An Efficacious Theory-Based Intervention for Stepfamilies

Marion S. Forgatch, David S. DeGarmo, Zintars G. Beldavs
Oregon Social Learning Center

This article evaluates the efficacy of the Oregon model of Parent Management Training (PMTO) in the stepfamily context. Sixty-seven of 110 participants in the Marriage and Parenting in Stepfamilies (MAPS) program received a PMTO-based intervention. Participants in the randomly assigned experimental group displayed a large effect in benefits to effective parenting practices with resultant decreases in child noncompliance and in home and school problem behaviors. MAPS findings replicate and extend those of the Oregon Divorce Study with single mothers while employing a similar multiple-method, multiple-measure randomized design, with Intent-to-Treat and structural equation modeling analyses. We discuss direct and indirect effects on distal outcomes and the generalizability of PMTO to differing family contexts.

THE NEAR NONEXISTENCE of efficacious stepfamily-based interventions is startling considering that the stepfamily is rapidly becoming the most common family constellation in America (Pasley & Ihinger-Tallman, 1994). Although many members of stepfamilies acclimate well to family structure changes, youngsters are at risk for adjustment problems at home and school and couples are at risk for conflicted and short-lived relationships (Bumpass, Sweet, & Martin, 1990; Hetherington, Bridges, & Insabella, 1998). This article presents a stepfamily intervention based on social interaction learning theory (SIL) in which couples were introduced to the Oregon model of parent management training (PMTO), which was developed at the Oregon Social Learning Center (OSLC).

According to tenets within the SIL model (Forgatch, Bullock, & Patterson, 2004; Forgatch & Knutson, 2002; Patterson, 2002) parenting practices are proximal mechanisms for child development and adjustment, providing a critical interface between family contexts and child adjustment. SIL combines social interaction and social learning perspectives with an emphasis on social environmental influences on children. Social contexts for the family are presumed to enhance or impede effective parenting and thereby indirectly influence child outcomes. Thus, if parents use effective parenting skills in the face of family risk factors, they can ameliorate environmental effects on child adjustment. Stepfamily status is associated with parenting and child adjustment problems, providing a salient context for an SIL-based intervention. Presently, we consider the stepfamily environment a risk factor for child problem behaviors. We recruited biological mother-stepfather families for an intervention designed to strengthen parenting practices and help couples promote healthy child adjustment.

Although stepfamilies are becoming more normative, appropriate roles within these families tend to be poorly defined (Bray, 1999; Fine, Coleman, & Ganong, 1999; Hetherington & Clingempeel, 1992). Studies that evaluate parenting practices in differing family structures often find decreasing child-rearing effectiveness for each transition, with two biological parents (or nuclear family) being the most effective, single parents being secondary, and parents in stepfamilies being the least effective (Bray, 1988; Hagan, Hollier, O'Connor, & Eisenberg, 1992; Vuchinich, Hetherington, Vuchinich, & Clingempeel, 1991). Given less effective parenting, children in stepfamilies tend to demonstrate more problems than those in nuclear families, including noncompliance, externalizing, internalizing, delinquency, and school adjustment (Patterson, 1996; Vuchinich et al., 1991; Zill, 1988). The associations among stepfamily status, disrupted parenting, and youth adjustment beg the question: Is parenting a malleable mechanism that mediates the relation between stepfamily context and child adjustment?

Longitudinal research supports the SIL model. Family structure transitions predict disrupted parenting practices and parenting mediates the association between transitions and child outcomes (Amato & Sobolewski, 2001; Capaldi & Patterson, 1991; Martinez & Forgatch, 2002). Correlational research,

Support for this project was provided by Grants R01 MH 54703 and R01 MH 38318 from the Child and Adolescent Treatment and Preventive Intervention Research Branch, DSIR, NIMH, U.S. PHS; Grant R01 DA 16097 from the Prevention Research Branch, NIDA, U.S. PHS; and Grant P30 MH 46690 from the Prevention and Behavioral Medicine Research Branch, Division of Epidemiology and Services Research, NIMH and ORMH, U.S. PHS.

Address correspondence to Marion S. Forgatch, Oregon Social Learning Center, 160 East 4th Avenue, Eugene, OR 97401; e-mail: marionf@oslc.org.

BEHAVIOR THERAPY **36**, 357–365, 2005
005-7894/05/0357–0365$1.00/0

however, can never demonstrate causation, even when longitudinal and lagged "causal" analyses are employed. Causal status among constructs can only be assessed when theoretically based interventions employ experimental designs to alter putative mechanisms and assess their impact. Within the last 10 years, several studies have attempted to meet such meticulous demands; few, if any, have succeeded on all dimensions (Hinshaw, 2002). The present study represents an attempt to meet these expectations with a theory-based intervention for stepfamilies.

Following a careful review of the extant research with stepfamily interventions, Lawton and Sanders (1994) emphasized the need for rigorous theory-based interventions designed specifically for this population. The few stepfamily studies that employed control groups either failed to adequately compare the control and experimental groups or found scant positive outcomes. Since that review, only one study used a randomized design to evaluate a behavioral family intervention for children in stepfamilies. Nicholson and Sanders (1999) found that experimental families improved on couples' self-report of parenting conflicts and some parent- and clinician-reported measures of child behavior. In spite of limitations (sample size, failure to conduct ITT analysis, reporter bias, and lack of follow-up data), the study provided groundbreaking work for stepfamily intervention.

