreases in the level of warmth, that they display toward their child.

Theoretical and Methodological Issues

In this study, we also wish to address a theoretical question that has attracted some attention in the literature. This issue concerns the relationship between attributions and observable behavior. Studies from the marital literature demonstrate that spouses may see events very differently from each other and from trained observers (Jacobson & Moore, 1981; Robinson & Price, 1980). While these findings suggest that cognitions may become somewhat
detached from the directly observable behavior of the actor, having an influence on the relationship that is independent of behavior, it is also clear that observable behavior may continue to exert an independent influence (Matthews, Wickrama, et al., 1996). For this reason, we decided to add observed behavior as control variables. The literature just reviewed seemed to indicate that parents are more concerned with child behavior directed toward peers than with behavior directed toward parents. That is, the focus of parental attributions seems to be disciplinary, rather than interpersonal. Also, it is likely that adolescents exhibit more hostility toward siblings than toward parents. For these reasons, we controlled for adolescent hostility, net of warmth, exhibited toward the sibling when examining the relationship between parent attributions and parent behavior. We also controlled for sibling hostility, net of warmth, when examining the relationship between parent behavior and adolescent attributions.

We also would like to address a methodological issue that characterizes most of the research in this area (Miller, 1995). When data are collected from a single individual, relationships between variables are apt to be inflated due to common-method variance (Bank, Dishion, Skinner, & Patterson, 1990). For example, a measure of the relationship between self-reports of both attribution and behavior may be artificially high because a self-report measure includes not only the attribute of interest but also personality characteristics (e.g., negative affectivity) that may inflate the measure. Attempts to deal with method variance in structural equation modeling have included the creation of multiple informant latent constructs. For example, hostile behavior may be measured with a self-report, a
spouse-report, and an observer report strategy which removes variance unique to a self-report. However, use of multiple-informant latent constructs often results in low factor loadings, which themselves may create inflated path coefficients. To solve this problem, in this study, we created single-reporter latent constructs, but assess relationships only between different reporters. Thus, the attribution latent constructs were created from self-reports, but we relate them only to observer reports of behavior, or to the attributions of another reporter. This allows us to create latent constructs with acceptable factor loadings, while at the same time eliminating method variance in the estimation of relationships among latent constructs in the theoretical model.

Lastly, we want to address a theoretical issue regarding the measurement of behavior. Gottman (1994) hypothesized that it was hostility, net of warmth, rather than hostility or warmth by themselves, that would most strongly influence relationship quality. That is, it may not be hostility by itself that is detrimental to relationships, but hostility that is not counterbalanced by warmth. In addition, some parents may be more emotionally expressive than others, displaying high levels of both hostility and warmth. Using a measure of hostility, net of warmth, will control for level of emotional expressivity. For these reasons, we decided to follow the direction of two recent studies (Karney & Bradbury, 1997; Matthews, Wickrama, et al., 1996) and use a behavioral measure constructed by subtracting a measure of warmth from a measure of hostility.
Method

Sample and Procedures

The sample for this study was derived from a larger sample of 451 initial families participating in a 4-year longitudinal study. The Iowa Youth and Families Project was designed to examine the individual characteristics and family interactional patterns that contribute to successful adaptation to rural economic stress. To participate in the study, families had to include two parents, their seventh-grade child, and a sibling within 4 years of age of the seventh grader. Because few minority families live in the rural area where the research was conducted, all members of the sample were White. Because measures relevant to these analyses were available only in the second (1990) and fourth (1992) waves of the study, this report is based on information from those two waves. Listwise deletion of missing data resulted in a final sample of 380 fathers and mothers, and their adolescent child.

Families were recruited for the study in year one (1989) from 34 public and private schools in north central Iowa. The names and addresses of all seventh-grade students were obtained from all schools in communities with populations of 6,500 or less in the identified counties. Parents were sent a letter explaining the project and then were contacted by phone. Of the qualifying families originally contacted, 79% agreed to be part of the study.

In the four years of the study (from 1989 to 1992), the families were visited twice each year by trained field interviewers. During the first home visit, family members filled out questionnaires asking them about a variety of different topics, including recent
life events, their physical and mental health, and their relationships with family members and friends. Each family member filled out his or her questionnaire independently. A second visit occurred within two weeks of the first. During this visit, family members first filled out additional questionnaires, and then participated in four videotaped interactional tasks. For each task, the interviewer turned on and tested the video equipment, explained the task to the family, and helped them to complete a sample question. The interviewer then retired to a part of the house where he or she could not hear the family until the task was over.

