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An Interactive Web-Based Program for Stepfamilies: Development and Evaluation of Efficacy

This study evaluated the efficacy of a family life education program for stepfamilies that is self-administered, interactive, and web-based. The program uses behavior-modeling videos to demonstrate effective couple, parenting, and stepparenting practices. A diverse sample of 300 parents/stepparents of a child aged 11–15 years were randomized into either treatment or delayed-access control groups. Findings suggest that participation in the stepfamily education program positively influenced several key areas of parenting and family functioning at postprogram and follow-up. No gender differences were noted in the findings.

Much has been written regarding the unique challenges and compounded stresses experienced by stepfamilies and their increased risk of marital dissolution (Adler-Baeder & Higginbotham, 2004; Cherlin, 2008; Ganong & Coleman, 2004; Halpern-Meehin & Tach, 2008; Holmes, Jones-Sanpei, & Day, 2009; Tillman,

2007). Research has indicated that increased risks to family stability and well-being for children and couples in stepfamilies can be explained in part by stress during marital and partner transitions and the increased number and complexity of family relationships (Hetherington & Kelly, 2003). In a longitudinal study, children who experienced their parents' divorce and remarriage reported the remarriage as more stressful than the divorce (Ahrons, 2007). Notably, further evidence from the same study suggests that elements of relational dynamics explain variations in outcomes among these children. The cooperativeness of the coparents was related to the quality of stepfamily relationships 20 years after the divorce (Ahrons). Other studies have focused on heterogeneity within stepfamilies. Indications are that levels of parental involvement, the quality of family communication, and efforts to understand and use information and expectations that are specific to stepfamily development are related to the psychosocial adjustment of stepfamily members, particularly for school-age children and adolescents, and to family stability overall (Crawford & Novak, 2008; Gosselin & David, 2007; Hetherington & Kelly; Ming, 2008).

A risk and resiliency framework considers family life education programs and interventions to be potential protective factors (Rutter, 2001). Empirical evidence and the risk and resiliency theoretical framework suggest that efforts to enhance the communication and

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connection within stepfamilies and with non-custodial parents and to use information and realistic expectations regarding normative stepfamily development may be helpful in the adjustment of family members and the stability of the stepfamily (Adler-Baeder & Higginbotham, 2004; Greeff & Du Toit, 2009). Despite the prevalence of stepfamilies and the “call to action” to provide resources to stepfamilies, extremely limited effort has been made to systematically implement and document the efficacy of programs for stepfamilies. Among the few existing stepfamily programs, the vast majority use traditional group community education delivery (Nicholson, Phillips, Whitton, Halford, & Sanders, 2007) in which a facilitator/educator and voluntary participants meet face-to-face for multiple sessions. Research in formal education settings has suggested that web-based interactive multimedia (IMM) programs offer effective delivery of general educational content (Cairncross & Mannion, 2001). In addition, a handful of studies have demonstrated the effectiveness of self-administered marriage programs (Duncan, Steed, & Needham, 2009) and self-administered, video-based behavior modeling for parenting programs (Morawska & Sanders, 2006). Our study (a) described the development of a family life education program for stepfamilies that is self-directed and uses behavior-modeling IMM and (b) evaluated the program in a randomized efficacy trial.

PREVIOUS EFFORTS TO IMPROVE FAMILY FUNCTIONING IN STEPFAMILIES

Recent meta-analytic studies have demonstrated that brief, skills-based educational programs for couples increase couple satisfaction; improve communication skills; reduce negative conflict behaviors, including violence; and may prevent separation and divorce (Carroll & Doherty, 2003; Hawkins, Blanchard, Baldwin, & Fawcett, 2008). In addition, parenting training research has demonstrated the value of participation in programs for enhancing parent-child communication, positive parenting practices, and parent-child relationship quality (Kaminski, Valle, Filene, & Boyle, 2008; Lundahl, Risser, & Lovejoy, 2006).