The present study introduces outcomes from Marriage and Parenting in Stepfamilies (MAPS; Forgatch & Rains, 1997), a theory-based intervention designed to prevent or ameliorate child home and school adjustment problems in stepfamilies. MAPS is a replication and extension of Parenting Through Change (Forgatch, 1994), a randomized SIL-based intervention for single mothers in the Oregon Divorce Study (ODS). The ODS outcomes displayed significant differences in trajectories for parenting practices from baseline through 30 months, with differences first emerging at 12 months. There were significant indirect intervention effects on several child outcomes at 12 months influenced by change in parenting (Forgatch & DeGarmo, 1999, 2002). At 30 and 36 months, trajectories for boys had diverged sufficiently enough to demonstrate direct intervention effects on child outcomes, which were mediated by change in parenting practices from baseline to 12 months. Direct effects included noncompliance, internalizing, externalizing, deviant peer association, and teacher-rated delinquency (DeGarmo & Forgatch, 2005; DeGarmo, Patterson, & Forgatch, 2004; Martinez & Forgatch, 2001).

The MAPS intervention featured randomized experimental design, multiple-method and -agent assessment, direct observation of family interaction tasks similar to those in the ODS, follow-up assessments, intent-to-treat (ITT) analyses, and tests of the SIL model underlying the intervention. Two key differences from ODS were the inclusion of girls as focal children and adaptations of the intervention to fit the issues of biological mother and stepfather families. To increase stepfather participation in intervention sessions, we held individual family meetings. In the ODS, children were excluded from intervention meetings whereas in MAPS they attended portions of some sessions. SIL-based core parenting practices were the focus of both the ODS and MAPS interventions. MAPS had fewer assessments than ODS and spanned 2 years compared to 3 in ODS.

HYPOTHESES

Hypothesis 1: The MAPS intervention will replicate ODS benefits to parenting practices.

Hypothesis 2: Benefits to parenting will result in decreased noncompliance, as in ODS.

Hypothesis 3: Benefits to parenting and noncompliance will produce reductions in home problem behaviors.

Hypothesis 4: Benefits to parenting practices will produce improvements in school behavior, as in ODS.

Hypothesis 5: Benefits to home problems will produce benefits to school problems.

Methods

Participants were 110 recently married biological mother and stepfather families. Data in this report are from baseline, 12-month, and 24-month assessments. Families were recruited from a metropolitan area in the Pacific Northwest through media advertisements. Couples had been married an average of 15.58 months (SD = 12.56, with mothers married an average of 2.06 times [SD = .79] and stepfathers 1.54 times [SD = .73]). Focal youngsters were mothers' biological children and lived with her at least 50% of the time. Children's mean age was 7.47 (SD = 1.15) with 70% boys and 30% girls. The mean number of children under 18 in the home was 2.22 (SD = 1.06).

Most mothers and stepfathers had some education beyond high school (less than 2 years). Ten percent of the mothers and 11% of stepfathers had less than a high school education and 36% and 32%, respectively, had completed high school with no further education. The average gross annual household income was $39,432 ($SD$ = $21,537); per capita income was $10,047 ($SD$ = $6,642). The average age for mothers and stepfathers respectively was 31.3 and 32.7 (SD = 5.37, 6.60).

DESIGN

We employed a randomized experimental longitudinal design with 61% of families assigned to experimental and 39% assigned to control groups. Unequal group assignments provided better power to examine intervention effects (Vinokur, van Ryn, Gramlich, & Price, 1991). Prior to randomization, parents were told about the study and that participation in the intervention would be randomly determined. Families in the control condition received no intervention but, if requested, were given referral support. Families in both conditions were assessed on the same time line: baseline and 6, 12, and 24 months. Participants were paid $10 an hour for assessments. Measures of parenting practices, child noncompliance, and problem behaviors at home are from baseline and 12-month assessments. Measures of child behavior at school are from baseline and 24-month assessments.

The MAPS SIL-based intervention was fully described in the manual (Forgatch & Rains, 1997), which contains information for professionals and materials for parents. Each session has detailed agendas, objectives, rationales, procedures, exercises, role-plays, and process suggestions. Parent materials include summaries of the principles of the intervention, as well as home practice assignments, charts, and other necessary supplies. The manual describes content for 13 sessions. Standard procedures call for interventionists to adapt the timing and application of materials to fit each family's needs.

PMTO sessions provided training in the five parenting cores: skill encouragement, discipline, monitoring, problem solving, and positive involvement. The Vishers (Visher, 1994; Visher & Visher, 1996) offered consultation for adapting and enriching the PMTO program with strategies for managing stepfamily issues, including presenting a united parenting front, the role of stepparents, and debunking common stepfamily myths. We offered a marital-enhancement component before initiating parent-training components, although approximately one fourth of the couples declined direct help with their relationship. For them, we redirected the communication and problem-solving skills training from couple issues to stepfamily issues.