Each task consisted of family members sitting around a table and taking turns reading questions from cards. The family members then would answer and discuss the questions together. Task 1 involved all four members of the family and centered on general questions about family life, such as how the family interacted, parental expectations of the children, and the children’s relationship with each parent. Task 2 was a problem-solving task and again involved the whole family. Family members were asked to try to solve a problem that they had indicated earlier was causing difficulties in the family. Task 3 involved only the siblings and asked them to talk about their relationships with each other and with their parents and how they were doing in school. Task 4 was a marital interaction task involving only the parents. Husband and wife were asked to talk about their relationship, enjoyable times they had together, areas of conflict, and how they dealt with conflict. Data from the second and third tasks were used in the present analysis.
The videotaped tasks were evaluated by trained video coders. Coders received 2 months of training and were required to pass several written and viewing tests before being allowed to code tapes. Coders assessed individual and interactional (dyad and group) characteristics. Separate, independent coders were used for each task. A second observer was assigned randomly to code independently approximately 20% of the tasks so that interrater reliability estimates could be obtained.

Measures

The study involved measurement in three conceptual areas: attributions, hostile behavior, and warm and supportive behavior. All constructs were measured using different reporters in order to reduce problems with method variance. That is, the attributional measures were taken from self-report questionnaire items, while the behavioral measures were taken from observer reports, using different observers to independently code the behaviors of parents and children. All observer measures were coded using the Iowa Family Interaction Coding system (Melby et al., 1989). Observer measures from Time 1 (1990) were assessed on a scale ranging from 1 (the behavior is not at all characteristic of the individual) to 5 (the behavior is very characteristic of the individual). Observer measures from Time 2 (1992) were assessed on a scale ranging from 1 (the behavior is not at all characteristic of the individual), to 9 (the behavior is very characteristic of the individual). Response categories from observer scales at Time 2 were recoded to a 5-point scale in order to make them comparable to the Time 1 scales.
Behavior measures for parents, target adolescents, and siblings were taken from different tasks in order to reduce problems of method variance. Parent measures were taken from Task 2, and target adolescent and sibling behavior measures were taken from Task 3. This precaution was taken in order to ensure, for example, that when looking at the relationship between parent attribution and parent behavior, there would not be an inflated measure between target behavior (the control variable, measured in Task 3), and parent behavior (measured in Task 2).

**Attributions.** Mothers and fathers reported on attributions that they make regarding the adolescent, and the adolescent reported on attributions that he/she made regarding the sibling. Each person was asked to report whether he or she agreed or disagreed (1 = strongly agree, 5 = strongly disagree) that each of the following statements described the focal person: "he/she sometimes does mean things just to irritate people;" "when he/she does something that bothers other people, it is usually just an accident," and "he/she is 'good-natured' and always tries to be helpful and considerate toward others." Items were coded so that a high score indicates the presence of negative attributions (i.e., as indicating negative intent or motive). As a result of data analyses to be described later, mother and father items were averaged to create a parent report of attributions toward the adolescent. The three items for each respondent were used as separate indicators to measure two attribution latent constructs (parent-to-adolescent attributions, and adolescent-to-sibling attributions). Reliabilities of the attribution measures were good (the alpha coefficient was .63 and .80
for adolescent attributions to sibling, Time 1 and Time 2, respectively; .75 and .77 for parent attributions to adolescent, time 1 and Time 2, respectively).

**Hostility, net of warmth, in observed behavior.** The hostility, net of warmth, measures were created by subtracting three measures of warm behavior from three measures of hostile behavior. The hostility scale measures the degree of hostility and anger the focal person displays towards the recipient, and the degree to which he or she is critical, rejecting, or disapproving of the recipient. The antisocial scale measures the degree of resistance or defiance the focal person displays toward the recipient through inconsiderate, noncompliant, insensitive, or obnoxious behavior. The angry-coercive scale measures the degree to which the focal person tries to influence the other person through the use of anger, threats, or hostility (for example, by using power plays, making demands or hostile commands, or stubbornness or resistance) (Melby et al., 1989). Intraclass correlations of these measures were satisfactory (intraclass correlations for the hostility, angry-coercive, and antisocial scales were: .67, .62, and .60 for parents, averaged over father and mother, over Time 1 and Time 2; .84, .77, and .76 for adolescent at Time 1; .73, .23, and .61 for sibling at Time 1).

The warmth scale measures the degree to which the focal person reacts favorably toward, takes an interest in, or enjoys being with the recipient of the behavior. The prosocial scale measures the focal person's ability to relate competently with other family members, and includes cooperativeness, sensitivity, helpfulness, a willingness to change for the sake of others, or a willingness to
comply with the requests of others. The listener-responsiveness scale measures the degree to which the focal listens to and shows interest in the recipient by acknowledging and validating what the other person has to say (for example, by using nonverbal backchannels and verbal assents) (Melby et al., 1989). Intraclass correlations for the observed warmth measures were adequate (intraclass correlations for the warmth, prosocial, and listener-responsiveness scales were: .63, .56 and .57 for parents, averaged over father and mother, over Time 1 and Time 2; .61, .48, and .63 for adolescent at Time 1; .41, .47, and .29 for sibling at Time 1). By subtracting the score on a warmth measure from the score on a hostility measure, we created three measures of hostility, net of warmth, that we used as separate indicators for latent constructs (hostility minus warmth, antisocial behavior minus prosocial behavior, and angry-coercive behavior minus listener-responsiveness).

