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Author(s): Robert E. Larzelere and Jack A. Merenda


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THE EFFECTIVENESS OF PARENTAL DISCIPLINE FOR TODDLER MISBEHAVIOR AT DIFFERENT LEVELS OF CHILD DISTRESS*

Robert E. Larzelere and Jack A. Merenda**

Behavioral theories and Hoffman's information-processing theory have differing implications for how the effectiveness of parental discipline varies according to the level of distress experienced by the child. Consistent with behavioral theories, punishment was more effective in delaying the next recurrence of disobedience when toddlers' distress was high than when it was low or moderate. Consistent with Hoffman, reasoning and a punishment-reasoning combination were most effective at a moderate level of toddler distress. Thus, firm reasoning and a combination of reasoning with mild punishment are recommended.

Despite decades of research on parental discipline, major controversies still remain. Leading research investigators have acknowledged that evidence is inconclusive about the effectiveness of alternative parental discipline responses to child misbehavior (e.g., Grusec & Goodnow, 1994; Patterson, 1982). Consider, for example, whether punishment (i.e., negative consequences) or reasoning should be preferred as a discipline response to misbehavior. Behavioral parental training programs feature time out as a consequence for child misbehavior (e.g., Forehand & McMahon, 1981). The only form of reasoning in such training programs is a specification of the conditions for time out. On the other hand, cognitive socialization theorists recommend reasoning rather than punishments such as time out or spanking (e.g., Hoffman, 1977; Lepper, 1983).

This study is part of a research program designed to synthesize behavioral and cognitive views of socialization, and is one of the few attempts to do so. The program investigates the effectiveness of alternative parental discipline responses in delaying the next recurrence of toddler misbehavior. Of central interest in this particular study is how the effects of alternative discipline responses vary according to the level of child distress experienced following the parental discipline response.

Before summarizing the implications of behavioral versus cognitive theories for the role of child distress in discipline effectiveness, some definitions are in order. In this article, a discipline technique is a specific tactic used by a parent in response to an incident of child misbehavior. A discipline response is a set of one or more discipline techniques that constitute the entire parental response to a particular misbehavior incident. Negative consequences or simply consequences refer to punitive discipline techniques or responses, including time out, withdrawal of privileges, and nonabusive spanking.

A child's emotional reaction to discipline is considered to be relevant for moral internalization according to behavioral and cognitive theories of socialization. First, behavioral theories hold that moral inhibition occurs because of conditioned anxiety. Conditioned anxiety, in turn, develops when misbehaviors are paired with negative consequences (Aronfreed, 1968). Behavioral studies of negative consequences have found that the greater the intensity of the consequences, the greater their effectiveness (Azrin & Holz, 1966; Matson & DiLorenzo, 1984; Van Houten, 1983). This suggests that the higher the level of a child's anxiety following negative consequences, the greater the resulting moral inhibition. Some laboratory analogue studies have found that the severity of negative consequences increased subsequent moral inhibition when no verbal component was included in the discipline response. However, the inclusion of reasoning reduced or eliminated the association between consequence severity and subsequent moral inhibition (Cheyne, Goyechc, & Walters, 1969; Cheyne & Walters, 1969; Parke, 1969).

Second, Hoffman's (1977, 1983) information-processing theory views the cognitive and affective aspects of discipline incidents as crucial for moral internalization. He divides discipline responses into three types: power assertion, love withdrawal, and induction. Power assertion depends on parents' power advantage relative to that of the child, that is, the use of force, deprivation of privileges, or threats. Love withdrawal techniques implicitly remove parental love toward the child, such as nonphysical expressions of parental anger or disapproval. Induction communicates reasons for the desired behavior, including connecting appropriate behavior to the child's desires or to its effect on other people. Most discipline responses have a power-assertive component, a love-withdrawal component, and an induction component. Mild forms of the first two components are considered necessary to get a child to pay attention to the induction component. If parents use too little power assertion and love withdrawal, the child may ignore the induction component. Too much power assertion, however, may interfere with the child's cognitive processing of the induction component.

Thus, according to Hoffman, some mild, intermediate level of power assertion is optimal for attention to and retention of the induction component. Although the attentional processing aspect of Hoffman's theory is appealing, there have been few attempts to verify it empirically. Hoffman's evidence consists primarily of child correlates of parental reasoning, on the one hand, and of the assertion, on the other (Hoffman, 1970, 1977). Parental use of reasoning is positively associated with moral behavior in their children, whereas power assertion tends to be negatively associated with moral behavior (Hoffman, 1970; Rollins & Thomas, 1979). Hoffman accounts for these results by arguing that most induction elicits sufficient affect in children to get their attention, whereas most power assertion elicits too much fear and anxiety for optimal cognitive processing.

*The authors gratefully acknowledge the support of a Biola University Faculty Research Grant; a Biola University Sabbatical Grant; Grant T12 MH 17126 from the Center for Studies of Antisocial and Violent Behavior, National Institute of Mental Health, to Oregon Social Learning Center; and Father Flanagan's Boys' Home. Students who provided indispensable help to this project included William N. Schneider, Joyce Hinderler, Angela Rose Huntsman, Diana Elliott, Richard Fresco, Jack Young, Shari Bridgman, Shammon Skill, Cela Vanagh, Thomas Young, Roberta Miller, and Theodore Myer. The authors are grateful to Jamie Sinclair and two anonymous reviewers for their very helpful comments on previous versions. This article is based on the second author's dissertation and was presented at the Convention of the American Psychological Association, Toronto, August 1993.