Program components and skills were provided in a progressive and integrated fashion. First, couples specified family expectations and goals and discussed stepfamily issues. Next, family strengths, couple communication skills, and couple problem-solving strategies were covered. Parents learned to provide effective directives and strategies to promote prosocial behavior with skillful teaching techniques and contingent positive reinforcement. Next, parents learned noncoercive discipline strategies such as time-out, work chores, and privilege removal, as well as the importance of balancing encouragement with limit setting. Communication and problem-solving skills for family meetings came next. Monitoring children in settings away from home, such as at school and with friends, followed by positive involvement and reinforcement for school-related and other prosocial behavior followed. Finally, parents were helped to identify expected setbacks and challenges and strategize ways to manage them on their own.

INTERVENTIONISTS

Three female and one male professional conducted the intervention. Two had master's and two had doctoral degrees. Two had served as interventionists in the ODS; the others had not conducted PMTO sessions before. They were trained and supervised by the first author in weekly meetings where videotapes of intervention sessions were viewed and role-plays were conducted.

FIDELITY OF IMPLEMENTATION

Forgatch and colleagues recently demonstrated the validity of a new observation-based measure of competent adherence, Fidelity of Implementation Code (FIMP; Knutson, Forgatch, & Rains, 2003). FIMP evaluated competent adherence to the MAPS intervention using five dimensions: *knowledge* of the intervention's core components, ability to *structure* to accomplish goals, quality *teaching* that actively engages families, effective *process* skills that maintain a collaborative relationship, and *overall* ability to adapt to circumstances. Ratings were made from observations of two sessions (encouragement and limit setting). As hypothesized, these ratings predicted change from baseline to 12 months in the intervention's direct target, observed parenting practices (Forgatch, Patterson, & DeGarmo, 2005). Thus, the study supports the validity of evaluating competent adherence to PMTO rather than amount.

MEASURES

Multiple-method data were obtained from questionnaires, interviews, and direct observation. Family lab tasks included combinations of the mother (M), stepfather (S), and focal child (C). In all, there were 48 minutes of videotaped interactions during 7 tasks, with 41 minutes including mother-child (MC) interactions and 31 minutes including stepfather-child interactions.

Trained observers scored the family interactions with the Family and Peer Process Code (FPP; Stubbs, Crosby, Forgatch, & Capaldi, 1998) and a global rating system (Forgatch, Knutson, & Mayne, 1992). FPP contains discrete positive, negative, and neu-

tral behaviors scored in real-time and provides information on the initiator, recipient, sequence, content, affect, and duration. The global rating system was used to rate coder impressions following microsocial scoring. Approximately 15% of the interactions were randomly selected for blind reliability checks. The average kappa coefficient of coder agreement was .74 for content behaviors and .69 for affect. These are acceptable scores of interrater reliability, consistent with those from three independent observational studies (Forgatch & DeGarmo, 1997, 2002; Reid, Eddy, Fetrow, & Stoolmiller, 1999).

COUPLE PARENTING PRACTICES

The key target of the intervention was couples' parenting practices. Parenting practices were measured for each parent as a latent variable construct consisting of factors for positive and coercive parenting with seven indicators. Data reduction and scoring for the indicators were based on the computational procedures that were externally and internally validated in ODS (Forgatch & DeGarmo, 1999, 2002; Martinez & Forgatch, 2001). Indicators were subjected to confirmatory factor analyses and required to obtain a single factor solution. Maternal positive parenting indicators obtained an eigenvalue of 1.94 at baseline (BL) and 2.15 at 12 months, with factor loadings ranging from .56 to .77 at BL, and .58 to .85 at 12 months. Eigenvalues for coercive parenting were 1.32 and 1.20, respectively, with loadings ranging from .61 to .74 at BL and .54 to .71 at 12 months for mothers and stepfathers, respectively.

Positive parenting practices included four indicators for mothers: skill encouragement, positive involvement, problem solving, and monitoring, whereas for stepfathers, skill encouragement was not available (α = .68, .66 at BL, .73, .83 at 12 months, mothers and stepfathers, respectively).

Positive involvement was an 8-item scale rated on a 7-point scale and included warmth, empathy, encouragement, and affection (α = .88, .89 at BL, .83, .88 at 12 months mothers and stepfathers, respectively).

Problem solving was a 13-item scale scored from parent-selected problem-solving issues. Items rated on a 7-point scale included solution quality, extent of resolution, apparent satisfaction, and likelihood of use (α = .92, .94 at BL, .94, .94 at 12 months, mothers and stepfathers, respectively).

Monitoring was a scale score consisting of 3 items rated by parent interviewers and 2 items rated by coders of the family interaction tasks. Items rated on a 5-point scale evaluated supervision and included *skillful in supervising*, *kept close track of youngster*, and *knows what child is doing on a day-to-day basis* (α = .70, .59 at BL, .62, .73 at 12 months for mothers and stepfathers, respectively).

Skill encouragement was the mean of 11 items evaluating maternal promotion of skill development through encouragement and scaffolding strategies observed during the 10-minute teaching task (α = .70 at BL, .74 at 12 months).

Coercive discipline was composed of three indicators including microsocial scores of parent-child interaction and global ratings of the 48-minute observation. The three indicators were negative reinforcement, negative reciprocity, and inept discipline.

Negative reinforcement, a microsocial score, is defined as the frequency of negative exchanges initiated by the parent and terminated by the child. Negative exchanges were defined as parental introduction of an aversive behavior preceded by at least 12 seconds of no aversive behavior, followed by an aversive behavior by the child within 12 seconds, and finally followed by at least 12 seconds of no aversive behavior.