Results

Initial analyses using multiple samples found no significant differences between fathers and mothers in the structural path coefficients for any of the models. Thus, in order to simplify presentation of findings, scores for fathers and mothers were combined for all subsequent analyses. In the results reported here, we used the mean of the father and mother report for all parent variables. In addition, multi-sample analyses found no significant differences between boys and girls, and so all the analyses were done with boys and girls combined. Means, standard deviations, and intercorrelations for all study variables are presented in the
Appendix. All of the correlations between measures loading on the same latent construct are substantial and statistically significant. Although some of the correlations representing the hypothesized relationships between variables are not significant, all are in the hypothesized directions. For example, the correlation between the Time 1 parent report of the second attribution measure (when the target does something that bothers other people, it is usually just an accident) and the adolescent report of the same measure is positive, but not statistically significant (r = .07, ns).

Causal Modeling Analyses

Measurement Model. As a first step in the causal modeling analysis, we specified and tested the measurement model. A measurement model specifies the structural relationships among the underlying, latent constructs and their observed measures (Bollen, 1989). Confirmatory factor analysis allows the researcher to test the fit of the hypothesized factor structure to the covariance matrix of the observed variables. We specified eight latent variables: parent attributions regarding adolescent behavior at Time 1 and Time 2, adolescent attributions regarding sibling at Time 1 and Time 2, parent observed behavior toward the adolescent at Time 1 and Time 2, adolescent observed behavior toward the sibling at Time 1, and sibling observed behavior toward the adolescent at Time 1.

We estimated the fit of the measurement model using the maximum-likelihood algorithm from the LISREL VIII software (Joreskog & Sorbom, 1989). Overall fit indices indicated that the model provided an adequate fit to the data (chi-square = 409.00 with 222
degrees of freedom; goodness of fit index = .91; adjusted goodness of fit index = .88). All of the standardized factor loadings were statistically significant, as shown in Table 1.

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Insert Table 1 about here

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**Evaluating the Structural Model.** The hypothesized relationships discussed earlier were tested in a series of nested models. Because researchers recommend that there be at least five cases per estimated parameter in order to get reliable estimates, we tested the theoretical model (Figure 1) in two sections: the first examining the relationship between parent attributions and parent behavior, and the second examining the relationship between parent behavior and adolescent attributions. For each section, we first estimated a null model which hypothesized that there were no relationships between the latent constructs. The null model serves primarily as a baseline comparison model by which the researcher can evaluate improvements in fit of subsequent models. Second, we estimated a model with stability paths between the Time 1 and Time 2 measurements of each variable (for example, between Time 1 parent attributions and Time 2 parent attributions). In the third model, we added correlations between variables estimated during Time 1 (for example, between Time 1 parent attributions and parent behavior), and reciprocal paths between variables measured at Time 2. In the fourth model, the reciprocal paths at Time 2 were constrained to be equal to each other. Because each of these models is nested within the previous model, we can examine changes in overall fit from one model
to the next, and determine which model fits the data the best. After determining the best-fitting model, we added the control variable, to see if the estimated structural coefficients would change in magnitude, direction, or statistical significance.

The results from the series of models examining the relationship between parents' attributions and parents' behavior are presented in Table 2. As expected, the null model had a very poor fit to the data (chi-square = 566.43, with 62 df). The stability model added stability paths. With a chi-square statistic of 125.93 (with 49 degrees of freedom), it showed an improvement in fit as compared to the null model (difference in chi-square = 440.50 with 13 df, p < .05). Results in Table 2 show that the stability coefficients for parent's attributions and behavior are large and statistically significant (standardized beta = .80 for parent attributions, and .49 for parent behavior, both t > 1.96). The reciprocal effects model examined the relationship between parents' attributions and their behavior by adding a correlation between these two variables at Time 1, and reciprocal paths at Time 2. This model showed a good fit to the data (chi-square = 48.26, with 46 df), with a significant improvement in fit over the stability model (change in chi-square = 77.67 with 4 df, p < .05). Coefficients from the reciprocal effects model show that negativity in parent attributions is positively related to level of parental hostility, net of warmth, both concurrently (correlation = .44, t > 1.96), and after controlling for earlier levels of parent behavior (standardized beta = .17, t > 1.96). In addition, the path from parent behavior to parent attribution, though not significant, was of a relatively large
magnitude (standardized beta = .14, t < 1.65), suggesting that the reciprocal paths may not be significantly different from each other.

