

BRIEF REPORTS

A Cognitive Approach to Child Mistreatment Prevention Among Medically At-Risk Infants

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The authors assessed the effectiveness of a home visitation program in enhancing the early parenting history of infants born at medical risk—a population that is at risk for mistreatment. A randomized clinical trial design was used to compare the effects of a cognitively based extension of the Healthy Start home visitation program (HV+) with a visitation condition that did not include this component (HV). In the HV+ condition, they observed (a) a lower use of corporal punishment, (b) greater safety maintenance in the home, and (c) fewer reported child injuries. The sample ($N = 102$) was primarily Latino; however, the effects of the intervention were not qualified by ethnicity, maternal education, or immigration status.

Keywords: child mistreatment, child neglect, home visitation, harsh parenting, clinical trials

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Efforts to reduce the prevalence of child abuse in recent years have focused on prevention activities. Although many such efforts have been found to be useful, outcomes have been limited by the fact that (a) they are difficult to replicate, (b) they often lack a strong theoretical foundation, and (c) the benefits that are found often do not include reductions in abuse. In the present study, efforts were made to replicate and extend the findings of a prevention program that led to reductions in harsh and abusive parenting (Bugental et al., 2002). The effectiveness of this program was tested with a different population than used in the earlier study.

Cognitive Reframing Intervention

The cognitive reframing intervention method employed here is grounded in a cognitive approach to parenting relationships. Family interaction processes have increasingly been understood as influenced by parental cognitions (e.g., Bugental & Goodnow, 1998). That is, parents respond to their interpretation of children's

motivations and behaviors (e.g., Dix, 1993; Grusec & Mammone, 1995). Early work on this topic revealed an association between parents' attributional biases (e.g., blame orientation) and their risk of becoming abusive (e.g., Bradley & Peters, 1991; Bugental, Blue, & Cruzcosa, 1989).

As might be predicted from these findings, interventions formulated in terms of cognitive reframing (Bugental et al., 2002) or attribution retraining (Azar, 1997) have proven to be successful in reducing child maltreatment. The program introduced by Bugental et al. (2002) was designed to augment the methods traditionally used in the Healthy Start program (Breakey & Pratt, 1991; Duggan et al., 1999). The effectiveness of this cognitively based visitation program (HV+) was compared with the effectiveness of the traditional Healthy Start program (HV) and a pure control condition (C). The prevalence of abuse demonstrated in the HV and C conditions was significantly higher than in the HV+ condition. In addition, there were reduced levels of maternal use of harsh parenting tactics and decreased levels of child injury. The effects found for the HV condition did not differ significantly from those in the C condition.

Risk Factors for Infants

In the previous use of this intervention, we selected families based on characteristics of mothers that constitute risk for maltreatment—for example, poverty or lack of social support. In the present study, in contrast, we focused on characteristics of children as a risk factor. The population studied involved children born at medical risk, either as a result of their preterm status or as a result of health or physical problems present at birth. Children born with medical problems or physical disabilities have generally been found to be at elevated risk for maltreatment (e.g., Brown, Cohen,

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Johnson, & Salzinger, 1998; Sherrod, O'Connor, Vietze, & Altemeier, 1984; Sullivan & Knutson, 2000).

The Present Study

A randomized clinical trial design was employed to compare the effectiveness of the HV+ and the HV condition. We predicted that mothers in the HV+ condition, in comparison with those in the HV condition, would be (a) less likely to physically abuse or use physically harsh tactics with their infants and (b) more likely to maintain a physically safe environment (as reflected in reduced levels of child injury and increased use of safety measures).

Method

Participants

Referral. Families ($N = 147$) were referred to the program by physicians (obstetricians and pediatricians), social workers, and public health nurses who provide services to families with children born at medical risk. Child referral was based on the presence of a medical risk factor; 48 were referred primarily on the basis of preterm status (less than 36 weeks gestational age), 59 referred primarily on the basis of a medical problem (e.g., respiratory problems, cardiac problems), and 40 referred primarily for other reasons (e.g., cesarean delivery). Parental risk (e.g., poverty or history of abuse) was not considered in the referral.

Characteristics of participants. Information on the characteristics of families is provided in Table 1. Although 50% of births in this region are Latino, 87% of the total sample was Latino. This selection bias primarily reflects the higher rate of referral of Latino families to the program. Despite random assignment to intervention condition, two of the differences between groupings reached

significance. The education level of mothers at intake was lower in the HV than in the HV+ condition. In addition, there were significantly more immigrant families in the HV condition than in the HV+ condition. To control for these differences, immigration status (a dichotomous variable) was included as a between-subjects variable, and maternal education as a covariate.