Negative reciprocity was a microsocial score derived from the Haberman binomial *z* score (Gottman & Roy, 1990). The score depicts the conditional probability that the parent reciprocates a child's aversive behavior with an aversive behavior.

Inept discipline was a 12-item scale. Items, rated on a 5-point scale, included overly strict, authoritarian, erratic, inconsistent, and haphazard (α = .86, .85 at BL, .90, .89 at 12 months, mothers and stepfathers, respectively).

Measures of child outcomes were based on observation and questionnaire data, with reports provided by observers, parents, and teachers.

Noncompliance was the proportion of noncompliance following a mother's directive given the total number of maternal directives during the interaction tasks.

Home problem behavior was the Total Behavior Problems *T*-score from the Child Behavior Checklist reported by mothers and stepfathers (CBCL; Achenbach, 1992). The *T*-score is computed by comparing the raw score to an appropriate national sample distribution. Items are rated *not true*, *very true*, or *often true* (α = .93, .94 at BL, .93, .96 at 12 months, mothers and stepfathers, respectively).

School problem behavior was a distal child criterion evaluated with the internalizing and externalizing *T*-scores from the Teacher Report Form (TRF) of the CBCL (Achenbach, 1991). All items described target child behaviors over the previous two months rated on the same three-point scale for parents.

Internalizing was the sum of 35 internalizing items from the withdrawn, anxious-depressed, and somatic complaints subscales of the TRF (e.g., *argues*, *talks back*, *lies*, *hits*, etc.), α = .91, at BL, .86 at 24 months.

Externalizing was comprised of 34 items from the delinquency and aggression subscales on the

TRF (e.g., *argues*, *talks back*, *lies*, *hits*, etc.), α = .94 at BL, .96 at 24 months, mothers and stepfathers, respectively.

Results

We conducted an ITT analysis hypothesizing that changes in distal child outcomes would be predicted by changes in parenting. We employed structural equation path modeling (SEM) to evaluate directional hypotheses for both the intervention effect and the proximal and distal child outcomes using auto-regressive latent variable models for the multiple-method data. Models were estimated with Full Information Maximum Likelihood (FIML). FIML uses all portions of data in a covariance matrix to estimate parameters in the model. Although SEM parameters are sometimes estimated with listwise deletion or mean-substitution matrices, under assumptions of random missing data, FIML produces optimally efficient estimates of standard errors (Arbuckle, 1996; Wothke, 2000). Therefore, we conducted a missing-value analysis of the SEM covariance matrix, including controls. Little's test of missingness (Little & Rubin, 1987; SPSS, 1997) uses the EM algorithm to compare estimated mean and variance values of partial data cases with complete data cases. The analysis indicated that the data were missing completely at random (MCAR) [χ^2 = 213.43 $_{(203)}$, p = .29] and therefore FIML was optimal.

PARTICIPATION

At the 12- and 24-month assessments, 91% of the families were retained in the study, with no significant differential attrition between experimental and control groups. The mean number of sessions attended was 11.71 (*SD* = 4.71). The average duration until termination was 27.42 weeks (*SD* = 16.15), more than twice as many weeks as sessions. Out of 67 intervention families, 56 attended at least one session.

INTERVENTION EFFECT ON COUPLES' EFFECTIVE PARENTING

We specified change in parenting practices as an autoregressive latent variable measurement model. Change in parenting was then regressed on the predictors. Thus, the intervention effect was modeled as a regression path for group assignment. Results are presented in Figure 1 using standardized coefficients.

The model demonstrated adequate fit to the data, $\chi^2_{(43)}$ = 51.79, p = .17, χ^2/df = 1.21, CFI = .94, and obtained significant factor loadings for parenting. Controlling for months married, age and gender of child, group condition demonstrated a significant improvement in couples' parenting rel-