In order to determine if the reciprocal paths between parent attributions and parent behavior are, in fact, equal in magnitude, we imposed equality constraints on the two paths in a fourth model (see Table 2). When forced to be equal, the reciprocal paths were significant (standardized betas = .14 and .19, t > 1.96). The change in chi-square statistic between the two reciprocal effects models (one with equality constraints, and one without) was small (change in chi-square = .28 with 1 df), indicating that the two models fit the data equally well. Because the model with equality constraints is the more parsimonious model, we accepted it as the best-fitting model. As a last step in the analysis, we added the adolescent’s behavior toward the sibling at Time 1 to the model. Even after controlling for adolescent’s behavior, the reciprocal paths between parent’s attributions and their behavior remained statistically significant (standardized betas = .14 and .18, t > 1.96).

The results from the series of models examining the relationship between parent’s behavior and the adolescent’s attributions are presented in Table 3. As expected, the null model demonstrated a very poor fit with the data (chi-square = 341.58, with 62 df). The second model added stability paths. As expected, the stability model showed an improvement in fit compared to the null model (difference in chi-square = 254.72 with 8 df, p < .05). Results in Table 3 show that the stability coefficients for parent’s
behavior and the adolescent's attributions are large and statistically significant (standardized beta = .49 for parent behavior, and .66 for adolescent attributions, both t > 1.96).

The reciprocal effects model examined the relationship between parent behavior and the adolescent’s attributions by adding a correlation between these two variables at Time 1, and reciprocal paths at Time 2. This model showed a good fit to the data (chi-square = 60.00, with 50 df). As expected, this model showed an improvement in fit over the stability model (change in chi-square = 26.86 with 4 df, p < .05). Coefficients from the reciprocal effects model show that parents' hostility, net of warmth, is positively related to the level of negativity in the adolescent’s attributions regarding the sibling both concurrently (correlation = .17, t > 1.96), and after controlling for earlier levels of adolescent attributions (standardized beta = .35, t > 1.96). In addition, the path from adolescent attributions to parent behavior was also marginally significant (standardized beta = .17, t = 1.79), suggesting that, as with parent attributions and behavior, the relationship between the parents' behavior and the adolescent’s attributions may be bi-directional. In order to determine if the reciprocal paths between parent behavior and adolescent attributions are, in fact, equal in magnitude, we imposed equality constraints on the two paths in a fourth model (see Table 3).

When forced to be equal, the reciprocal paths were significant (standardized betas = .33 and .20, t > 1.96). The change in chi-
square statistics between the two reciprocal effects models (one with equality constraints, and one without) was small (change in chi-square = .13 with 1 df), indicating that the two models fit the data equally well. Because the model with equality constraints is the more parsimonious, we accepted it as the best-fitting model. As a last step in the analysis, we added the sibling’s behavior toward the adolescent at Time 1 to the model. Even after controlling for sibling’s behavior, the reciprocal paths between parent behavior and the adolescent’s attributions remained statistically significant (standardized betas = .28 and .16, t > 1.96).

While analyses up to this point supported a specific mechanism of intergenerational transmission - that is, that parent attributions regarding an adolescent influence the adolescent’s attributions through their effect on parent behavior - another mechanism occurred to us that could provide an alternative, more straightforward explanation for the observed relationships. Parents who are negative in their behavior toward one child may be negative toward a near-age sibling as well. Thus, it may be the case that the adolescent’s attributions about the sibling are influenced not by parental behavior toward the adolescent, but by the way parents treat the sibling. In this case, the adolescent’s attributions would follow logically from the way the parents were treating the sibling ("Mom and Dad are hostile to sibling, so he/she must have done something wrong"), and not from a working model or disrupted social information processing. The significant relationship between parents’ behavior toward the adolescent and the adolescent’s attributions then could be spurious—a result of the correlation between the parents’ behavior toward the sibling and their behavior toward the adolescent. To test
this possibility, we estimated a model identical to earlier models, but with parent hostility, net of warmth, toward the sibling, and adolescent attributions. The model fit the data well (chi-square = 50.29 with 46 df). Although the Time 1 correlation between parent behavior and adolescent attributions was statistically significant (standardized beta = .26, t > 1.96), the reciprocal paths at Time 2 failed to reach significance.

A test of the mediational model. In addition to testing the relationships between parent attributions, parent behavior, and adolescent attributions, we also wanted to test whether parent behavior mediated the relationship between parent attributions regarding the target adolescent and the adolescent's attributions regarding his or her sibling. To test the mediational hypothesis, we estimated three models. The first model, a direct effects model, contained only the parent and adolescent attribution constructs, with reciprocal paths between the parent attributions toward the adolescent, and adolescent attributions toward the sibling at Time 2. Model 2 was a mediated effects model, and contained the parent attribution, parent behavior, and adolescent attribution latent constructs, with reciprocal paths between parent attribution and parent behavior, and between parent behavior and adolescent attributions at Time 2. Lastly, in model 3, direct paths between the Time 2 attribution constructs (parent-to-adolescent, and adolescent-to-sibling) were added to the paths already present in model 2. We did not include the control variables in these mediational models for two reasons. First, they are larger than the previously estimated models (contraining six latent contracts as compared to four in
earlier models), and we could not include the control variables and maintain the five cases per parameter estimated that is required to get reliable estimates. In addition, we felt that it was unnecessary to include the control variables because the theoretical model had already been tested with controls in the previous models.