These types of “general” couple education and parenting education programs, however, do not specifically address issues and relationships unique to stepfamilies, nor do the evaluation

studies focus explicitly on the experiences of stepfamilies in these programs. A search for empirically evaluated stepfamily education (i.e., prevention) programs yielded only 11 studies in the past 20 years, 3 of which are unpublished dissertations (Nicholson et al., 2007, for a review of 10 of these studies; Higginbotham & Adler-Baeder, 2008b, 2010). None of these studies used a rigorous evaluation design that included the use of a control group and pre-, post-, and follow-up assessments. All these studies focused on in-person community education delivery models, and the majority included samples of fewer than 25 families. Mixed results were found across these studies. Improved stepfamily environment was indicated in several studies (Higginbotham & Adler-Baeder, 2008b; Trone, 2002), but not in others (Higbie, 1994; Nelson & Levant, 1991). Improvements in children’s adjustment and several parenting dimensions were found for two programs (Nicholson, Sanford, Halford, Phillips, & Whitton, 2008). Taken together, these studies provided only initial indicators for program impact. Thus, additional efforts are warranted to assess the efficacy of stepfamily education programs by using larger samples and random assignment.

EXPLORING THE USE OF ALTERNATIVE DELIVERY MODELS FOR FAMILY LIFE EDUCATION

Interestingly, one of the studies cited in the previous paragraph (Nicholson et al., 2008) used an alternative program that was self-administered as the comparison condition to the in-person treatment condition and found that benefits to families were similar across groups on several measures. A recent study on marriage education programs found equal benefit between in-person and self-directed programs (Duncan et al., 2009). In addition, a recent meta-analysis and review of online learning studies revealed that learning outcomes for adults who engaged in online learning exceeded those of adults who received face-to-face instruction (U.S. Department of Education, 2009). Although self-paced web-based programs have some disadvantages (i.e., necessary access to a computer, reduced social interaction, and requisite self-motivation), there is reason to expect that self-administered stepfamily programs may be as effective—or more effective—than scheduled group sessions. Research has shown a number of challenges to

demonstrate efficacy of in-person group family life/parenting programs. Attendance is often inconsistent and drop-out rates of 50% are not uncommon (Frankel & Simmons, 1992). Most parents cite lack of time and scheduling difficulties as the largest barriers to their commitment (Connell, Sanders, & Markie-Dadds, 1997). Attrition or inconsistency among group leaders also occurs (Fox & Hennick, 1996). This may result from the common practice of using trained volunteers and paraprofessionals to lead groups. Group leaders may face competing interests and demands on their time, as well as burnout and fatigue (Fox & Hennick; Irvine, Biglan, Duncan, & Metzler, 1996). Conversely, in a self-administered program, participants engage with the program according to their availability within any given time period. In addition, participants may select the program content most salient to their family situation (Cairncross & Mannion, 2001).

The program developed and tested in our study is web-based, interactive, and self-administered. It uses a behavior-modeling training (BMT) approach (i.e., visual demonstrations of behaviors) to promote knowledge acquisition and improvement in attitudes, intentions, and self-efficacy. Bandura's (1977) social-cognitive theory is the foundation of BMT (Taylor, Russ-Eft, & Chan, 2005). According to this theory, a change in belief about one's ability to successfully execute a given behavior will mediate the demonstrated behavior and the initiation and maintenance of that behavior. Enhanced knowledge, self-efficacy, motivation, and practice bolster imitative and vicarious learning (Pidd, 2004).

BMT is widely used for skills training in adult education. A meta-analysis by Taylor et al. (2005) of 117 published and unpublished studies of adult training programs concluded that BMT was effective in producing sustainable skill improvement and post-training behavior change. In addition, recent efforts to use BMT for family life education programs have documented program effectiveness. Social-cognitive learning assumptions have found support in studies of parenting programs that use video modeling (Glang, McLaughlin, & Schroeder, 2007; Gordon, 2003).

PROGRAM DEVELOPMENT DESCRIPTION

Parenting Toolkit: Skills for Stepfamilies (<http://stepfamily.orcasinc.com>) is an IMM program

that uses BMT and targets parents in stepfamilies with children aged 11–15 years. This child target age group was chosen on the basis of research evidence that stepfamilies with children in this age range face comparatively greater challenges than do those with primarily younger children (Ganong & Coleman, 2004). On the basis of recommendations from research on effective IMM program development (Cairncross & Mannion, 2001) and on elements of the Collaborative Family Program Development model (Fraenkel, 2006), the initial phase of program development involved formative evaluation. Information was provided through surveys and focus groups with 79 target users (i.e., parents/stepparents currently living in a stepfamily situation with a child aged 11–15 years) who were recruited online through websites and 17 service providers (family educators, therapists, and social service agencies that offer stepfamily services and education) recruited through our consultants. Goals for the formative phases were to (a) identify optimal approaches to customize the program strategies, (b) determine stepfamily values and needs, and (c) determine the customized content of the video and audio elements for parents and stepparents (i.e., prevalent challenges and couples issues). The program content areas suggested by families and providers and those suggested by recent reviews of the literature were examined (Adler-Baeder & Higginbotham, 2004; Robertson et al., 2006). Content suggested in the research literature was broadly categorized by topic area or skill area (e.g., realistic expectations and stepparenting skills), and families' and providers' themes were centered on specific challenges or issues (e.g., "the kids don't respect me," "stepsiblings are fighting," and "difficulty adjusting to new household rules"). It was determined that module content topics would focus on specific issues as "hooks," and that broader skills would be embedded in the demonstrations and teaching points.