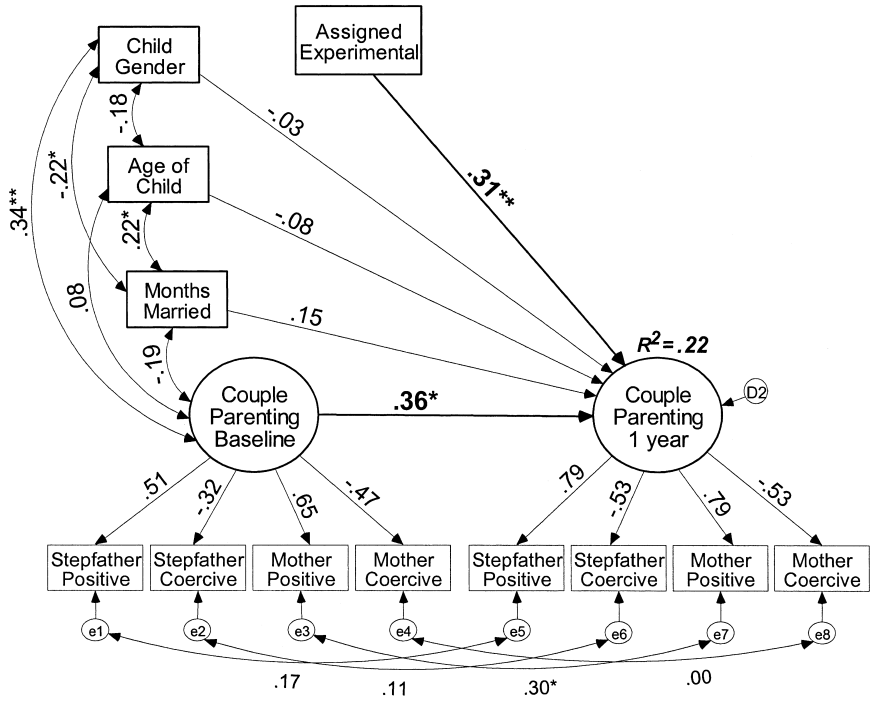

FIGURE 1 Modeling the intervention effect of PMTO on change in couples' parenting practices using an auto-regressive latent variable SEM controlling for months married, age and gender of child, $\chi^2_{(43)}$ = 51.79, p = .17, χ^2/df = 1.21, CFI = .94 (* $p < .05$; ** $p < .01$; *** $p < .001$).

ative to the control group ($\beta = .31$, $p < .01$). The model accounted for 22% of the variance in change in couple parenting, with the intervention effect accounting for half of this variance.

To examine the effect size, we conducted a multivariate analysis of covariance (MANCOVA) for the Year 1 parenting indicators using baseline indicators as covariates. Intervention had a significant multivariate effect, $F(4, 78) = 3.29$, $p < .02$. Cohen (1988) characterizes η^2 of .01 as small, .06 as medium, and .14 as a large effect size. The partial η^2 for the MAPS intervention effect was .14, indicating a large effect.

None of the control variables was significantly associated with change in parenting. We examined the model shown and all subsequent models with and without the control variables. No substantive differences in fit or interpretation were found. Therefore, for visual clarity we eliminated the control variables from subsequent models.

SPECIFYING EFFECTS OF CHANGE IN PARENTING ON PROXIMAL AND DISTAL CHILD OUTCOMES

We next specified a process model using multiple-method data to test effects of changes in parenting as a predictor of changes in child adjustment concurrently and over time. We expected that parental report of reduced child problem behaviors at home would be a function of reduced noncompliance. In addition, we expected that teacher ratings of school adjustment would improve as a function of earlier changes in home problem behaviors. Results of the path model are shown in Figure 2. For visual clarity we do not show indicators for the parenting constructs or the time lagged residual covariances though they were estimated for the parent- and teacher-reported scores.

Analogous to Figure 1, Figure 2 displays measurement for the baseline constructs on the left side and the follow-up data on the right side. Each of the follow-up factors was auto-regressed on its baseline factor. The resulting path coefficients supported the hypothesized effects and the model obtained excellent fit to the data, $\chi^2_{(129)} = 126.23$, $p = .55$, $\chi^2/df = .98$, CFI = 1.00, with high factor loadings for the parent- and teacher-reported factors of children's problem behaviors.

Change in parenting at 1 year significantly predicted change in each of the respective proximal and distal child outcomes: 1-year change in noncompliance ($\beta = -.31$, $p < .001$), 1-year change in problem behaviors at home ($\beta = -.21$, $p < .05$), and 2-year change in problem behaviors at school ($\beta = -.27$, $p < .05$). Among the child outcomes, there was a marginal association between change

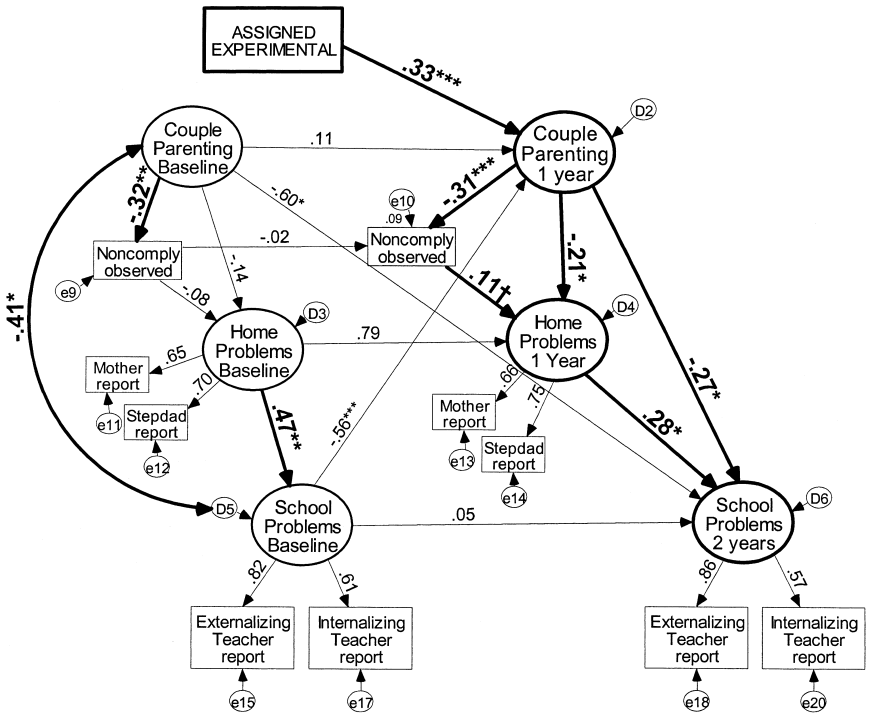

FIGURE 2 Structural equation family processes model specifying hypothesized effects for change in couples' parenting practices on proximal and distal child outcomes, $\chi^2_{(129)} = 126.23$, $p = .55$, $\chi^2/df = .98$, CFI = 1.00 (* $p < .05$; ** $p < .001$; *** $p < .001$; † $p < .10$).

in noncompliance and change in home problem behaviors ($\beta = .11$, $p < .10$); change in home problem behaviors significantly predicted later change in school problem behaviors ($\beta = .28$, $p < .05$).