The results are presented in Table 4. Model 1 fit the data well (chi-square = 42.82 with 45 df). As in earlier models (see Tables 1 and 2), the stability coefficients for parent and adolescent attributions were strong and significant (standardized betas = .80 and .64 for parent attributions and adolescent attributions, respectively, both t > 1.96). The direct path from parent attributions to adolescent attributions was significant (standardized beta = .15, t > 1.96), while the reciprocal path from adolescent attributions was not significantly different from zero (standardized beta = -.02 ns).

Results for model 2 are also presented in Table 4. Because previous analyses (Tables 1 and 2) had determined that the best-fitting models were the ones with equality constraints, we constrained the reciprocal paths between parent attribution and parent behavior, and between parent behavior and adolescent attribution to be equal. The model fit the data well (chi-square = 153.14 with 124 df). As with previous models, stability coefficients were strong and significant (standardized betas = .76, .40, and .56, for parent attributions, parent behavior, and adolescent attributions, respectively, all t > 1.96). In addition, the
reciprocal paths between parent attribution and parent behavior were marginally significant (standardized betas = .10 and .13, \( t > 1.65 \)). While the reciprocal paths between parent behavior and adolescent attributions were strong and significant (standardized betas = .39 and .23, \( t > 1.96 \)). In model 3, direct paths were added. Again, the model fit the data well (chi-square = 142.47 with 120 df). The reciprocal paths between Time 2 variables retained their significance (standardized betas = .13 and .17, \( t > 1.65 \) for paths between parent attribution and parent behavior; standardized betas = .29 and .18, \( t > 1.96 \) for paths between parent behavior and adolescent attributions), while the direct paths between parent and adolescent attributions failed to reach significance (standardized betas = .05 and -.06, ns), indicating that the influence of parent attributions on adolescent attributions is mediated entirely through parent behavior.

Discussion

Prior studies have demonstrated the importance of attributional processes in establishing and maintaining healthy interpersonal relationships (Bradbury & Fincham, 1990), but the question of how individuals develop a tendency toward making particular types of attributions has gone largely unanswered (Karney et al., 1994). In this study, we explored the possibility that attributional style in close relationships may, at least in part, be transmitted intergenerationally. Specifically, we hypothesized that parent attributions regarding an adolescent child would affect adolescent attributions regarding a sibling by influencing the level of
hostility, net of warmth, that the parents exhibited toward the adolescent.

Our hypotheses were largely supported. We found that the level of negativity in parental attributions regarding the adolescent was positively related to parents' observed hostility, net of warmth, both concurrently, and after controlling for earlier levels of behavior. That is, it appears that parents who infer that their adolescent is acting with hostile intent are more likely to be hostile, and less likely to be warm in their behavior toward that child. Parents may feel that it is important for them to respond to their child's misbehavior because of their roles as disciplinarians, and they may be more reactive than other adults when they feel that child misbehavior is intentional (Dix & Grusec, 1985). Our results also showed that level of negativity in parent attributions is related to increasing levels of hostility, net of warmth, in parent behavior. That is, parents who feel that their adolescent is misbehaving intentionally are likely to become increasingly punitive toward their child as the years go by. Importantly, these findings indicate that parents will behave negatively toward their child when making hostile attributions regardless of the level of observed hostility, net of warmth, that trained observers see in adolescent behavior toward the sibling. Thus, it is not the case that adolescents are becoming more hostile and less warm in their behavior toward the sibling over the two years between eighth and tenth grades, with parent attributions simply reflecting that fact. These findings indicate that attributions may take on a life of their own, having an influence on parent behavior that is somewhat independent of the adolescent's actual misbehavior.
A second important finding of this study was that the level of hostility, net of warmth, in parent behavior was positively related to the level of negativity in adolescent attributions regarding the sibling both concurrently, and after controlling for earlier levels of adolescent attributions. That is, it seems to be the case that when parents behave negatively toward their child, the adolescent may come to feel that the sibling has hostile intent. Several mechanisms could account for this relationship. The simplest is that children who are mistreated by their parents may develop a working model of people in general as hostile (Bowlby, 1982; Crittenden & Ainsworth, 1989). Alternatively, mistreated adolescents may develop a conditioned reaction of negative affect, which may then disrupt normal social information processing, resulting in a tendency to make negative attributions (Dodge, 1985). Furthermore, study results show that mistreated adolescents have a tendency to make attributions regarding their sibling that are increasingly negative over the two years covered by the study. Importantly, this process seems to take place regardless of the observed behavior of the sibling toward the adolescent. Thus, as with adolescent behavior and parent attributions, it doesn’t seem to be the case that siblings are simply becoming more hostile in their behavior toward the adolescent. Instead, the adolescent’s attributions regarding the sibling are becoming more negative regardless of the sibling’s observed behavior.

