

# Latina Mothers' Attributions, Emotions, and Reactions to the Problem Behaviors of their Children with Developmental Disabilities

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We examined the applicability of attribution theory to mothers' perceptions and reactions to their child's problem behavior. Participants were 149 Latina mothers of children with developmental disabilities who were interviewed regarding specific incidents in which their child exhibited a behavior problem. The findings indicate that most mothers viewed their child as not being responsible for the behavior problem. Furthermore, as predicted by attribution theory, mothers who ascribed relatively high responsibility to the child were significantly more likely to report negative emotions (anger and frustration) and aggressive/harsh behavioral reactions than mothers who ascribed low responsibility. Also, mothers were more likely to ascribe high responsibility to the child when the problem was characterized as a behavioral excess than as a behavioral deficit. The results provide support for the applicability of an attributional framework and may have important implications for helping parents in addressing the problem behaviors of their children with developmental disabilities.

*Keywords:* Attribution, emotion, disability, Latino, parent, child.

Parents' reactions to their child's problem behaviors are important to the functioning of the child and the family. Negative parental emotions predict poor child and family outcomes whereas positive emotions predict favorable outcomes. For example, negative emotions may interfere with appropriate parenting practices, such as monitoring, problem solving, and attending to the child's needs (Patterson, 1982; Vasta, 1982). They also make it difficult for children to learn from parents' messages regarding discipline (Hoffman, 1983). Parents' negative behavioral reactions, such as harsh or aggressive parenting, are similarly associated with poor parent-child relations and child conduct disorders (Kendziora & O'Leary, 1993; see also Patterson, 1982).

Considering the significant role of negative emotions and harsh/aggressive behaviors in parenting, it is important to understand why some parents are more likely than others to react in this manner. Attribution theory may provide one explanation. According to Weiner's (1985, 1995) theory of motivation and emotion, whether a child's problem behavior elicits negative emotions (anger) and behavioral reactions (aggression) from parents depends on whether the child is judged to be

responsible for the behavior. If a parent perceives a child's temper tantrums, for example, as being outside his or her control or as unintentional, then the parent is not likely to react with anger. In contrast, if a parent judges the child to be responsible for his or her acting out, then the parent is likely to respond angrily. Attribution theory further postulates that the parents' feelings will be likely to lead to specific parental behavior. For example, angry feelings will be related to harsh reactions such as yelling and hitting.

Studies over the past 10 years provide some support for an attributional model of negative emotions in parenting. In one of the earliest studies to test this framework, Dix, Ruble, and Zambarano (1989) exposed parents to hypothetical scenarios of children engaged in problem behaviors and asked parents to rate their attributions of control and their emotional reactions toward the children. As predicted, parents who believed the child was responsible for the misbehavior were likely to report feeling angry. Similarly, an observational study of parents of physically abused children (Bugental, Blue, & Cruzcosa, 1989) found that mothers who tended to perceive a high degree of child control (relative to low mother control) over their children's problem behavior were more likely to express negative affect while interacting with their children.

Although few studies have examined parents' aggressive behavior from an attributional perspective, the available research is also consistent with the attribution-emotion model. In a study of maternal discipline

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practices, Smith and O'Leary (1995) presented mothers with videotaped scenarios of negative parent-child interactions. Mothers were more likely to react with negative affect to the children in the scenarios when they attributed the cause of the negative interaction to the children. In addition, both negative affect and attributions were significant predictors of mothers' endorsements of over-reactive or harsh disciplinary methods. Bugental et al. (1989) also found that mothers' attributions of control were not only predictive of their emotional reactions but of their harsh/aggressive behavioral reactions as well. Thus, available evidence indicates that parents' attributions predict their negative affect and harsh/aggressive behavior.

Although there is beginning to be support for an attributional framework of parents' negative emotional and behavioral reactions, it is unclear whether such a framework is applicable to families of children with developmental disabilities. Unlike parents of a non-disabled child, parents of a disabled child know that he or she suffers from a physical condition. In most cases, the child has received a medical diagnosis, and the child is likely to exhibit visible behavioral signs and symptoms of his or her disability. Together, these factors may lead the parent to conclude that the child's problem behavior is largely due to his or her condition. In other words, the child's behavior is viewed as being outside his or her volitional control, and the child is not held responsible. Such a position, if true, would suggest that an attributional framework may not be useful in explaining parents' emotional reactions to their disabled child's negative behavior, as one would expect little attributional variability.