The possible cross-lagged effects from baseline were explored and nonsignificant paths were trimmed from the final model. The remaining regression paths for baseline parenting practices predicted decreases in problem behaviors at school ($\beta = -.60$, $p < .05$), and baseline school behaviors predicted decreases in effective parenting over time ($\beta = -.56$, $p < .001$). As expected, baseline parenting significantly predicted lower levels of baseline noncompliance ($\beta = -.32$, $p < .01$), and home problem behaviors were associated with school problem behaviors ($\beta = .47$, $p < .01$). Contrary to expectation, there was no significant association between observed parenting or observed noncompliance and parental report of home problems at baseline.

MEDIATION AND INDIRECT EFFECTS ON PROXIMAL AND DISTAL CHILD OUTCOMES

In the final step of the analyses, we tested for change in parenting as a mediator of change in child outcomes. We first modeled direct effects of the intervention on each child outcome. We found no evidence of significant direct effects of the intervention on the respective child outcome variables using the Baron and Kenny method (1986). We next tested for indirect effects following suggestions of Shrout and Bolger (2002), who recently advanced prior accepted recommendations. They argued that under conditions of small effect sizes for distal outcomes or statistical suppression, the assertion of a significant direct effect should not be a requirement for providing evidence of program efficacy. As with ODS, we did not expect large effect sizes for the distal child outcomes because the intervention is with the parents, who are the presumed agents of change. For estimating indirect effects, AMOS requires bootstrapped estimates for standard errors using complete data. Effects and standard errors are presented in Table 1.

Discussion

The MAPS intervention was adapted to help divorced families adjust to the transition of remarriage. It was designed to extend and replicate Forgatch and colleagues' work with single mothers. The MAPS intervention yielded improvement in parenting practices with significant reductions in several problem child behaviors. The large effect size for change in couple parenting at 12 months was associated with a significant indirect effect on child outcomes at 12 months with reduction in noncompliance observed in laboratory parent-child interactions and problem behaviors at home reported by mothers and stepfathers, and a marginal indirect effect at 24 months reported by teachers.

The development and evaluation of efficacious interventions requires that measures of putative mechanisms and outcomes be theoretically relevant, valid, bias free, sensitive to change, and operate as expected within tests of the theoretical model. In this study, we extended a set of laboratory tasks proven valid for single mothers and their sons to stepfamilies with boys and girls. In MAPS we replicated effects on each of the parenting practices found in ODS, a valuable addition to the field given that parental report of parenting practices is fraught with bias and tends not to predict change in measures of child outcomes unless they are also provided by parents.

The addition of a school component to parenting programs seems to have produced a chain of positive effects for youngsters. Surprisingly, some parent training programs in the 1970s and 1980s found that benefits to child behavior at home could lead to increased problems at school, although those concerns were dispelled by programs producing benefits to home and school behavior without direct intervention at school (McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991; Webster-Stratton, 1998). Patterson and colleagues hypothesized a path from maternal negative reinforcement to child noncompliance, to reduced homework effort, to school failure (Patterson, Reid, & Dishion, 1992).

TABLE 1 Indirect Effects for MAPS Parenting Intervention on Distal Child Outcomes Using EM Algorithm and Bootstrap Estimation of Standard Errors

Indirect Effect	Beta	Standard Error	*t*
Intervention→ΔPar→ΔNonComp	−0.024	0.010	−2.40**
Intervention→ΔPar→ΔNonComp→ΔHomeBeh	−1.408	0.647	−2.07*
Intervention→ΔPar→ΔNonComp→ΔHomeBeh→ΔSchool	−1.497	1.013	1.47†

Note. Δ = change; Par = Couple Parenting Practices; NonComp = Child Noncomply; Home Beh = Child Problem Behavior at Home; School = Child Problem Behavior at School.
*$p < .05$; **$p < .01$; ***$p < .001$; †$p < .10$.

Forgatch and DeGarmo (2002) experimentally tested and found support for that hypothesis in ODS. The MAPS model showed a similar, although more general, path from parenting to home and school outcomes in a longitudinal model.

In stepfamilies, one must attend to the marital relationship, which plays a fundamental role in relationships within the family. In the present analyses, we excluded couple effects other than observed joint parenting because the relationships are complex and warrant a separate report and analysis. Currently, we are preparing a paper on the relation of change in marital quality, family stress, and change in parenting.

Although this research provides an important step toward understanding the adaptability and efficacy of SIL-based interventions, our analyses point to a number of areas fruitful for future studies. First and perhaps foremost, the small sample size limited our ability to detect distal child outcomes, especially given our parent-mediated approach to intervention. Covariates proved to be relatively insignificant in this study, yet the potential impact of parenting practices relevant for girls and boys from toddlers to teens should be further explored. The study followed families for only 2 years. Given the stepfamilies' likelihood of breakup within 5 years (Bumpass et al., 1990), additional follow-up would provide valuable information about the longer-term effects of the intervention. Examining PMTO interventions in diverse cultures would lend support to the potential generalizability of the specific findings of this study. Finally, recent discussion suggests the importance of moving beyond no-treatment controls to evaluating programs against comparison interventions.