A third finding of this study is that the relationship between parent attributions and adolescent attributions is mediated completely by parent behavior. Thus, in this sample at least, it seems not to be the case that adolescents learn how to make attributions from listening to parents articulate their thoughts.
about the adolescent. Rather, parents influence adolescent attributions through the behavior that they display toward their child. However, we cannot tell from this study whether parental influence on child cognition occurs only through parental behavior for all age groups. Replication using different samples of children at different ages may provide additional information.

This study was designed to address an important methodological issue in the field. By measuring all latent constructs with a single respondent, and estimating all hypothesized relationships across different respondents, we were able to eliminate the effects of method variance while achieving moderately high factor loadings in our structural models. Thus, we can have confidence in the results of this study because we applied particularly stringent criteria in assessing different constructs using different measurement methods.

In addition, we were able to investigate direction of influence between pairs of variables by testing competing models. We found that the influence of parent behavior on parent attributions was equal to the influence of parent attributions on parent behavior. That is, it appears that the way that parents behave toward their child has at least as much influence on what they think about the adolescent as the reverse. We found similar results for the relationship between parent behavior and adolescent attributions regarding the sibling. That is, the study showed that adolescent attributions influenced parents' behavior as much as parents' behavior influenced adolescent attributions. One explanation for this finding is that parents may be reacting to attributions that adolescents are articulating about their siblings. Parents may be in a particularly good position to hear adolescent attributions if they
ask the adolescent for explanations regarding his or her behavior toward the sibling. Socializing attributions may be one role that parents take seriously as part of their disciplinary role.

If characteristic styles of attribution do develop in the way suggested by these findings, it may be possible to develop interventions that can prevent some of the negative effects of impaired or failed relationships (Putallaz, 1987). That is, just as attributions have been incorporated into marital therapy (e.g., Berley & Jacobson, 1984), it may be possible to teach parents and adolescents to make more positive attributions. Particularly alarming are the findings indicating that attributions and behavior tend to become more hostile, and less warm over time. Patterns of cognition and behavior established in childhood or adolescence may carry over into other relationships, influencing future relationships with friends, intimate partners, and children. Further research on this topic should address the extent to which cognitive/behavioral patterns established within the family of origin generalize to relationships outside the family.

References


FOOTNOTES

1 A difference score between two variables should be distinguished from "change" scores that have been used in the study of change (Cronbach & Furby, 1970). Change scores are calculated by subtracting the score on a measure at Time 1 from the score on the same measure at a different time. Unlike change scores, which have been criticized for having low reliabilities (Rogosa, Brandt, & Zimowski, 1982), a difference score tends to have a higher reliability than its individual components.

1 Control variables were measured at Time 1 in order to retain as many cases as possible. Additional analyses with control variables measured at Time 2 did not substantially change the significance of hypothesized path coefficients for any of the models, but reduced the sample size by 62 cases because many older siblings had left home by this time and were not available for the sibling interaction task.
Appendix: Intercorrelations among Study Variables

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Table 1. Standardized Factor Loadings for Latent Constructs

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Note. n = 380. All factor loadings p < .05, one-tailed test.

*a*Parent attributions and behaviors are directed at the target adolescent.

*b*Adolescent attributions and behaviors are directed at the sibling.

*c*Sibling behaviors are directed at the target adolescent.
Table 2. Standardized Path Coefficients and Correlations for the Models Examining the Relationship between Parent Attributions and Parent Behavior

<table>
<thead>
<tr>
<th>Paths</th>
<th>Null Model</th>
<th>Stability</th>
<th>Effects Model</th>
<th>Constraint Model</th>
<th>Control Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA_t1 to PA_t2</td>
<td>.80</td>
<td>.75</td>
<td>.73</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td>PB_t2 to PB_t2</td>
<td>.49</td>
<td>.43</td>
<td>.44</td>
<td>.40</td>
<td></td>
</tr>
<tr>
<td>PA_t2 to PB_t2</td>
<td>.17</td>
<td>.14</td>
<td>.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB_t2 to PA_t2</td>
<td>.14 ns</td>
<td>.19</td>
<td>.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB_t1 to PB_t2</td>
<td>.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correlations:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PA_t1 . PB_t1</td>
<td>.44</td>
<td>.44</td>
<td>.38</td>
<td></td>
</tr>
<tr>
<td>PA_t2 . PB_t2</td>
<td>-.05 ns</td>
<td>-.08 ns</td>
<td>-.07 ns</td>
<td></td>
</tr>
<tr>
<td>TB_t1 . PA_t1</td>
<td>.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB_t1 . PA_t2</td>
<td>-.04 ns</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