On the other hand, recent studies focusing on families of patients with schizophrenia suggest that an attributional model may apply to families of children with disabilities. The first of such studies revealed that family members' negative emotional reactions toward the patient were related to family members' beliefs that the cause of the patient's behavior was under his or her volitional control (Brewin, MacCarthy, Duda, & Vaughn, 1991). Subsequent studies have similarly reported that family members' expression of negative affect (defined as hostility or criticism) was associated with their attributions regarding the patient's negative behavior (e.g. Barrowclough, Johnston, & Tarrier, 1994; Lopez, Nelson, Snyder, & Mintz, 1999; Weisman, Nuechterlein, Goldstein, & Snyder, 1998). In this research, attributions played a significant role in determining family members' emotional reactions despite the fact that the family members were aware the patient suffered from schizophrenia.

The purpose of the present study, then, is to examine the relationship between parents' attributions of responsibility and their emotional and behavioral reactions to the negative behavior of their children with disabilities. On the basis of attribution theory and prior research, we hypothesize that parents who ascribe a high level of responsibility to their child for his or her problem behavior will be more likely to react with negative emotional reactions, such as anger, than parents who ascribe a low level of responsibility. We also expect both parents' attributions and their negative emotional reactions to be related to their harsh/aggressive behavioral reactions such that greater attributions of responsibility and negative emotional reactions are associated with more aggressive reactions.

In addition to testing these specific hypotheses, we also explore the significance of child-related factors—the type of the child's behavior problem, the severity of the child's disability, and the child's age and gender. Parents' attributions and reactions may be influenced by the type of behavior problem (see Lopez & Wolkenstein, 1990, who point out that the type of symptoms may be important in family members' reactions to relatives with schizophrenia). Specifically, parents may judge children who exhibit behavioral excesses (e.g. temper tantrums) as being more responsible for their actions than children who exhibit behavioral deficits (e.g. lack of speech or inability to walk). The severity of the child's disability may also play a role. It seems likely that the greater the severity of the child's disability, the less likely that parents will hold the child as responsible for their problem behaviors. In addition, studies have demonstrated that parents are more likely to hold older children responsible for their negative behavior (Dix, Ruble, Grusec, & Nixon, 1986; Dix et al., 1989). Older children may be expected to have the necessary competencies for behaving properly and therefore parents may view older children as being more responsible for their negative behavior than younger children. Finally, given that boys are more likely to engage in aggressive or acting-out types of behaviors than girls (Achenbach, 1982; Maccoby & Jacklin, 1980), the child's gender may be related to parents' attributions of responsibility. Thus, in addition to testing the applicability of attribution theory to parents' emotional and behavioral reactions to their children's problem behavior, we are also interested in exploring the role of several child factors.

A common criticism of mainstream psychological theories, including attribution theory, is that they are developed in the United States, largely by Euro-American researchers and using primarily Euro-American subjects. Therefore, their principles may not apply to ethnic minorities or other culturally diverse populations (Betancourt & Lopez, 1993; also see Graham, 1992). By focusing on Latino families residing in the United States, the present study examines the generalizability of attribution theory to this diverse population (also see Weisman, Lopez, Karno, & Jenkins, 1993).

## Method

### *Participants*

A total of 149 mothers were recruited who met the following criteria: (a) having a child with mental retardation living at home; (b) being the primary care provider of the child; and (c) being of Latin-American descent. Two thirds of the mothers (66.9%) were born in Mexico, 21.6% were born in the United States, and 11.5% were born in El Salvador or Guatemala. Three quarters of the mothers reported Spanish as their primary language. The mothers were largely from a low socioeconomic background; 74% reported an annual family income of less than \$20,000 and the same proportion of mothers reported having received a high school education or less. It is also important to note that 38% of the mothers were single parents. Their mean age was 40.6 years ( $SD = 9.8$ ).

The children were primarily boys (55%) and ranged in age from 3 to 19 (mean = 11.5 years,  $SD = 4.5$ ). They were identified as having moderate to severe/profound retardation by the staff of East Los Angeles Regional Center, a state agency that serves a large, urban community of Latinos, largely of Mexican origin, on the eastside of Los Angeles.

## Procedures

This study was part of a broader research project regarding predictors of out-of-home placement of children (see Blacher, Shapiro, Lopez, & Diaz, 1997). The parents were initially invited to participate through a letter from the East Los Angeles Regional Center, a California state agency serving individuals with developmental disabilities. Parents were recruited on the basis of being the primary care provider of a child, aged 3 to 19 years, who had been identified by the Center as having moderate-to-severe mental retardation. Agency personnel identified suitable target parents and mailed out our recruitment packets to these parents. Parents interested in participating contacted us directly. Those who agreed to participate were paid an honorarium and invited to take part in a drawing for a \$100 prize. All data presented here were gathered through interviews conducted by bilingual Latinas. Based on the parents' preferences, 75% of the interviews were carried out in Spanish. The interview measures for this study were administered during one of two home visits. The measures were administered in the following order: identification of problem behavior, emotional reactions, attributions, and behavioral reactions. Portions of the interview were audiotaped. Interviewers were blind to the study's hypotheses.