Evidence is building for the generalizability of SIL theory as a valid basis for PMTO interventions. The MAPS study supports the applicability and effectiveness of PMTO for families living in multiple contexts, specifically in the commonalities of parenting practices with child outcomes for differing constellations of family structure.

References

Achenbach, T. M. (1991). *Manual for the Teacher's Report Form and 1991 Profile*. Burlington: University of Vermont.

Achenbach, T. M. (1992). *Revised Child Behavior Checklist*. Burlington: University of Vermont.

Amato, P. R., & Sobolewski, J. M. (2001). The effects of divorce and marital discord on adult children's psychological well-being. *American Sociological Review, 66*, 900–921.

Arbuckle, J. L. (1996). Full information estimation in the presence of incomplete data. In G. A. Marcoulides & R. E. Schumaker (Eds.), *Advanced structural equation modeling: Issues and techniques* (pp. 243–277). Mahwah, NJ: Erlbaum.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Bray, J. H. (1988). Children's development during early remarriage. In E. M. Hetherington & J. D. Arasteh (Eds.), *Impact of divorce, single parenting, and stepparenting on children* (pp. 279–299). Hillsdale, NJ: Erlbaum.

Bray, J. H. (1999). From marriage to remarriage and beyond: Findings from the Developmental Issues in StepFamilies Project. In E. M. Hetherington (Ed.), *Coping with divorce, single parenting, and remarriage: A risk and resiliency perspective* (pp. 253–271). Mahwah, NJ: Erlbaum.

Bumpass, L. L., Sweet, J., & Martin, T. C. (1990). Changing patterns of remarriage. *Journal of Marriage and Family, 52*(August), 747–756.

Capaldi, D. M., & Patterson, G. R. (1991). Relation of parental transition to boys' adjustment problems: Mothers at risk for transitions and unskilled parenting. *Developmental Psychology, 27*, 489–504.

Cohen, J. (1988). *Statistical power analysis for the social sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

DeGarmo, D. S., & Forgatch, M. S. (2004). Putting problem solving to the test: Replicating experimental interventions for preventing youngsters' problem behaviors. In R. D. Conger, F. O. Lorenz, & K. A. S. Wickrama (Eds.), *Continuity and change in family relations* (pp. 267–290). Mahwah, NJ: Erlbaum.

DeGarmo, D. S., & Forgatch, M. S. (2005). Early development of delinquency within divorced families: Evaluating a randomized preventive intervention trial. *Developmental Science, 8*, 229–239.

DeGarmo, D. S., Patterson, G. R., & Forgatch, M. S. (2004). How do outcomes in a specified parent training intervention maintain or wane over time? *Prevention Science, 5*, 73–89.

Fine, M. A., Coleman, M., & Ganong, L. H. (1999). A social constructionist multi-method approach to understanding the stepparent role. In E. M. Hetherington (Ed.), *Coping with divorce, single parenting, and remarriage: A risk and resiliency perspective* (pp. 273–294). Mahwah, NJ: Erlbaum.

Forgatch, M. S. (1994). *Parenting through change: A programmed intervention curriculum for groups of single mothers*. Eugene: Oregon Social Learning Center.

Forgatch, M. S., Bullock, B. M., & Patterson, G. R. (2004). From theory to practice: Increasing effective parenting through role-play. In H. Steiner (Ed.), *Handbook of mental health interventions in children and adolescents: An integrated developmental approach* (pp. 782–814). San Francisco: Jossey-Bass.

Forgatch, M. S., & DeGarmo, D. S. (1997). Confidant contributions to parenting and child outcomes. *Social Development, 6*, 237–253.

Forgatch, M. S., & DeGarmo, D. S. (1999). Parenting through change: An effective prevention program for single mothers. *Journal of Consulting and Clinical Psychology, 67*, 711–724.

Forgatch, M. S., & DeGarmo, D. S. (2002). Extending and testing the social interaction learning model with divorce samples. In J. B. Reid, G. R. Patterson & J. Snyder (Eds.), *Antisocial behavior in children and adolescents: A developmental analysis and model for intervention* (pp. 235–256). Washington, DC: American Psychological Association.

Forgatch, M. S., & Knutson, N. M. (2002). Linking basic and applied research in a prevention science process. In H. Liddle, G. Diamond, R. Levant & J. Bray (Eds.), *Family psychology: Science-based interventions* (pp. 239–257). Washington, DC: American Psychological Association.

Forgatch, M. S., Knutson, N., & Mayne, T. (1992). *Coder impressions of ODS lab tasks*. Eugene: Oregon Social Learning Center.

Forgatch, M. S., Patterson, G. R., & DeGarmo, D. S. (2005). Evaluating fidelity: Predictive validity for a measure of competent adherence to the Oregon model of parent management training (PMTO). *Behavior Therapy, 36*, 3–13.

Forgatch, M. S., & Rains, L. (1997). *MAPS: Marriage and Parenting in Stepfamilies* [Parent training manual]. Eugene: Oregon Social Learning Center.