X² (df):

<table>
<thead>
<tr>
<th></th>
<th>(62)</th>
<th>(49)</th>
<th>(45)</th>
<th>(46)</th>
<th>(81)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA_t1 to PA_t2</td>
<td>566.43</td>
<td>125.93</td>
<td>48.26</td>
<td>48.54</td>
<td>139.15</td>
</tr>
<tr>
<td>PB_t2 to PB_t2</td>
<td>125.93</td>
<td>48.26</td>
<td>48.54</td>
<td>139.15</td>
<td></td>
</tr>
<tr>
<td>PA_t2 to PB_t2</td>
<td>48.26</td>
<td>48.54</td>
<td>139.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB_t2 to PA_t2</td>
<td>48.54</td>
<td>139.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB_t1 to PB_t2</td>
<td>139.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Change in X² (df):

<table>
<thead>
<tr>
<th></th>
<th>(13)</th>
<th>(4)</th>
<th>(1) ns</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA_t1 to PA_t2</td>
<td>440.50</td>
<td>77.67</td>
<td>.28</td>
</tr>
<tr>
<td>PB_t2 to PB_t2</td>
<td>77.67</td>
<td>.28</td>
<td></td>
</tr>
<tr>
<td>PA_t2 to PB_t2</td>
<td>.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB_t2 to PA_t2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB_t1 to PB_t2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GFI:

<table>
<thead>
<tr>
<th></th>
<th>.80</th>
<th>.95</th>
<th>.98</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA_t1 to PA_t2</td>
<td>.95</td>
<td>.98</td>
<td></td>
</tr>
<tr>
<td>PB_t2 to PB_t2</td>
<td>.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA_t2 to PB_t2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB_t2 to PA_t2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB_t1 to PB_t2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AGFI:

<table>
<thead>
<tr>
<th></th>
<th>.75</th>
<th>.92</th>
<th>.96</th>
<th>.97</th>
<th>.93</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA_t1 to PA_t2</td>
<td>.92</td>
<td>.96</td>
<td>.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB_t2 to PB_t2</td>
<td>.96</td>
<td>.97</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA_t2 to PB_t2</td>
<td>.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB_t2 to PA_t2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB_t1 to PB_t2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. n = 380. Unless otherwise noted, all coefficients significant (p < .05, one-tailed test). Unless otherwise noted, all changes in chi-square significant (p < .05).

PA = parent’s attributions, PB = parent’s behavior, TB = Target’s behavior.

*Reciprocal paths are constrained to be equal.

*Correlations at Time 2 are between the errors of the constructs.
Table 3. Standardized Path Coefficients and Correlations for the Series of Models Examining the Relationship between Parent Behavior and Adolescent Attributions

<table>
<thead>
<tr>
<th>Paths*</th>
<th>PBt1 to PBt2</th>
<th>TA1 to TA2</th>
<th>PBt2 to TAp2</th>
<th>TAp2 to PBp2</th>
<th>SBt1 to TAp2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.49</td>
<td>.66</td>
<td>.35</td>
<td>.17</td>
<td>.14</td>
</tr>
<tr>
<td></td>
<td>.44</td>
<td>.59</td>
<td>.33</td>
<td>.20</td>
<td>.17</td>
</tr>
<tr>
<td></td>
<td>.44</td>
<td>.59</td>
<td>.28</td>
<td>.16</td>
<td>.20</td>
</tr>
</tbody>
</table>

Correlations c

<table>
<thead>
<tr>
<th></th>
<th>PBt1, TA1</th>
<th>PBt2, TA2</th>
<th>SBt1, PBt1</th>
<th>SBt1, PBt2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.17</td>
<td>-.31</td>
<td>.32</td>
<td>.10</td>
</tr>
</tbody>
</table>

|          | .17        | -.31       | .07 ns      |

|          | .07 ns     | -.26 ns    |

<table>
<thead>
<tr>
<th>X² (df)</th>
<th>341.58</th>
<th>86.86</th>
<th>60.00</th>
<th>60.13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(62)</td>
<td>(54)</td>
<td>(50)</td>
<td>(51)</td>
</tr>
<tr>
<td></td>
<td>(86)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Change in

<table>
<thead>
<tr>
<th>X² (df)</th>
<th>254.72</th>
<th>26.86</th>
<th>.13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(8)</td>
<td>(4)</td>
<td>(1) ns</td>
</tr>
</tbody>
</table>