**Robert E. Larzelere is Director of Residential Research, Father Flanagan's Boys' Home, Youth Care Div., Boys Town, NE 68010. Jack A. Merenda is now a clinical psychologist at Associated Psychological Services, 2 North Lake Ave., Suite 610, Pasadena, CA 91101.

Key Words: aggression, noncompliance, parental discipline, punishment, toddlers.

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A few studies have provided indirect evidence for the attentional aspect of Hoffman's theory. Research has shown that the verbal component of a discipline response is more effective under conditions of mild consequences than under conditions of severe consequences (Cheyne et al., 1969; Cheyne & Walters, 1969; Hoffman, 1963). Cheyne's studies found physiological indicators of attentional processes (e.g., heart-rate deceleration) only under conditions that combined a verbal component with mild consequences (as opposed to severe consequences). Kochanska (1991) measured the extent to which parents used mostly power assertion methods or induction methods when their child was 1/2 to 3/1-2 years of age. Greater use of induction predicted several measures of conscience 5 to 6 years later, but only in temperamentally anxious children. Relative usage of power assertion versus induction was generally unrelated to subsequent measures of conscience in less anxious children. These findings may be consistent with Hoffman's postulated attentional processes in that greater power assertion may be necessary to get the attention of less anxious preschoolers than is the case for more anxious preschoolers. Thus, a balance between induction and power assertion may be necessary to elicit an optimal degree of attention from less anxious toddlers. But no study has confirmed the major implication of the attentional aspect of Hoffman's theory, that is, that an intermediate level of affect (or power assertion) during a discipline episode is associated with higher moral internalization than are either lower or higher levels of affect.

Although behavioral therapists have emphasized time out and cognitive-socialization theorists have emphasized reasoning, few studies have investigated the effects of combining negative consequences and reasoning in a discipline response. The studies that have considered a punishment-reasoning combination as a distinct category have generally found it to be a relatively effective discipline response (Chapman & Zahn-Waxler, 1982; Cheyne & Walters, 1969; Crockenberg & Litman, 1990; Davies, McMahon, Flessati, & Tiedemann, 1984; Dix & Grusec, 1983; LaVoie, 1974; Parke, 1969).

The major hypotheses of this study are derived from behavioral theories and from Hoffman's theory:

1. Consistent with behavioral theories, when negative consequences are used without reasoning, the effectiveness of the discipline response is expected to increase with the level of child distress.

2. Consistent with Hoffman's theory, when reasoning is incorporated into the discipline response, intermediate levels of child distress are expected to correspond with optimal effectiveness.

3. Consistent with the laboratory analogue studies, when negative consequences and reasoning are used together, effectiveness will not be positively related to the level of child distress (Cheyne et al., 1969; Parke, 1969).

Effective will be measured by the mean delay until the next recurrence of that type of misbehavior. The targeted discipline problems represent the two most common kinds of toddler misbehavior: disobedience and fighting (Larzelere, Amberson, & Martin, 1992).

One important question about reasoning with toddlers is whether they are developmentally ready to process that information. Hoffman (1983) has argued that most children have sufficient cognitive processing skills by ages 2 or 3. Zahn-Waxler, Radke-Yarrow, and Chapman (1992) concluded, "children as young as 2 years old have the cognitive capacity to interpret the physical and psychological states of others" (p. 127). Therefore, one aspect of this study is to determine whether reasoning is useful as a discipline response for young preschoolers.

**METHOD**

**Subjects**

Forty volunteer mothers of children from 25 to 38 months of age participated in the study. The toddlers included 21 boys and 19 girls. Most of the mothers responded to a local newspaper story offering a $50 United States Savings Bond to participants in the study. A few mothers were referred by other study participants. Sixty percent of the mothers were full-time homemakers; this was preferred to maximize the consistency of the data collection. Mothers working outside the home for more than 24 hours per week were not eligible for the study.

Fifty percent of the working mothers were in working-class occupations, as were 45% of the fathers. The other employed parents were in middle-class occupations. The median family income was $34,500 in 1986. One third of the mothers had college degrees, another third had some college education, and all but one of the others had completed high school. Eighty-five percent were Caucasian, 13% were Hispanic, and 3% were Asian-American. All were two-parent families.

**Procedure**

Mothers provided data using a structured diary format similar to methods used by Goodenough (1931) and by Zahn-Waxler and Radke-Yarrow (1982). Each mother received a 90-minute training session in her own home to familiarize her with the procedures for recording the relevant data in the Discipline Record booklet (see Figure 1). She reviewed written definitions of the 21 parental discipline techniques on the Discipline Record and practiced them using written and video-taped vignettes of discipline incidents. The video training tape depicted the 21 parental discipline techniques and then illustrated role play vignettes of complex discipline sequences for the mothers to code.