The mean age of infants at intake was 9.37 weeks ($SD = 5.50$). Families were eligible for inclusion for children up to 6 months of age.

Based on family history, this sample was at relatively low risk for child maltreatment, as indicated by scores ($M = 19$) on the Family Stress Checklist (Murphy, Orkow, & Nicola, 1985). The checklist makes use of a structured interview. Scores (0, 5 or 10) are made by the rater on 10 items potentially predictive of abuse (e.g., history of drug use, unrealistic caregiving expectations, past involvement with child protective services). The scoring system (high, moderate, and low risk) reflects the extent to which these scores (obtained during the mother's pregnancy) predict later neglect or abuse by the time children were toddlers. The sensitivity of the instrument was rated at 80% and the specificity at 89%.

In previous research using this intervention (employing participants who were recruited based on family risk), the mean score of mothers on the Family Stress Checklist was 32 (Bugental et al., 2002).

Acceptance and completion rate. Of the 69 individuals assigned to the HV+ condition, 51 accepted the program and continued after the initial visits (which were limited to obtaining intake measures); of the 51 continuers, 45 completed the program. Of the 78 individuals assigned to the HV condition, 59 accepted the program and continued after the first visit; of the 59 continuers, 57 completed the program. Participants' failure to continue after the initial visits involved their reactions to the lengthy questionnaires. At that point, no implementation had as yet been made of the intervention. The 8 participants who dropped out after participating in the program did so because they left the area. The unavailability of all participants who initially accepted the program served to prevent an "intent to treat" analysis.

Differences found between completers and noncompleters are provided in Table 2. Of those participants who were initially invited to the program, the only significant differences between completers and noncompleters were immigration status and presence of multiple births. The observed differences in retention rate may reflect the self-perceived benefit for mothers experiencing an exceptional level of caregiving challenge.

Procedures

Informed consent and ethical concerns. Informed consent (using forms approved by the institutional review board of the University of California, Santa Barbara) was obtained from participants at the point of entry to the program. The consent form (which was fully explained and discussed with parents) included reference to mandated reporting requirements if abuse was suspected. Four families in which abusive practices were suspected were referred to Child Welfare Services; however, in the absence of any physical indications of injury, no action was taken, and the families continued in the study.

Table 1
Intake Data on Families in Two Conditions

Variable	HV+M (SD)	HV M (SD)	Difference
Maternal age	27.1 (7.0)	27.3 (6.4)	-0.2
Maternal education	10.5 (3.9)	9.2 (3.3)	1.3*
Family Stress Checklist	19.7 (14.1)	18.9 (13.6)	0.8
Gestational age of child	35.3 (3.8)	35.9 (4.0)	-0.6
Birth weight	2,389 (827)	2,593 (922)	-204
Immigrant status	54%	79%	-25%**
Latino	83%	91%	-19%
Primiparous	59%	48%	11%
Cohabitate with biological father	88%	76%	12%
Twins	7%	15%	-8%
Male child	57%	59%	-2%
Medical disorder	46%	59%	-13%

Note. HV+ = cognitively enhanced home visitation; HV = unenhanced home visitation (Healthy Start model). Birth weight is shown in grams; gestational age is shown in weeks.
* $p < .05$. ** $p < .01$.

Table 2
Characteristics of Noncompleters Versus Completers of the Program

Variable	Noncompleters <i>M (SD)</i>	Completers <i>M (SD)</i>	Difference
Maternal age	25.9 (6.6)	27.7 (6.7)	-1.8
Maternal education	9.6 (3.0)	9.8 (3.8)	0.2
Family Stress Checklist	20.2 (15.4)	19.0 (13.4)	1.2
Gestational age of child	34.6 (3.6)	36.0 (3.7)	-1.4
Birth weight	2,335 (918)	2,539 (868)	-204
Immigrant status	38%	73%	-35% **
Latino	87%	87%	0%
Primiparous	54%	44%	10%
Cohabitate with biological father	69%	81%	12%
Twins	0%	16%	-16% **
Male child	58%	58%	0%
Medical disorder	49%	55%	-6%

Note. Birth weight is shown in grams; gestational age is shown in weeks.
 ** $p < .01$.

Children who showed previously undiagnosed medical problems were immediately referred to local physicians or hospitals. Whenever there was any uncertainty about the significance of a child's behavior or medical condition, a public health nurse was consulted.

Selection and training of home visitors. Four home visitors were selected to be appropriate for both program implementation and test administration. As in the previous program, the background of home visitors was matched with the families. Thus, three were bilingual (Spanish-English) and bicultural and one was Anglo. All home visitors were trained for and implemented both experimental conditions. In addition, a licensed clinical psychologist provided weekly clinical supervision and monitored the possibility of mental health problems among mothers. All home visitors were blind to the expected advantages of the HV+ over the HV condition.