GFI .87  .96  .98  .98  .96
AGFI .84  .95  .96  .96  .94

Note. n = 380. Unless otherwise noted, all coefficients significant (p < .05, one-tailed test). Unless otherwise noted, all changes in chi-square significant (p < .05).
*PB = parent's behavior, TA = target adolescent's attributions, SB = sibling's behavior.
*Reciprocal paths are constrained to be equal.
Correlations at Time 2 are between the errors of the constructs.
Table 4. Standardized Path Coefficients and Correlations for the Test of the Mediation Model

<table>
<thead>
<tr>
<th>Paths</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA_{t1} to PA_{t2}</td>
<td>.80</td>
<td>.76</td>
<td>.75</td>
</tr>
<tr>
<td>PB_{t1} to PB_{t2}</td>
<td>.40</td>
<td>.40</td>
<td>.40</td>
</tr>
<tr>
<td>TA_{t1} to TA_{t2}</td>
<td>.64</td>
<td>.56</td>
<td>.59</td>
</tr>
<tr>
<td>PA_{t2} to PB_{t2}</td>
<td>.10</td>
<td>.13</td>
<td>.13</td>
</tr>
<tr>
<td>PB_{t2} to PA_{t2}</td>
<td>.13</td>
<td>.17</td>
<td>.17</td>
</tr>
<tr>
<td>PB_{t2} to TA_{t2}</td>
<td>.39</td>
<td>.29</td>
<td>.29</td>
</tr>
<tr>
<td>TA_{t2} to PB_{t2}</td>
<td>.23</td>
<td>.18</td>
<td>.18</td>
</tr>
<tr>
<td>PA_{t2} to TA_{t2}</td>
<td>.15</td>
<td>.05 ns</td>
<td>.05 ns</td>
</tr>
<tr>
<td>TA_{t2} to PA_{t2}</td>
<td>-.02 ns</td>
<td>-.06 ns</td>
<td>-.06 ns</td>
</tr>
</tbody>
</table>

Correlations

| PA_{t1} , PB_{t1} | .44 | .40 | .40 |
| PB_{t1} , TA_{t1} | .09 ns | .17 | .17 |
| PA_{t1} , TA_{t1} | .18 | .18 | .18 |
| PA_{t2} , PB_{t2} | 0 ns | -.07 ns | -.07 ns |
| PB_{t2} , TA_{t2} | -.38 | -.28 | -.28 |
| PA_{t2} , TA_{t2} | .04 ns | .09 ns | .09 ns |

$X^2$ (df) | 42.82 | 153.14 | 142.47 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(df)</td>
<td>(45)</td>
<td>(124)</td>
<td>(120)</td>
</tr>
</tbody>
</table>

GFI | .98 | .96 | .96 |
AGFI | .97 | .94 | .94 |

Note. n = 380.

*PB = parent's behavior, TA = target adolescent's attributions, SB = sibling's behavior.

Reciprocal paths between PA and PB, and between PB and TA are constrained to be equal.
Figure 1. The Theoretical Model
CHAPTER 4

CONCLUSIONS

While it is clear that a tendency toward making negative attributions about a partner are detrimental to interpersonal relationships, how people develop a tendency toward making particular types of attributions is a question that has been largely unaddressed (Karney, Bradbury, Fincham, & Sullivan, 1994). In this dissertation, I examined the theoretical and empirical support for the possible intergenerational transmission of attributions. Empirical findings were supportive of an intergenerational transmission of attributions. Results indicated that parent attributions influenced adolescent attributions regarding a sibling through their effect on parent behavior. Questions of direction of influence, and potential linking mechanisms were also addressed.

Family researchers have attempted to account for relationship success and failure through an examination of interpersonal cognitions and behavior. It is now well-established in both the marital and parent/child literatures that cognitions such as attributions may protect relationships from the adverse effects of irritable, hostile behavior (Bradbury & Fincham, 1990; Bugental, Blue, & Cruzcosa, 1989). That is, spouses or parents may attribute negative behavior in partners or children to external, unstable, or specific factors, thus minimizing the potentially negative impact of the behavior. Alternatively, when individuals attribute negative behavior to the internal, stable or global characteristics of the
actor or relationship, the effects of hostile behavior may become exacerbated, putting the relationship at risk for impaired relationship quality.

Failed interpersonal relationships are among the most stressful events that can happen to an individual. Not only are divorce and marital separation among the most highly rated stressful life events on the Social Readjustment Rating Scale (Holmes & Masuda, 1974), but divorce has been found to adversely effect individual health and well-being (Bloom, Asher, & White, 1978). These facts acquire particular importance in light of statistics that show that half of all first marriages will end in divorce, and that the rate of failure for second marriages is even higher (Cherlin, 1992; Martin & Bumpass, 1989). The subject of cognitions within close relationships is an important one, and will undoubtedly continue to attract research attention.

References