The experimenters telephoned the subjects twice weekly throughout the duration of the study to maintain compliance with the data collection and to discuss any practical problems. To determine the consistency of record keeping, each mother was asked on three occasions how soon a discipline incident was typically recorded in the Discipline Record and what percentage of relevant incidents they recorded in the previous week. The mean answers to these questions were 9.6 minutes and 88.0%, respectively.

**Measures**

**The Discipline Record.** The Discipline Record (see Figure 1) is a structured parental diary in which parents record (a) each occurrence of their child's fighting or disobedience and (b) each discipline technique they used in response to that occurrence, selected from a list of 21 techniques. In addition, the Discipline Record contains spaces for designating which type of misbehavior occurred (fighting or disobedience) and the date and time of each incident. Fighting was defined for the mothers as "physical fighting with siblings or other children," and disobedience was defined for them as "disobedience to spoken parental commands." Mothers also recorded the time periods of toddler sleep or separation from the mother.

The effectiveness of a discipline response was measured by the length of time until the next recurrence of the target misbehavior, either disobedience or fighting. Separation time and sleep time were not counted in the time until re-
Figure 1. The discipline record.

THE DISCIPLINE RECORD

<table>
<thead>
<tr>
<th>PARENTAL ATTITUDE</th>
<th>Not Angry (NA) — Slightly Angry (SA) — Mod. Angry (MA) — Very Angry (VA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD'S EMOTION (Intensity)</td>
<td>Not Distressed (ND) — Slightly Distressed (SD) — Mod. Distressed (MD) — Very Distressed (VD)</td>
</tr>
</tbody>
</table>

Key

- "*" indicates a measure of the frequency of a particular behavior.
- "O" indicates an outcome measure, such as duration or intensity.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>F.D</th>
<th>F.D</th>
<th>F.D</th>
<th>F.D</th>
<th>F.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command to Start</td>
<td>1</td>
<td>Command to Stop</td>
<td>2</td>
<td>Desc. of Consequence</td>
<td>3</td>
</tr>
<tr>
<td>Label Behavior Bad</td>
<td>5</td>
<td>Offer a Reward</td>
<td>6</td>
<td>Scold/Shame</td>
<td>7</td>
</tr>
<tr>
<td>Seek Information</td>
<td>8</td>
<td>Threaten</td>
<td>9</td>
<td>Verbal withdrawal of All</td>
<td>10</td>
</tr>
<tr>
<td>Yell</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACTING

1. Divert Child to Other Beh.
2. Forced Performance of Appropriate Beh.
3. Planned ignoring
4. Model the Behavior
5. Putting child in boring place, timeout
7. Slap child's hand
8. Spank
9. Other corporal punishment
10. Withdraw privileges

PARENT'S ATTITUDE

- "*" indicates a measure of the frequency of a particular behavior.
- "O" indicates an outcome measure, such as duration or intensity.

<table>
<thead>
<tr>
<th>CHILD'S EMOTION</th>
<th>Intensity</th>
<th>Duration (min)</th>
</tr>
</thead>
</table>

The discipline record was used to define seven discipline responses, derived from the following four discipline categories: Corporal Consequences consisted of any reported use of "slap child's hand" or "spank." Noncorporal Consequences included any use of "time out" or "withdraw privileges." Forced Compliance consisted of any use of "forced performance of appropriate behavior" or "remove source of difficulty." Reasoning included any use of "description of consequences," "explanation," or "seek information." The seven resulting discipline responses for this article were Corporal Consequences alone (i.e., without Reasoning), Noncorporal Consequences alone, Reasoning alone, Reasoning and Corporal Consequences, Reasoning and Noncorporal Consequences, Reasoning and Forced Compliance, and Other. By definition, an Other response included neither kind of consequences nor reasoning. Any response that included "other corporal punishment," which was considered the most abusive discipline technique, was also included in the Other response category even if Consequences or Reasoning was used. Three fighting incidents and 14 disobedience incidents with a Consequences or Reasoning component were placed in the Other category due to this rule. The most common form of "other corporal punishment" was slapping a child's face. Forced Compliance without Reasoning was included in the Other category after determining that the mean Child Distress associated with it did not differ significantly from the rest of the Other category.

Test-retest reliabilities (i.e., stability correlations) were calculated for each of the seven discipline responses separately by misbehavior type, by correlating frequency of reported use during the first 2 weeks with frequency of reported use during the last 2 weeks of data collection. For disobedience incidents, the test-retest reliabilities of the seven discipline responses were .87 (Noncorporal Consequences alone), .45 (Corporal Consequences alone), .67 (Reasoning alone), .77 (Reasoning plus Forced Compliance), .34 (Reasoning plus Noncorporal Consequences), .48 (Reasoning plus Corporal Consequences), and .71 (Other). For fighting incidents, the reliabilities were .74, .78, .93, .64, .27, .73, and .71, respectively. These are minimally acceptable, except for the least frequent categories involving Corporal or Noncorporal Consequences. Nevertheless, the distinction between those two types of consequences was maintained because of the importance of the distinction between them.