## Measures

*Child behavior problems.* Mothers were asked if there were any child behaviors that they considered problematic or for which they desired a change. This provided an opportunity for mothers to report both behavioral excesses (acting-out behaviors) as well as behavioral deficits (absence of expected behavior). Mothers were encouraged to report whichever behaviors came to mind. They were then asked to focus on the most frequently occurring problem behavior. Coding of these problem behaviors was based on transcripts of the interview; only the section concerning the mother's identification of the problem behavior was used. Two bilingual undergraduate assistants independently coded the primary problems for each respondent as either a behavioral deficit (0) or behavioral excess (1). A behavioral deficit was defined as a lack of behavioral response (e.g. no or limited speech and an inability to walk) whereas a behavioral excess was defined as excessive behavioral responses (e.g. temper tantrums and fighting). This was adopted from the schizophrenia literature, where positive symptoms such as hallucinations are considered behavioral excesses and negative symptoms, such as social withdrawal, are considered behavioral deficits. The inter-coder reliability of this classification scheme was highly reliable, with 95% agreement. The few discrepancies were addressed through discussion and consensus.

*Attributions of responsibility.* To assess attributions of responsibility we drew on Weiner's (1995) conceptual analysis, in which attributions of responsibility are related to perceptions of intentionality and controllability. In the absence of an established instrument, we developed items to assess each of these three interrelated concepts and then incorporated these items into a brief, easily administered scale. Each item assessed one of these three specific attributional dimensions: responsibility (two items: "Is [the child] responsible for the way in which he/she behaved?" and "Is he/she to blame for what he/she did?"), intentionality (two items: "Did [the child] behave this way on purpose?" and "Did he/she mean to act this way?"), and controllability (one item: "Could [the child] have acted in a different way?"). The measure required the parent to respond to each item on a three point scale: "no" (0), "somewhat" (1), and "yes" (2). A 3-point scale was used because piloting of the measure indicated that Spanish-speaking Latino parents had difficulty making full use of the original 7-point scale. The scale was found to have adequate reliability as reflected in the Cronbach alpha coefficient of .75. A total attribution of responsibility score (between 0 and 2) was derived by averaging the ratings across all items.

*Emotional reactions.* Mothers were asked what their emotional reactions were at the time the child displayed the noted behavior. To identify the fullest range of emotional reactions, including both positive and negative emotions, the interviewer followed up the mother's initial response by asking whether she had experienced any other emotions.

Three bilingual undergraduate research assistants were hired to listen to the audiotaped interviews and to code the emotional reactions to the identified problem behaviors. The first step in coding emotions was distinguishing emotional responses from nonemotional responses. Most mothers reported actual feelings (e.g. anger and frustration), although some mothers' responses did not reflect specific emotions (e.g. "I was tired."). Coders were given no instructions regarding the definition of emotions. We were interested in obtaining lay persons' views of emotions rather than researchers' views of emotions. The potential advantage of this approach is that the lay person's definition of emotions may more closely approximate how the emotions were perceived in the actual setting than a research-derived definition of emotion. An emotion, then, was defined as a parent's reaction that was identified by at least two of the three coders as an emotion. The reliability of this coding procedure was assessed by considering the number of specific parental reactions that were identified as distinct emotions by only one coder ( $N = 10$ ), such as "inquietud" (restlessness) and "aflicción" (pain) and those that were identified by two or more coders ( $N = 36$ ), such as anger and worry. Thus, of the 45 distinct emotions identified by all coders, 80% of them were rated by 2 coders, suggesting an adequate degree of reliability. Please note that this is a conservative index of this coding procedure's reliability because it does not include those parental responses that were identified by all three coders as non-emotional responses.

After distinguishing between emotional responses and non-emotional responses, coders were instructed to categorize the valence of the emotions as either positive, negative, or neutral. Definitions of emotional valence were drawn from the family interaction and attribution literature (e.g. Capaldi, Forgatch, & Crosby, 1994; Dix, 1991; Weiner, 1995). Coders were instructed that "positive emotions are those that, in your judgment, show supportive or positive feelings towards the child. These are emotional reactions that, from the perspective of the child, would be experienced as pleasant. Negative emotions are the opposite of positive emotions. They are reactions that in your judgment convey negative feelings or a lack of support towards the child. They are emotions that, from the perspective of the child, would be experienced as unpleasant. Neutral emotions are those that convey neither support nor a lack of support towards the child. These are emotional reactions that, from the perspective of the child, will not be experienced as pleasant or unpleasant." It is important to note that some emotions (e.g. sadness or worry) could be classified as negative, positive, or neutral, depending on the context. For example, in one case, a mother reported being worried that her son's friendliness increases the risk of him being kidnapped. In another case, the mother was worried that her son, who she described as bigger and stronger than her, could hurt her, particularly when he becomes angry and makes a fist in a threatening manner. In the former case, the mother's worry was viewed as reflecting caring and concern, a positive affect. In the latter case, the mother's worry was judged to be critical or a negative affect. This flexible coding system was used to take into account the possibility that an emotion's valence can shift depending on the context.