Both the selection and training of home visitors followed the same procedures as employed in the intervention study described by Bugental et al. (2002), provided in the supplemental materials. The key addition to past training involved provision of information regarding preterm children and children born with medical problems or physical disabilities.

The intervention conditions employed exactly replicated those described by Bugental et al. (2002). Across the 1st year of life, home visitors met with mothers 17 times. Information on the schedule maintained (in obtaining measures and making visits or phone calls) and the methods employed is provided in the supplemental materials. Briefly, the key distinction was the facilitation of mothers' own problem-solving and information search (HV+) versus the provision of ideas on how to solve problems along with relevant information (HV). The program focused on services to mothers, as fathers were found in the previous study (Bugental et al., 2002) to be relatively unwilling to participate.

Fidelity of program implementation was managed by weekly monitoring during supervision. Cases were discussed in terms of the means that were used to implement particular conditions. Home visitors brought along their case notes, in which they

recorded the means of program implementation during recent visits.

Measures

Measures of Parental Mistreatment and Neglect

All measures of mistreatment or neglect were taken at a home visit that occurred 1 year following the intake visit (information on psychometric properties of measures is provided in the supplemental materials). Measures were translated into Spanish (for participants for whom Spanish was their preferred or only language) and back-translated into English to check the accuracy of the translation. As some of the mothers were illiterate, all items were read to the participants, and their responses were entered directly into a laptop computer. All measures were retrospective across the entire 1st year. At 9 weeks of age, no reasonable assessment could be made of mistreatment or neglect (as an intake measure) in view of the irrelevance of some measures at that age, combined with the fact that 85% of the children spent considerable time in the neonatal intensive care unit (and intake measures were thus taken too soon after their arrival in the home environment to be meaningful).

Conflict Tactics Scale. The Conflict Tactics Scale (CTS; Straus, 1979) was employed to measure presence of physical abuse (e.g., shaking or hitting with an object) and use of corporal punishment (e.g., spanking). This version of the CTS was employed rather than a more recent revision to maintain continuity of measures with a previous study testing the effects of this home visitation method (Bugental et al., 2002). The CTS asks respondents about the frequency of their use of a variety of tactics in response to family conflicts. The reliability of the CTS in assessing the frequency of use of physically aggressive tactics is modest ($r = .62$).

Physical abuse was infrequent in this sample (5% of mothers reported use of abusive tactics). Nonetheless, the prevalence rate exceeds that normatively shown within this particular age group (2.43/1,000; Cappelleri, Eckenrode, & Powers, 1993).

Safety neglect. Two measures were employed to assess parental neglect of child safety: the Framingham Safety Survey (American Academy of Pediatrics, 1991), and the Child Injury Survey (Bugental et al., 2002). The Framingham Safety Survey asks questions concerning household hazards (e.g., exposed electrical outlets; crib sides left down; presence of windows lacking screens). Although internal consistency information is not available on this scale, it was found to be relatively low within this particular population (α coefficient = .45). The Child Injury Survey asks about the frequency of falls, bruises, cuts, and burns. The interitem reliability of the measure of child injuries was low ($\alpha = .37$). However, good interjudge agreement ($r = .76$) was found on the measure, as completed separately for mothers and fathers (for the 30 families that included two parents). The measure was developed in collaboration with staff of a local hospital's emergency room (on the basis of injuries seen during infancy). Although a high level of injuries may reflect parental neglect, it may also provide a hidden marker of abuse (Peterson & Brown, 1994).

Perceived Power

A measure was taken (at both intake and 1-year visits) to assess the extent to which the HV+ condition produced greater graphic indications of perceived power (size of self-drawings) than did the HV condition. Self-depictions have been found previously to be larger among mothers at the conclusion of the HV+ condition than the HV condition (Bugental et al., 2002).

Results

Manipulation Check

Mothers' spatial representations of power within the relationship (as reflected in their self-drawings) were compared across conditions (data were complete on 39 HV+ and 41 HV mothers). The dependent variable was height of head (in centimeters) depicted in the drawing at the 1-year visit, with height of head at the intake visit included as a covariate. Mothers in the HV+ condition depicted themselves as larger than did those in the HV condition, $F(1, 77) = 4.26, p = .04$. Comparable analyses made for drawings of children did not approach significance.