Child Distress was measured by an equally weighted composite of the two distress items from the bottom of the Discipline Record (Intensity and Duration), divided into four levels ranging from lowest to highest distress. Mothers reported the intensity and duration of the child's distress following each discipline incident. Discipline incidents that were reported as having no child distress (i.e., the lowest intensity level and zero minutes duration) were counted as the lowest level of distress. The remaining incidents were divided as equally as possible into three additional levels of distress, ranging from low to high distress. The maximum low distress score represented being slightly distressed for 1 minute. The maximum medium distress score consisted of being moderately distressed for 2 minutes. The high dis-

currence. Because the distribution of the recurrence-delay times was skewed, a log transformation of the time was used for most analyses, \( \log_{10}(\text{time} + 1) \).

Using recurrence delays to measure effectiveness of discipline responses is an improvement from correlational analyses in that the antecedent variables (discipline response and associated child distress) always precede the consequent variable (recurrence delay). The strength of the evidence for causality in such analyses is diminished, however, by the extent to which the recurrence delays are due to between-subject differences instead of within-subject differences. The problem is that part of the differences in mean delays until a misbehavior recurs is due to subject differences in the total frequency of reported misbehaviors over the 4-week data collection period. The mother who reported 140 fighting incidents necessarily averaged shorter times between fighting incidents than did the mother who reported only three fighting incidents. Thus, any mean differences in recurrence delays in the main analyses could have been due to mothers of frequent fighters being less likely to use an apparently optimal discipline response than were the mothers of infrequent fighters, which would reflect between-subject differences. Stronger causal evidence would be shown by within-subject differences, that is, evidence that an optimal discipline response led to significantly longer recurrence delays than were typical for that child.

To isolate within-subject differences, some analyses used family-specific z scores. This z score was a further transformation of the log delay, based on each family's own mean and standard deviation of its log-delay scores. Each resulting z score indicated the extent to which the recurrence delay was longer (positive scores) or shorter (negative scores) than the mean for that particular child. Analyses of family-specific z scores attempted to provide more causally relevant information than in the main analyses.

The 21 discipline techniques reported on the Discipline Record were used to define seven discipline responses, derived from the following four discipline categories: Corporal Consequences consisted of any reported use of "slap child's hand" or "spank." Noncorporal Consequences included any use of "time out" or "withdraw privileges." Forced Compliance consisted of any use of "forced performance of appropriate behavior" or "remove source of difficulty." Reasoning included any use of "description of consequences," "explanation," or "seek information." The seven resulting discipline responses for this article were Corporal Consequences alone (i.e., without Reasoning), Noncorporal Consequences alone, Reasoning alone, Reasoning and Corporal Consequences, Reasoning and Noncorporal Consequences, Reasoning and Forced Compliance, and Other. By definition, an Other response included neither kind of consequences nor reasoning. Any response that included "other corporal punishment," which was considered the most abusive discipline technique, was also included in the Other response category even if Consequences or Reasoning was used. Three fighting incidents and 14 disobedience incidents with a Consequences or Reasoning component were placed in the Other category due to this rule. The most common form of "other corporal punishment" was slapping a child's face. Forced Compliance without Reasoning was included in the Other category after determining that the mean Child Distress associated with it did not differ significantly from the rest of the Other category.

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FAMILY RELATIONS

October 1994
Table 1
Mean Child Distress Scores by Discipline Response

<table>
<thead>
<tr>
<th>Discipline Response</th>
<th>Type of Discipline Incident</th>
<th>Disobedience</th>
<th>Fighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noncorporal consequences</td>
<td></td>
<td>7.88</td>
<td>13.10</td>
</tr>
<tr>
<td>Corporal consequences</td>
<td></td>
<td>9.57</td>
<td>8.29</td>
</tr>
<tr>
<td>Reasoning</td>
<td></td>
<td>4.82</td>
<td>5.77</td>
</tr>
<tr>
<td>Reasoning and forced compliance</td>
<td></td>
<td>8.15</td>
<td>8.80</td>
</tr>
<tr>
<td>Reasoning and noncorporal consequences</td>
<td></td>
<td>11.04</td>
<td>12.13</td>
</tr>
<tr>
<td>Reasoning and corporal consequences</td>
<td></td>
<td>11.30</td>
<td>13.93</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>3.79</td>
<td>5.05</td>
</tr>
</tbody>
</table>

Note. The means within a column that share the same subscript are not significantly different from each other, using Fisher's Least Significant Difference test, p < .05. All other pairwise comparisons within the same column are significantly different.

The effects of Child Distress by Discipline Response on recurrence delays were tested with a 4 x 7 (Child Distress X Discipline Response) ANOVA, using the log transformation of recurrence delays. The effect of Child Distress on recurrence delays differed for different Discipline Responses, as indicated by a significant Distress X Discipline interaction, F(18, 2,894) = 1.65, p < .05. There were also significant main effects due to Discipline, F(6, 2,894) = 2.12, p < .05, and Distress, F(3, 2,894) = 12.76, p < .001. Table 2 gives the mean hours until a Disobedience recurrence for each Discipline response by the four levels of Child Distress.