To assess the reliability of the valence coding, the number of emotions coded as negative, positive, and neutral by two or more coders were compared to the number of emotions for which the valences were not coded in the same manner by two or more coders. This latter group included those parental responses for which the coders agreed that the response was an emotion but they differed in their coding of the valences, and those parental responses which were not identified as an emotion by at least two coders. Altogether, 139 of 181 parental responses (77%) were coded by at least 2 raters as an emotion

with the same valence. Of the 42 parental responses that were not reliably judged, 23 were identified as an emotion by 2 or more coders but agreement was not reached as to the emotion's valence, and 19 were identified as an emotion by only 1 coder. Those parental responses that failed to meet the criteria of having two judges agree that the response was an emotion with a specific valence were not considered to be emotional responses.

**Behavioral reactions.** Finally, mothers were asked what they did in response to the last time their child engaged in the identified problem behavior. Based on transcripts of the mothers' answers, the first two authors independently coded each parent's response in terms of harsh/aggressive behavior. The section of the transcript containing the parents' behavioral reactions was separate from the sections containing other relevant information (i.e. parents' attributions and emotions). The coders examined only the portion that contained parents' behavioral reactions. Harsh/aggressive behavior was conceptualized as a continuous variable that reflected the extent to which the mothers' reaction was verbally or physically aggressive. Each coder rated aggressive behavior along the following 5-point scale: (0) no aggression, (1) harsh talking, (2) yelling, (3) any physical contact, and (4) hitting or spanking. Because of the limited number of mothers who described at least some aggressive reactions ( $N = 21$ ), the original 5-point scale was converted into a dichotomous variable reflecting no aggression (0) or at least some aggression (1). The Kappa statistic for this dichotomous rating was .90, indicating adequate inter-rater reliability.

**Severity of child's disability.** The child's score on the Adaptive Behavior Composite Subscale of the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984) was used as an index of the child's degree of impairment. When necessary the scale's Spanish language version was administered. The Vineland Scale is a standardized survey that measures the child's level of adaptive functioning in various domains (mean standard score = 100;  $SD = 15$ ). A lower score reflects a greater degree of impairment. For this sample, the range of scores was 20 to 66 (mean = 29.51;  $SD = 11.12$ ), indicating significant impairment in the children's level of adaptive functioning.

## Results

### Descriptive Statistics

Of the 149 mothers who participated in the study, 139 mothers were able to identify at least 1 problem behavior. More than two thirds (68%) of the identified problem behaviors were classified as behavioral excesses; temper tantrums ( $N = 20$ ), hurting oneself ( $N = 10$ ), and aggressive behavior towards others ( $N = 8$ ) were the most frequently reported behavioral excesses. Problem behaviors associated with communication ( $N = 11$ ), toilet training ( $N = 8$ ), and walking ( $N = 5$ ) were the most frequently reported behavioral deficits.

The mean attributions of responsibility rating (mean = 0.52;  $SD = 0.55$ ) indicates that overall mothers tend to perceive their children as not very responsible for their problem behavior. In light of the skewness of this distribution, a dichotomous variable (high vs. low attribution of responsibility) was derived from a median split. Based on the approximate median rating of .40, 60% of the parents were assigned to the high-responsibility level and the remaining parents were assigned to the low-responsibility level. All further analyses involving attributions were based on this dichotomous variable.

The number of emotional reactions reported by the mothers varied from 0 to 3, with most mothers reporting 1 emotional reaction. Just over half of the respondents ( $N = 75$ ) reported at least one negative emotional reac-

Table 1  
*Emotions Reported by Mothers*

Emotion	N of mothers
Negative	
Anger ( <i>enojo, coraje, colera</i> )	29
Desperation ( <i>desesperación</i> )	18
Frustration ( <i>frustración</i> )	16
Sadness ( <i>tristeza</i> )	14
Embarrassment ( <i>verguenza</i> )	7
"Feel bad" ( <i>sentirse mal</i> )	7
Incompetence ( <i>incompetencia</i> )	5
Nervousness ( <i>nerviosismo</i> )	4
Pity ( <i>lástima</i> )	4
Depression ( <i>depresión</i> )	2
Worry ( <i>preocupación</i> )	2
Dislike ( <i>disgusto</i> )	1
Annoyance	1
Impatience	1
Bothered ( <i>molesto</i> )	1
Shame ( <i>pena</i> )	1
Powerlessness	1
Positive/Neutral	
Sadness ( <i>tristeza</i> )	7
Worry ( <i>preocupación</i> )	6
Hope ( <i>esperanza</i> )	3
Frustration ( <i>frustración</i> )	2
Desperation ( <i>desesperación</i> )	2
Joy ( <i>alegría</i> )	1
Patience ( <i>paciencia</i> )	1
Fear ( <i>temor</i> )	1