Gottman, J. M., & Roy, A. K. (1990). *Sequential analysis: A guide for behavioral researchers*. Cambridge, England: Cambridge University Press.

Hagan, M. S., Hollier, E. A., O'Connor, T. G., & Eisenberg, M. (1992). Parent-child relationships in nondivorced, divorced single-mother, and remarried families. In E. M. Hetherington & W. G. Clingempeel (Eds.), *Coping with marital transitions: Monographs of the Society for Research in Child Development* (Vol. 57, pp. 94–149, Serial No. 227, Vol. 157, Nos. 142–143). Chicago: University of Chicago Press.

Hetherington, E. M., Bridges, M., & Insabella, G. M. (1998). What matters? What does not? Five perspectives on the association between marital transitions and children's adjustment. *American Psychologist, 53*, 167–184.

Hetherington, E. M., & Clingempeel, G. (1992). *Coping with marital transitions* (Vol. 57). Chicago: University of Chicago Press.

Hinshaw, S. P. (2002). Intervention research, theoretical mechanisms, and causal processes related to externalizing behavior patterns. *Development and Psychopathology, 14*, 789–818.

Knutson, N. M., Forgatch, M. S., & Rains, L. A. (2003). *Fidelity of Implementation Rating System (FIMP): The training manual for PMTO*. Eugene: Oregon Social Learning Center.

Lawton, J. M., & Sanders, M. R. (1994). Designing effective behavioral family interventions for stepfamilies. *Clinical Psychology Review, 14*, 463–496.

Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data*. New York: Wiley.

Martinez, C. R., Jr., & Forgatch, M. S. (2001). Preventing problems with boys' noncompliance: Effects of a parent training intervention for divorcing mothers. *Journal of Consulting and Clinical Psychology, 69*, 416–428.

Martinez, C. R., Jr., & Forgatch, M. S. (2002). Adjusting to change: Linking family structure transitions with parenting and child adjustment. *Journal of Family Psychology, 16*, 107–117.

McNeil, C. B., Eyberg, S., Eisenstadt, T. H., Newcomb, K., & Funderburk, B. (1991). Parent-child interaction therapy with behavior problem children: Generalization of treatment effects to the school setting. *Journal of Clinical Child Psychology, 20*, 140–151.

Nicholson, J. M., & Sanders, M. R. (1999). Randomized controlled trial of behavioral family intervention for the treatment of child behavior problems in stepfamilies. *Journal of Divorce and Remarriage, 30*(3/4), 1–23.

Pasley, K., & Ihinger-Tallman, M. (1994). *Stepparenting: Issues in theory, research, and practice*. Westport, CT: Praeger.

Patterson, G. R. (1996). Some characteristics of a developmental theory for early onset delinquency. In M. F. Lenzenweger & J. J. Haugaard (Eds.), *Frontiers of developmental psychopathology* (pp. 81–124). New York: Oxford University Press.

Patterson, G. R. (2002). Etiology and treatment of child and adolescent antisocial behavior. *The Behavior Analyst Today, 3*, 133–145.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys* (Vol. 4). Eugene, OR: Castalia.

Reid, J. B., Eddy, J. M., Fetrow, R. A., & Stoolmiller, M. (1999). Description and immediate impacts of a preventive intervention for conduct problems. *American Journal of Community Psychology, 27*, 483–517.

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422–445.

SPSS. (1997). *SPSS advanced statistics 7.5*. Chicago: SPSS.

Stubbs, J., Crosby, L., Forgatch, M. S., & Capaldi, D. M. (1998). Family and peer process code: A synthesis of three Oregon Social Learning Center behavior codes [Training manual]. Available from Oregon Social Learning Center; 160 East 4th Avenue, Eugene, OR 97401.

Vinokur, A. D., van Ryn, M., Gramlich, E. M., & Price, R. H. (1991). Long-term follow-up and benefit-cost analysis of the Jobs Program: A preventive intervention for the unemployed. *Journal of Applied Psychology, 76*, 213–219.

Visher, E. B. (1994). Lessons from remarriage families. *The American Journal of Family Therapy, 22*, 327–336.

Visher, E. B., & Visher, J. S. (1996). *Therapy with stepfamilies* (Vol. 6). New York: Brunner/Mazel.

Vuchinich, S., Hetherington, E. M., Vuchinich, R. A., & Clingempeel, W. G. (1991). Parent-child interaction and gender differences in early adolescents' adaptation to stepfamilies. *Developmental Psychology, 27*, 618–626.

Webster-Stratton, C. (1998). Preventing conduct problems in Head Start children: Strengthening parenting competencies. *Journal of Consulting and Clinical Psychology, 66*, 715–730.

Wothke, W. (2000). Longitudinal and multigroup modeling with missing data. In T. D. Little, K. U. Schnabel, & J. Baumert (Eds.), *Longitudinal and multilevel data: Practical issues, applied approaches, and specific examples* (pp. 269–281). Mahwah, NJ: Erlbaum.

Zill, N. (1988). Behavior, achievement, and health problems among children in stepfamilies: Findings from a national survey of child health. In E. M. Hetherington & J. D. Arastech (Eds.), *Impact of divorce, single parenting, and stepparenting on children* (pp. 325–368). Hillsdale, NJ: Erlbaum.

RECEIVED: June 30, 2004
ACCEPTED: November 12, 2004