Following Keppel (1982), we followed up the significant overall interaction with an interaction contrast to test the differing predictions of behavioral theories versus Hoffman's theory on the association between Child Distress and recurrence delays. An interaction contrast combines specific contrasts on the two ANOVA factors involved in the interaction. On the Discipline variable, the relevant contrast compared the two Consequences-alone discipline responses versus the four responses incorporating Reasoning. On the Distress variable, the contrast was [-1, -3, -1, +5], in which the four coefficients represented low, medium, and high levels of Distress, respectively. This contrast represents the difference between a linear contrast as predicted by behavioral theories for Consequences alone (i.e.,

Table 2
Mean Hours Until Recurrence of Disobedience by Discipline Response and Degree of Child Distress

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Consequences Without Reasoning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noncorporal consequences</td>
<td>1.14</td>
<td>2.30</td>
<td>2.28</td>
<td>3.98</td>
<td>1</td>
<td>L</td>
<td>4 &gt; 2, 3 &gt; 1</td>
</tr>
<tr>
<td></td>
<td>(43)</td>
<td>(43)</td>
<td>(36)</td>
<td>(50)</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporal consequences</td>
<td>1.74</td>
<td>2.66</td>
<td>2.88</td>
<td>3.30</td>
<td>4 &gt; 1</td>
<td></td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>(23)</td>
<td>(61)</td>
<td>(90)</td>
<td>(103)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoning alone</td>
<td>2.06</td>
<td>2.31</td>
<td>2.61</td>
<td>2.24</td>
<td>L</td>
<td></td>
<td>4 &gt; 2, 3 &gt; 1</td>
</tr>
<tr>
<td></td>
<td>(199)</td>
<td>(161)</td>
<td>(130)</td>
<td>(97)</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoning and forced compliance</td>
<td>2.28</td>
<td>2.50</td>
<td>2.47</td>
<td>2.43</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(22)</td>
<td>(40)</td>
<td>(51)</td>
<td>(64)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoning and noncorporal consequences</td>
<td>1.94</td>
<td>3.98</td>
<td>2.61</td>
<td>3.04</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(8)</td>
<td>(12)</td>
<td>(14)</td>
<td>(35)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoning and corporal consequences</td>
<td>2.51</td>
<td>3.17</td>
<td>4.28</td>
<td>2.56</td>
<td>C</td>
<td></td>
<td>3 &gt; 1</td>
</tr>
<tr>
<td></td>
<td>(7)</td>
<td>(9)</td>
<td>(25)</td>
<td>(54)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither Negative Consequences Nor Reasoning</td>
<td>1.81</td>
<td>2.11</td>
<td>2.47</td>
<td>2.50</td>
<td>L</td>
<td></td>
<td>4, 3 &gt; 2, 1</td>
</tr>
<tr>
<td></td>
<td>(682)</td>
<td>(411)</td>
<td>(276)</td>
<td>(176)</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. The number of discipline incidents within each cell is in parentheses.
Tests of statistical significance of Child Distress within each type of discipline response: L * significant linear effect, p < .05. C * significant curvilinear effect, p < .05. The numbers summarize pairwise comparisons, using Fisher's Least Significant Difference Test, p < .05. For example, 4 > 2, 3 > 1 means that "4. High" Distress had a significantly higher mean log delay than did either "2. Low" or "3. Medium," both of which had significantly higher mean log delays than did "1. None." The left-hand column summarizes statistical tests using a log transformation of hours to reduce skewness, Log10(hours + 1). The right-hand column summarizes statistical tests of family-specific z-score transformations of the Log10(hours + 1), to isolate within-family effects. n.s. * not significant.
Figure 2. Mean hours until the next disobedience recurrence by child distress and discipline response.

![Graph showing mean hours until the next disobedience recurrence by child distress and discipline response.](image)

- Consequences ▲ Other ▼ Reason, not Conseq. ◆ Reason+Conseq.

[-3, -1, +1, +3]) and a curvilinear contrast predicted by Hoffman when Reasoning was part of the discipline response (i.e., [-2, +2, +2, -2]). The difference between the linear and curvilinear contrasts specified precisely the difference in expected effects of Child Distress on recurrence delays, comparing Consequences alone against all four Reasoning responses.

Multiplying the Discipline contrast by the Distress contrast yielded the interaction contrast's coefficients for each of the 28 cells of the 4 X 7 ANOVA. This interaction contrast was significant, indicating that the relationship between Child Distress and recurrence delay differed for Consequences and for Reasoning responses in the precise way predicted by behavioral versus Hoffman’s theories, respectively, \( t(2,894) = -3.16, p < .01 \) (see Figure 2). In the case of Consequences alone, Child Distress was linearly related to recurrence delays, consistent with behavioral theories, \( F(1, 2,894) = 33.46, p < .001 \). For all four Reasoning responses combined, the association of Child Distress with recurrence delay had a significant linear effect, \( F(1, 2,894) = 3.86, p < .05 \), and a near-significant curvilinear effect, \( F(1, 2,894) = 3.03, p < .10 \). The mean hours until a Disobedience recurrence after Reasoning responses increased from 2.09 hours through 2.41 hours to 2.73 hours, for Distress levels of none, low, and medium, respectively. The mean hours then dropped to 2.46 hours at the high Distress level. Thus the medium (third) level of Distress seems optimal for discipline effectiveness when Reasoning is part of the discipline response. Consistent with that, medium Distress was associated with a significantly longer recurrence delay, whether compared to no Distress, \( t(2,894) = 2.65, p < .01 \), or compared to the mean of the other three Distress levels, \( t(2,894) = 2.01, p < .05 \).