Emotional reactions coded as positive, negative, or neutral by at least two of the three coders. Total number of emotional reactions does not equal number of respondents because some mothers did not report an emotional reaction whereas others reported more than one. Spanish translations are in parentheses. Emotion words without Spanish translations indicates the emotion was only reported among English-speaking mothers.

tion, whereas only 13 mothers reported at least 1 positive emotion and even less reported at least 1 neutral emotional reaction ( $N = 5$ ). The most frequently reported emotion was anger ("enojo," "coraje,"  $N = 29$ ), followed by desperation ("desesperación,"  $N = 18$ ) and frustration ("frustración,"  $N = 16$ ). (See Table 1 for a complete list of the emotions.) For further analyses, a dichotomous variable was used [no negative emotion (0) versus negative emotion (1)].

Data regarding mothers' behavioral reactions were missing for 9 cases; analyses of these data were thus based on 130 cases. With regard to mother's behavioral reactions to the problem behavior, most (85%) mothers reported no aggression. Of those who did respond with aggression, 14 reported harsh talking or yelling, and 7 reported having physical contact (hitting and spanking).

In summary, the descriptive statistics reveal that mothers reported a range of problem behaviors primarily consisting of behavioral excesses. Mothers tended not to hold the child responsible for their behavior problems, although their emotional reactions were rated as largely negative in tone. Last, mothers' behavioral reactions were coded as primarily not aggressive.

### Interrelations among Primary Variables and Child Factors

The relationships among these variables were first analyzed with correlational procedures, which are sum-

Table 2  
Descriptive Statistics and Correlations among Primary Variables and Child-related Factors

	1	2	3	4	5	6	7
1. Attributions of responsibility <sup>a</sup>							
2. Negative emotional reaction <sup>a</sup>	.30***						
3. Harsh/aggressive reaction <sup>a</sup>	.20*	.12					
4. Behavior problem type (excess) <sup>a</sup>	.34***	.23**	.15				
5. Adaptive behavior (Vineland rating)	.15	-.01	-.09	.14			
6. Child gender (male) <sup>a</sup>	-.01	.10	.14	.07	.01		
7. Child age (in years)	.01	.13	.11	-.10	-.61**	.09	
<i>N</i>	139	139	130	130	127	137	136
Mean	0.60	0.54	0.15	1.68	29.51	1.58	11.54
<i>SD</i>	0.49	0.50	0.35	0.47	11.12	0.50	4.48

<sup>a</sup> Dichotomous variables. For pairs of dichotomous variables coefficients are nonparametric (Cramer's phi) correlations; for all other variable pairs coefficients are Pearson *r* correlations.

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001.

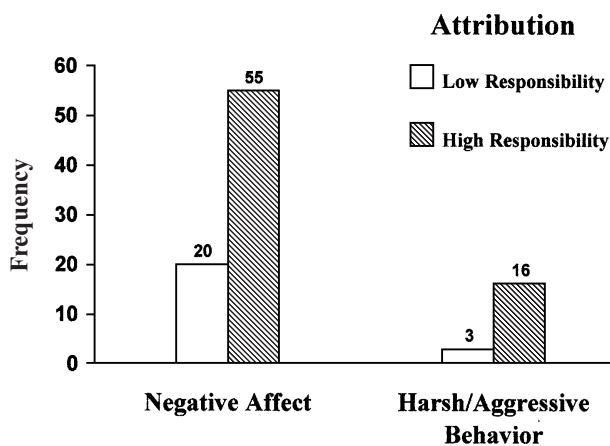


Figure 1. Number of mothers reporting negative affect and harsh/aggressive behavior by attribution level.

marized in Table 2. Nonparametric (Cramer's phi) correlations revealed that mothers were significantly more likely to hold their child responsible when the child's behavior was characterized as a behavioral excess than as a behavioral deficit [ $\phi = .34$ ,  $\chi^2(1,130) = 15.60$ ,  $p = .001$ ]. As predicted by attribution theory, mothers who perceived their child as being responsible for the noted problem behavior tended to report negative emotional reactions toward their children [ $\phi = .30$ ,  $\chi^2(1,139) = 12.56$ ,  $p = .001$ ]. In addition, mothers' perceptions of responsibility were associated with their behavioral reactions such that mothers who held high attributions of responsibility were also likely to report responding with aggressive behavior [ $\phi = .20$ ,  $\chi^2(1,130) = 5.44$ ,  $p = .02$ ]. There was no significant relationship, however, between parents' emotional reactions and their harsh/aggressive behavior [ $\phi = .12$ ,  $\chi^2(1,130) = 1.711$ ,  $p = .19$ ].