Parental Mistreatment or Safety Neglect

Harsh tactics. Physical abuse occurred too rarely to allow a reliable statistical comparison (4% in the HV+ and 5% in the HV conditions). Prevalence of corporal punishment (as measured by the CTS) was compared in an analysis of variance that included condition and immigration status as independent variables and maternal education and ethnicity as covariates. Rosenthal and Rosnow (1984) have argued for the legitimacy of using analysis of variance methods with dichotomous variables (thus allowing a test of interaction effects not testable within a chi-square design). A significant effect was found for intervention condition, $F(1, 96) = 5.08, p = .03, \eta^2 = .05$. The prevalence rate of corporal punishment was 21% in the HV+ condition and 35% in the HV condition. Although the interaction between immigration status and condition was not significant, $F(1, 96) = 2.05, p = .26$, larger differences in prevalence rates were found for native-born mothers (28% in the HV+ condition and 67% in the HV condition) than immigrant mothers (18% versus 27%).

Safety neglect. Neglect measures were compared in a multiple analysis of covariance that included condition and immigration status as independent variables. Frequency of injury and levels of home safety precautions were included as dependent variables; maternal education and ethnicity served as covariates. The multivariate effect was significant, $F(2, 95) = 3.94, p = .01, \eta^2 = .04$. Tests of significance were also significant for the univariate effects of injury, $F(1, 96) = 3.94, p = .05$, and home safety maintenance, $F(1, 96) = 4.94, p = .03$. The mean injury score (on a scale with a mean of 3.34 and an *SD* of .47) was 3.29 for the HV+ condition and 3.39 for the HV condition. The mean safety score (on a scale with a mean of 1.70 and an *SD* of .13) was 1.72 for the HV+ condition and 1.68 for the HV condition.

Discussion

A cognitively enhanced home visitation program was found to produce benefits for caregiving practices that exceeded those ob-

served as a result of a cognitively unenhanced home visitation program. Prevalence of use of harsh (but nonabusive) tactics with infants or toddlers was lower in the HV+ than the HV condition. Thus, the benefits of this program were equivalent to those found with a different population of families (those at risk due to family history rather than child characteristics; Bugental et al., 2002). The use of corporal punishment in infancy does not legally constitute abuse in the United States. However, it is illegal in many other countries, including Canada as well as European countries (as described in Bugental & Grusec, 2006). Spanking in infancy predicts elevated cortisol reactivity to stress among young children (Bugental, Martorell, & Barraza, 2003), which suggests the impact of this practice; indeed, hormonal reactivity was found to be equivalent for children who had been spanked and for those who had been physically abused. From a developmental standpoint, harsh parental practices in infancy can only be expected to produce fear, not compliance. In addition, a history of such parental practices has been found to predict higher levels of child aggression at later ages (Strassberg, Dodge, Pettit, & Bates, 1994).

Comparison of Findings With Other Research

In a recent meta-analysis of the effectiveness of early prevention programs for children at risk for abuse (Geeraert, Noortgate, Grietens, & Onghena, 2004), it was concluded that although the effect sizes were small, such programs revealed a reduction in manifestations of abuse and neglect. In addition, programs led to risk reduction in child, parent, and family functioning. However, if comparisons are limited to studies that make use of a randomized clinical trial design, no such overall benefit can be argued (Chaffin, 2004). For example, Duggan et al. (2004) were unable to demonstrate stable benefits as a result of the Healthy Start program across agencies.

Suggested here is the advantage of adding a cognitive component to Healthy Start and other similar programs. Repeated consideration of family challenges within a problem-solving context (including both cognitive reframing and a focus on self-generated observations and plans) may provide benefits in terms of reduced use of harsh or neglectful parenting practices.

Limitations

One limitation of the present study is that the sample was ethnically biased. It will therefore be useful to replicate the study, making use of a sample that includes a larger number of Anglo mothers. Reliance on self-report measures also poses a potential limitation. In other ongoing research, however, significant differences have been found in cortisol levels of children whose mothers participated in the HV+ versus the HV condition (Bugental, 2006). Further research is needed to establish the long-term benefits of this intervention on children's positive outcomes, including their social and cognitive development, and their health outcomes.

Implications

Our findings provide support for past longitudinal findings indicating that parents who feel higher control over caregiving outcomes are less likely to mistreat their children than are parents who feel low control. Thus, an intervention focused on parental

empowerment serves as a systematic means of reducing mistreatment.

One of the most important implications of our findings is the demonstration of the malleability of parental perception and behavior within a very high-risk population. By acquiring skills in problem-solving, mothers were able to reframe the challenging experiences of their lives in ways that allowed consideration and implementation of constructive actions. Ultimately, this suggests the possibilities for adaptive development across the life course when the environment shifts to allow and promote such development.

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