In Table 2, the simple effects of Distress on recurrence delays for the two Consequences responses both showed a significant linear relationship between Child Distress and recurrence delays. The pattern of effects of Distress on recurrence delays fit a curvilinear pattern for each of the four discipline responses that included Reasoning. That is, the longest average recurrence delay was associated with either the low or the medium Distress level for each of the Reasoning responses. However, none of the effects of Child Distress on recurrence delay showed a significant curvilinear effect, due partly to the decreased number of incidents within each discipline response. Figure 2 shows the effects of Child Distress on recurrence delays after collapsing the seven discipline responses in Table 2 into four larger discipline categories. Only for Reasoning plus Consequences did the curvilinear trend for the effect of Child Distress on recurrence delay approach significance, \( t(2,894) = 1.95, p < .10 \).

The above use of ANOVA differs from standard usage. The unit of analysis consisted of the 2,922 disobedience incidents, not the 38 families. The number of incidents per family ranged from 6 to 210, with a mean of 77. By using disobedience incidents as the unit of analysis, the analyses reflected the specific discipline response and distress level associated with each incident. However, the independence assumption of ANOVA was violated.

In an initial attempt to correct for the lack of independence, a 7 X 4 (Discipline X Distress) ANCOVA was run, controlling for the log of the immediately prior interval between Disobedience incidents. The log of the prior interval correlated .27 with the log of the recurrence delay, \( p < .05 \). When controlling for the prior interval, the Discipline X Distress interaction showed only a trend toward significance, \( F(18, 2,857) = 1.46, p < .10 \). The main effect due to Distress remained significant, \( F(3, 2,857) = 4.78, p < .001 \), but the Discipline main effect was no longer significant, \( F(6, 2,857) = 1.41, n.s. \) The theory-derived interaction contrast remained significant, \( t(2,857) = -2.83, p < .01 \).

The correlation between the log of the prior interval with the log of the recurrence delay was due primarily to subject differences in average log recurrence delays. After controlling for subjects’ mean log recurrence delay, the semipartial correlation between the log of the prior interval and the log of recurrence delay was no longer significant, \( r = .02. \) Thus, autocorrelation, the most likely source of a violation of the independence assumption of ANOVA, is inconsequential except for between-subject differences in mean recurrence delays, which do not violate ANOVA’s independence assumption.

However, the subject differences in mean log recurrence delays imply that the above results reflect both between-subject effects and within-subject effects. To isolate within-subject effects, the 4 X 7 (Distress X Discipline) ANOVA was repeated with the z score of the log delay as the dependent variable. Neither main effect nor the interaction showed a significant effect on the z-scored measure.
Table 3
Mean Hours Until Recurrence of Fighting by Discipline Response and Degree of Child Distress

<table>
<thead>
<tr>
<th>Discipline Response</th>
<th>Degree of Child Distress</th>
<th>Significance*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. None</td>
<td>2. Low</td>
</tr>
<tr>
<td>Negative Consequences Without Reasoning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noncorporal consequences</td>
<td>8.45</td>
<td>4.15</td>
</tr>
<tr>
<td>(2)</td>
<td>(6)</td>
<td>(6)</td>
</tr>
<tr>
<td>Corporal consequences</td>
<td>3.36</td>
<td>3.01</td>
</tr>
<tr>
<td>(5)</td>
<td>(9)</td>
<td>(23)</td>
</tr>
<tr>
<td>Reasoning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoning alone</td>
<td>4.58</td>
<td>3.42</td>
</tr>
<tr>
<td>(37)</td>
<td>(48)</td>
<td>(47)</td>
</tr>
<tr>
<td>Reasoning and forced compliance</td>
<td>10.22</td>
<td>4.04</td>
</tr>
<tr>
<td>(9)</td>
<td>(8)</td>
<td>(17)</td>
</tr>
<tr>
<td>Reasoning and corporal consequences</td>
<td>15.92</td>
<td>0.76</td>
</tr>
<tr>
<td>(2)</td>
<td>(2)</td>
<td>(7)</td>
</tr>
<tr>
<td>Reasoning and corporal consequences</td>
<td>7.80</td>
<td>-</td>
</tr>
<tr>
<td>(2)</td>
<td>(0)</td>
<td>(3)</td>
</tr>
<tr>
<td>Neither Negative Consequences Nor Reasoning</td>
<td>5.42</td>
<td>3.74</td>
</tr>
<tr>
<td>Other</td>
<td>(127)</td>
<td>(107)</td>
</tr>
</tbody>
</table>

Note. The number of discipline incidents within each cell is in parentheses.

In addition, the theory-derived interaction contrast did not remain significant, F(2,894) = -1.38, p = .17. However, two simple effects showed significant results that were consistent with the above results (see Table 2): Distress had a positive linear effect on the z-scored delay measure for Noncorporal Consequences. Distress had a significant curvilinear effect on the z-scored delay measure for Reasoning plus Corporal Consequences.