### Logistic Regression Analyses

To assess whether the attribution-emotion and attribution-behavioral reaction linkages hold when controlling for the effects of child-related factors, a series of stepwise logistic regression analyses was carried out. To examine the predictors of mothers' negative emotions, negative emotion was entered as the dependent variable and both attributions and child factors (behavior type,

age, gender, and adaptive behavior ratings) were entered as covariates. This analysis revealed that when taking into account the child-related factors, attributions remain a significant predictor of mothers' negative emotions (odds ratio = 0.60,  $p = .01$ ). The relationship between maternal attributions and negative emotions is illustrated in the first two bars of Fig. 1; mothers who judged their child as more responsible were more likely to report negative emotions than mothers who judged their child as less responsible. In addition, the logistic regression reveals that among the child-related factors, problem behavior type is the only significant predictor of mother's negative emotions (odds ratio = 1.55,  $p = .04$ ). Specifically, children who displayed behavioral excesses were more likely to elicit negative emotions than children who displayed behavioral deficits.

To assess whether attributions predict behavioral reactions when controlling for child-related factors, maternal aggressive behavior was entered as the dependent variable (none versus any aggression) and attributions and child-related factors were entered as covariates. This analysis revealed that only attributions were a significant predictor of parental aggressive behavior (odds ratio = 0.47,  $p = .02$ ). Specifically, parents who judged the child as more responsible for their behavior were significantly more likely to react with aggressive behavior than were parents who judged the child as less responsible. This relationship is depicted in the second two bars of Fig. 1.

To summarize, when controlling for child-related factors, the stepwise logistic regression analyses indicated that both the attribution-emotion and attribution-behavior linkages are statistically significant. The only significant child-related factor is the type of child problem behavior; children with behavioral excesses were more likely to elicit negative emotions than children with behavioral deficits. However, neither this child factor nor any of the others (age, gender or level of adaptive functioning) could explain the significant relationships among mothers' attributions, emotions, and behavioral reactions.

### Discussion

Overall, the findings support an attributional model of parental caregivers' reactions to the problem behavior of their children with developmental disabilities. This study

extends past attributional studies of parent-child relations with nonclinical samples (e.g. Dix et al., 1989; Smith & O'Leary, 1995) to a clinical sample of children with mental retardation. We believe the findings have particular significance for the study of families' interactions within the context of disability and illness. Past studies of schizophrenia (e.g. Brewin et al., 1991) have found that family members' attributions of the symptoms/behavior of their ill relative are related to family members' negative emotions (criticism and hostility). The attributional link to family members' behavioral reactions, however, had not been investigated. Thus, to our knowledge, this is the first study in a clinical context to find evidence that family members' attributions of control or responsibility are related to their behavioral responses to the disabled or ill relative. The current study therefore extends past attributional research in a clinical context by suggesting that the more family members judge their ill or disabled relative as responsible for problem behaviors, the more they are going to react in a harsh and aggressive manner.

In addition, evidence that children's behavioral excesses (e.g. temper tantrums) are more likely to elicit attributions of responsibility than behavioral deficits (no speech) also extends past clinical research. It points out that a specific set of child behaviors may lead parents to judge their child as being responsible for their behavior. These results are particularly noteworthy given that clinical research with schizophrenia has found just the opposite pattern of findings; family members judge their ill relatives' behavioral deficits (negative symptoms, e.g. emotional withdrawal) as more controllable than their behavioral excesses (positive symptoms, e.g. hallucinations) (see Weisman, Nuechterlein, Goldstein, & Snyder, 1998). There may be important disability/illness factors that contribute to this differential pattern. For example, the behavior deficits of children with developmental disabilities (e.g. no speech) may be more stable than the behavior deficits of persons with schizophrenia (e.g. emotional withdrawal). Whatever the reason, certain problem behaviors within each disability are more likely to elicit family members' perceptions that their children are responsible for their problem behaviors.

A recent study by Dagnan, Trover, and Smith (1998) suggests that the findings of the current study of family caregivers may apply to professional caregivers as well. Dagnan and associates found a relationship between the staff's attributions of controllability and their negative emotional reactions to the challenging behavior of patients with developmental disabilities. These behaviors typically include aggression, self-injury, destruction of property, and stereotyped acts (Hastings, 1997). Although the study was based on hypothetical scenarios and did not examine behavioral reactions, it suggests, along with the current study, that caregivers' attributions are important in understanding their emotional reactions to the challenging behaviors of persons with developmental disabilities, whether the caregivers are family members or professional staff.

The findings also contribute to the general study of attributions of responsibility and emotions. There are many studies that support the basic attribution-emotion linkage in which the more one judges another person as responsible for his or her negative actions, the more one will feel anger toward that person (see Weiner, 1995, for a review). The current research extends past attributional research by identifying an association between attri-

butions and a broader range of negative affect, one which includes, for example, frustration and desperation as well as anger.

Methodological factors may have contributed to finding the relation of attributions and a broader range of negative emotions. In contrast to past attribution research, which focuses on a given emotion (anger) and assesses the degree to which respondents feel that emotion, the current study employed an open-ended methodology in identifying mothers' emotional reactions. This format allowed the respondents to report a wide range of emotions. A second methodological factor may have been the flexible and contextually based definition of affect that was employed. Specifically, affect was defined by independent observers (coders) who were instructed to take the perspective of the child in deciding whether a given affect was either positive or negative. For example, frustration or sadness were coded as reflecting negative sentiment towards the child in some cases and positive sentiment in others. The contextually based coding system may have contributed to a sensitive identification of maternal affect, and thus led to identifying a relationship between attributions and a broader range of negative affect. The present findings suggest that future attribution-emotion research should examine a wider range of negative emotions. Doing so may contribute to broadening the range of emotions predicted by attributions of responsibility.

By focusing on Latino mothers, this study supports the cross-cultural applicability of an attributional framework, which is consistent with previous research focusing on persons with schizophrenia (e.g. Weisman et al., 1993). Together, these studies address an important theoretical concern. However, it is worth noting that they do not rule out the influence of cultural factors. Within the Latino population there is considerable heterogeneity with regard to important cultural dimensions that may influence parental attributions and emotional reactions (Betancourt & Lopez, 1993). For example, an experimental study by Betancourt, Hardin, and Manzi (1992) suggests that one's cultural value orientation may affect the extent to which one makes attributions of controllability and responsibility. By investigating the influence of this and possibly other proximal cultural variables, future research will provide a more thorough explanation of Latino mothers' emotional reactions to their children's problem behaviors.

It is important to consider additional limitations of this study. First of all, the findings do not indicate whether the mothers' attributions caused their hostile emotions and aggressive behaviors, or whether their hostile emotions or behavior caused their attributions. Although there is clear evidence from prior research that attributions can be causal agents (e.g. Dix et al., 1989; Forsterling, 1988; Weiner, Graham, & Chandler, 1982), at best, the current findings are consistent with the model that parental attributions lead to their negative emotional reactions and sometimes to their harsh behavior. This study is also limited by relying strictly on self-report measures. Although parental attributions are probably best assessed using self-report instruments, the use of such measures may serve to restrict the range of negative emotions and harsh/aggressive behaviors reported by parents. Despite this limitation, the present study's findings are encouraging given that they are consistent with the findings of Bugental et al. (1989), who employed observational measures of emotional and behavioral reactions.

An additional limitation of this study is that the mothers' reactions may have been elicited by certain unmeasured aspects of the child's disability. Although this study ruled out the possible influence of the child's level of adaptive functioning, other related variables, such as a more direct index of the child's severity and the exact nature of the disability, were not considered. A related concern involves the role of the child's own emotional and behavioral reactions to the parent. A more thorough understanding of parents' emotional and behavioral reactions can be achieved by investigating transactional aspects of parent-child interactions (Dix, 1991; also see Hooley, 1987).

In addition to research implications, the findings have clinical implications in working with parents of children with moderate and severe mental retardation. One might be inclined to interpret the findings as suggesting that practitioners work with parents to reduce their attributions of responsibility for their child's problem behavior and to reduce in turn the likelihood of parents' negative affect and harsh behavioral reactions. Although this may apply to some families, it is important to note that most parents in the study judged the child as having little responsibility for their behavior problem. Thus, another implication may be that clinicians should work with some parents to increase their perceptions that their child is responsible for the behavior. Although there is the risk that such an attributional stance is associated with negative affect and harsh behavioral responses, it may also be associated with a greater effort on the part of the parent (and clinician) to teach the child appropriate behavioral skills. Ultimately, it is difficult to know for sure how much of the child's problem behavior is due to his or her disability. Nevertheless, attribution theory provides a useful heuristic in guiding clinicians and parents alike in adopting the optimum attributional stance given the specific circumstances of each family.