In simple effects of combined categories of discipline responses, the linear effect of Child Distress on the z-score log delay remained significant for all Consequences-alone discipline responses, F(1, 2,894) = 5.13, p < .05. However, the curvilinear effect of Child Distress on the z-scored log delay for Reasoning responses only approached significance, for example, for Reasoning plus Consequences, F(1, 2,894) = 3.22, p < .10.

Effects on Delays Until Fighting Recurrences

A different pattern of results emerged for Fighting incidents (see Table 3 and Figure 3). In general, discipline responses of any kind delayed the next fighting recurrence longer at both the no-Distress level and at the high-Distress level than they did at the low-Distress level.

The effects of Child Distress by Discipline Response on the delay until the next recurrence of Fighting was tested with a 4 X 7 (Child Distress X Discipline Response) ANOVA, using the log transformation of recurrence delay. There was a main effect for Distress level, F(3, 738) = 5.58, but the Discipline and the Distress X Discipline interaction were not significant.

Follow-up analyses of the Distress effect found a significant curvilinear effect, F(1, 738) = 13.00, p < .001, and a near-significant linear effect, F(1, 738) = 3.53, p < .10. Fisher's Least Significant Difference Test indicated that low Distress had a significantly shorter mean delay than did any of the other Distress levels, p < .05. These results held up when controlling for the immediately prior interval between fighting incidents. However, no results approached significance when controlling for subject mean delays by using z-scored log delays.

**DISCUSSION**

The results show that when a disobedient child reacts to parental discipline with moderate emotional distress, parental reasoning is more effective than when the child reacts with low or high levels of emotional distress. Thus, parents of toddlers can use reasoning with greater success when discipline strategies elicit a moderate level of emotional distress in their children. If the actions of the parents produce a low or high level of child distress, inductive reasoning will be less effective. This pattern is consistent with Hoffman's (1977) highly regarded theory of moral internalization.

The results tell a different story when negative consequences are used alone. The findings suggest that negative consequences without reasoning are more effective when the child reacts to those consequences with high emotional distress than when the child reacts with low or moderate emotional distress. This pattern is consistent with behavioral research on punishment (e.g., Azrin & Holz, 1966), but it implies an ethical dilemma between the values of minimizing a child's emotional distress and using effective discipline responses.

One possible solution to this ethical dilemma is to include reasoning whenever negative consequences are used. By adding reasoning to negative consequences, the advantage of increasing the child's distress is eliminated. Laboratory analogue studies have demonstrated this previously (e.g., Parke, 1969). However, this is the first naturalistic evidence that the advantage of high child distress for the effectiveness of negative consequences disappears when reasoning is added.

It should be noted that the most common levels of child distress for discipline responses were often either too high or too low for optimal effectiveness (see Table 2). Taking Disobedience incidents as an example, 57% of the occurrences of a combination of Reasoning...
and Corporal Consequences resulted in high Child Distress, which exceeded the maximally effective, intermediate levels of Child Distress. Further, 34% of the occurrences of Reasoning alone were associated with no Child Distress, which was associated with the least effective use of Reasoning alone.

The enhanced effectiveness of reasoning at intermediate levels of child distress was found only for disobedience incidents, not for fighting incidents. The differential results for disobedience versus fighting incidents may be due to the source of the child's distress, which comes primarily from the parent in disobedience incidents, but primarily from the peer or sibling in fighting incidents. Thus, unlike disobedience incidents, intermediate distress after fighting incidents may be associated with continuing attention to the peer or sibling, not attention to the reasoning component of the parent's discipline response.

Distress caused by fighting could interfere with cognitive processing of the parental reasoning component in three ways. First, the frustrating aspect of the fighting situation might hinder the child's attention to parental reasoning. Second, when the parent applies enough power assertion to force the child's attention away from the frustrating situation, the total child distress might be too much for optimal cognitive processing. Third, the motivating effect of the child's distress might be split between satisfying the parent and resolving the interpersonal conflict.

These explanations may account for why discipline responses were least effective at the second level of child distress ("Low"), which was predicted to be one of the more effective distress levels, at least for Reasoning responses. If intermediate and high levels of child distress involve peer-elicited distress to a substantial degree, then the child may pay adequate attention to the parental discipline only at the level of no child distress and at the higher distress levels. When there is no child distress, the parent is not competing with the peer or sibling for attention. When the child is already upset with a play partner, a side effect of getting the child to pay attention to the parent may be high levels of child distress.

In contrast to the case with Disobedience incidents, Reasoning makes no difference in the relationship of child distress to discipline effectiveness. This implies that the child is not cognitively processing the reasoning component during Fighting incidents. Given some level of child distress, the effectiveness of discipline increases with greater child distress, consistent with the results for Consequences alone following Disobedience incidents. The practical implication of this explanation is that parents should wait until after their children have cooled off before reasoning with them about alternatives to fighting, except in the case of minor incidents of physical aggression. The purpose of a discipline response to most fighting would be to put a stop to the fighting now and explain alternatives and reasons later.