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#### References

- Achenbach, T. M. (1982). *Developmental psychopathology* (2nd ed.). New York: Wiley.
- Barrowclough, C., Johnston, M., & Tarrier, N. (1994). Attributions, expressed emotion, and patient relapse: An attributional model of relatives' response to schizophrenic illness. *Behavior Therapy, 25*, 67–88.
- Betancourt, H., Hardin, C., & Manzi, J. (1992). Beliefs, value orientation, and culture in attribution processes and helping behavior. *Journal of Cross-cultural Psychology, 23*, 179–195.
- Betancourt, H., & Lopez, S. R. (1993). The study of culture, ethnicity, and race in American psychology. *American Psychologist, 48*, 629–637.
- Blacher, J., Shapiro, J., Lopez, S. R., & Diaz, L. (1997). Depression in Latina mothers of children with mental retardation: A neglected concern. *American Journal of Mental Retardation, 101*, 483–496.
- Brewin, C., MacCarthy, B., Duda, C., & Vaughn, C. (1991). Attribution and expressed emotion in the relatives of patients with schizophrenia. *Journal of Abnormal Psychology, 100*, 546–554.
- Bugental, D. B., Blue, J., & Cruzcosa, M. (1989). Perceived control over caregiving outcomes: Implications for child abuse. *Developmental Psychology, 25*, 532–539.
- Capaldi, D. M., Forgatch, M. S., & Crosby, L. (1994). Affective expression in family problem-solving discussions with adolescent boys. Special Issue: Affective expression and emotions during adolescence. *Journal of Adolescent Research, 9*, 28–49.
- Dagnan, D., Trower, P., & Smith, R. (1998). Care staff responses to people with learning disabilities and challenging behaviour: A cognitive-emotional analysis. *British Journal of Clinical Psychology, 37*, 59–68.
- Dix, T. (1991). The affective organization of parenting. *Psychological Bulletin, 110*, 3–25.
- Dix, T., Ruble, D. N., Grusec, J. E., & Nixon, S. (1986). Social cognition in parents: Inferential and affective reactions to children of three age levels. *Child Development, 57*, 879–894.
- Dix, T., Ruble, D. N., & Zambarano, R. J. (1989). Mothers' implicit theories of discipline: Child effects, parent effects, and the attribution process. *Child Development, 60*, 1373–1391.
- Dossetor, D. R., Nicol, A. R., Stretch, D. D., & Rajkhowa, S. J. (1994). A study of expressed emotion in the parental primary carers of adolescents with intellectual impairment. *Journal of Intellectual Disability Research, 38*, 487–499.
- Forsterling, F. (1988). *Attribution theory in clinical psychology*. New York: Wiley & Sons.
- Graham, S. (1992). Most of the subjects were White and middle class: Trends in published research on African-Americans in selected APA journals, 1970–1989. *American Psychologist, 47*, 629–639.
- Hastings, R. P. (1997). Staff beliefs about the challenging behaviors of children and adults with mental retardation. *Clinical Psychology Review, 17*, 775–790.
- Hoffman, M. L. (1983). Affective and cognitive processes in moral internalization. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.) *Social cognition and social behavior: Developmental perspectives*. Cambridge: Cambridge University Press.
- Hooley, J. M. (1987). The nature and origins of expressed emotion. In M. J. G. Kurt Hahlweg (Ed.), *Understanding major mental disorder: The contribution of family interaction research* (pp. 176–194). New York: Family Process.
- Kendziora, K. T., & O'Leary, S. G. (1993). Dysfunctional parenting as a focus for prevention and treatment of child behavior problems. *Advances in Clinical Child Psychology, 15*, 175–206.
- Lopez, S. R., Nelson, K., Snyder, K., & Mintz, J. (1999). Attributions and affective reactions of family members and course of schizophrenia. *Journal of Abnormal Psychology, 108*, 307–314.
- Lopez, S. R., & Wolkenstein, B. (1990). Attributions, person perception, and clinical issues. In S. Graham & V. Folkes (Eds.) *Attribution theory: Applications to achievement, mental health, and interpersonal conflict* (pp. 103–121). Hillsdale, NJ: Lawrence Erlbaum.
- Maccoby, E. E., & Jacklin, C. N. (1980). Sex differences in aggression: A rejoinder and reprise. *Child Development, 51*, 964–980.
- Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia.
- Smith, A. M., & O'Leary, S. G. (1995). Attributions and arousal as predictors of maternal discipline. *Cognitive Therapy and Research, 19*, 459–471.
- Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984). *Vineland Adaptive Behavior scales*. Circle Pines, MN: American Guidance Service.
- Vasta, R. (1982). Physical child abuse: A dual-component analysis. *Developmental Review, 2*, 125–149.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*, 548–573.
- Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct*. New York: Guilford Press.

- Weiner, B., Graham, S., & Chandler, C. (1982). Pity, anger, and guilt: An attributional analysis. *Personality and Social Psychology Bulletin*, 8, 226–232.
- Weisman, A., Lopez, S. R., Karno, M., & Jenkins, J. (1993). An attributional analysis of expressed emotion in Mexican-American families with schizophrenia. *Journal of Abnormal Psychology*, 102, 601–606.
- Weisman, A., Nuechterlein, K., Goldstein, M., & Snyder, K. (1998). Expressed emotion, attributions, and schizophrenia symptom dimensions. *Journal of Abnormal Psychology*, 107, 355–359.

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