The methodologies used in this study have strengths and weaknesses that need to be addressed. Strengths include measures and analyses specific to each discipline incident, including measuring the effectiveness of a discipline response with the delay until the next misbehavior recurrence. We also attempted to go beyond correlational, between-subject analyses. However, only a few relevant statistical tests were significant when within-subject effects were isolated by using family-specific z scores. It should be noted that z scores may be corrected, by equating each family's average recurrence delay regardless of the child's temperament and the parenting quality.

The strengths of these research strategies have corresponding weaknesses. One weakness of using discipline incidents as the unit of analysis is that the ANOVA assumption of independent observations was violated. Successive recurrence delays were independent of each other, after controlling for families' mean recurrence delays. Nevertheless, the central results were due to between-family differences as well as within-family differences in the effectiveness of different discipline responses. This raises the possibility that the results could be due to idiosyncrasies of this sample of 40 families. Further, a small number of those families may have influenced Discipline-Distress combinations that were crucial for the results obtained in this study. Thus, replications of these results are needed before we can have full confidence in them.

Future research could improve on distinguishing different kinds of emotional reactions of children to discipline interventions. Hoffman (1977) has argued that fear leads to an external moral orientation (e.g., fear of getting caught), whereas empathy facilitates an internal moral orientation. Using negative consequences in a way that elicits high child distress may lead to an external moral orientation, whereas reasoning may be more conducive to an internal moral orientation.
Implications for Parent Education

Regardless of their particular perspective, all parent education programs should consider the implications of Hoffman's (1977, 1983) theory for their program. Parent training programs that incorporate consequences such as time out should train parents to combine consequences with reasoning in a way that minimizes child distress. This conclusion needs to be balanced, however, with the tendency for children to be especially resistant when parents are first implementing such a training program (Barkley, 1987; Ollendick & Cerny, 1981). For example, G. R. Patterson (personal communication, 1989) has found that preadolescents often misbehave more persistently for about the first two weeks of his parenting program before improvements are seen.

Parenting programs that do not incorporate consequences need to instruct parents to be particularly firm in using alternative types of discipline responses, such as reasoning. Otherwise, trainers are in danger of fostering nattering, an increasing frequency of verbal complaints to the child, which in turn are frequently ignored. Frequent parental nattering is a predictor of delinquency (Patterson, 1982).

All parent education programs need to consider how parents should adjust their discipline responses according to each particular child and situation. If verbal interventions are adequate to get a child’s attention, power assertion may rarely be needed. A combination of mild power assertion and reasoning may work better with less anxious children. Adjusting discipline responses to the temperament and mood of the child may be an important component of parental flexibility (Grusec & Goodnow, 1994).

What does this study contribute to the debate about the role of negative consequences or punishment in parental discipline? The controversy may be due to the fact that the effects of negative consequences vary under different conditions. This study is useful in identifying some conditions that maximize the effectiveness of negative consequences.

First, negative consequences are most effective in delaying misbehavior recurrences when combined with reasoning (Larzelere & Schneider, 1991). The reasoning-consequences combination is most effective when child distress is kept lower than is typically the case for that discipline response. This implies that mild versions of a reasoning-consequence combination are better. Other studies indicate that (a) any use of negative consequences should have a specified maximum intensity, such as a 3-to-5-minute maximum for time out or two slaps with an open hand to the buttocks that leave no marks (Forehand & McMahon, 1981); (b) negative consequences should be used primarily to back up milder discipline responses, such as reasoning, a single warning, or time out (Roberts & Powers, 1990); (c) responses to misbehavior should focus on a small number of clearly targeted misbehaviors while ignoring less serious misbehaviors (Roberts, McMahon, Forehand, & Humphreys, 1978); (d) parents should turn to alternative discipline responses or professional help rather than increasing the intensity of consequences if they prove ineffective; and (e) negative consequences should be appropriate to the child’s age. The effectiveness of a carefully prescribed spanking as a backup for time out has been demonstrated only for children from 2 to 6 years of age (Roberts & Powers, 1990). The effectiveness of time out has been demonstrated for preadolescents as well (Patterson, 1982). These restrictions for effective use of negative consequences obviously require sober parents who are in control of their emotions.

The implications of this study need to be placed in their appropriate context. The focus has been only on discipline responses to misbehavior. Positive parenting in other contexts is probably at least as important. Other research has shown that sensitivity and responsiveness to infant initiatives predict a secure attachment (Ainsworth, Blehar, Waters, & Wall, 1978) and that parental affection, clear expectations, reinforcement of appropriate behavior, granting of age-appropriate autonomy, and skill development all predict positive child outcomes (Baumrind, 1973; Friman, 1990; Larzelere, Klein, Schumm, & Alibrando, 1989; Larzelere & Schneider, 1991; Roberts et al., 1978; VanAken & Riksen-Walraven, 1992). Positive parent-child relations enhance the effectiveness of discipline responses (Maccoby & Martin, 1983). Further, parents can use proactive discipline strategies to prevent many discipline incidents (Holden, 1983). The effectiveness of discipline responses, the focus of this study, should not be separated from the need for positive parenting in nondisciplinary parent-child situations.

REFERENCES


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3989 Central Avenue N.E., Suite 550
Minneapolis, MN 55421
(612) 781-9331 • FAX (612) 781-9348
E-mail: ncfrr3989@aol.com

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