As designed, the program presents a menu and description of the nine different stepfamily challenge modules. Upon selection of a challenge module, the participant is introduced to the stepfamily challenge with a short video dramatization of the situation. Then the video freezes and the participant is asked to pick one of the three alternative response videos to see how it will play out. The three choices represent two ineffective responses and one effective response, based on empirical knowledge of stepfamily dynamics.

The user is encouraged to watch all three endings because each has distinct teaching points. The participant is presented with teaching points, integrated across the nine modules, that focus on successful couple, parenting, or stepparenting dynamics. Although the topics for the modules are centered around a stepparent/parent-child issue, often the recommended strategies involve enhancing the couple's communication. After each ending, the user watches a video of each family member in a "reflection sequence" and hears their perception of the situation and their feelings. For example, following a scene in which a father verbally attacks his son when he hears that the boy is disrespectful to his new stepmother, the son's personal reflection of the interaction shows his frustration, hurt, and desire to withdraw from his new family.

Following the "reflection sequence," a series of on-screen questions are posed to the user to encourage clear understanding of the actions observed. The user is prompted to type in an answer and then compare it with the answer provided on the next screen. The points are presented in a bulleted list with an optional video for additional information. The questions and answers are designed to mimic the type of interchange that might occur between a parent and stepparent or within a group education session. On the following screen, a list of the key concepts and teaching points (e.g., couple communication and parenting strategies) is reviewed. Each key concept has an associated article or tip sheet to either print or save in the user's customized Learning Library for easy access in the future. On the final screen for each response ending, the program narrator summarizes the utility of the approach used in the previous scenes. If the selected ending is not the most effective approach to the family challenge, the user is returned to select another response-choice until the most effective approach has been selected. Watching and participating in all three components of a given Family Challenge module takes between 20 and 30 minutes.

Following the completion of the best response-choice, the user has the option to develop a personal Action Plan to select another family challenge or to return to the home page to browse other areas of the program: Couples Corner, Learning Library, or the Topic Finder. The Couples Corner provides articles, tip sheets, and activities specific to couple relationship building. The Learning Library contains a summary

of the family challenges and all the articles found in the Family Challenges, as well as other related topics. The Topic Finder includes a menu of topics that cover many of the issues, concerns, and areas that stepfamilies find challenging.

Overall, the program content and teaching points in the Family Challenges focus on the demonstration of successful couple communication and functioning, effective parenting practices, and effective stepparenting practices. Both cognitive and behavioral dimensions are targeted, consistent with a social learning approach. Improvements in these areas are expected following completion of the program. Seen from a risk and resiliency perspective, it is also expected that family functioning will be enhanced following completion of the program because risk factors in family dynamics have been reduced. We tested the following hypotheses: (a) Significant treatment effects will be documented, indicating that program participants will show greater gains from preprogram to postprogram in the three targeted domains than will control participants and (b) program participants will show statistically significant gains in the three targeted domains from preprogram to follow-up. Because there is some evidence that women in stepfamilies may be more effortful in establishing new relationships in the family (Ganong & Coleman, 2004), we also explored the following research question: Will documented changes over time for program participants differ by gender?

METHOD

Participant Characteristics

All participants had recently remarried (5 or fewer years) and self-identified as living in a stepfamily household as the parent (19%), the stepparent (37%), or both the parent and stepparent (44%) of at least one child aged 11–15 years who resided in the home at least part-time (4 days per month). Participants were identified as having at least two current parenting or stepparenting conflicts (e.g., adjustment, parenting roles, rules, relationship with spouse, relationship with child/stepchild, and relationship between children/stepchildren). Sixty-five percent of households had one child aged 11–15 years, 30% had two, 5% had three, and 1% had four. Only one participant per household was admitted into the study (no couples were included). Prior participants in

the initial program development phase were not included in the study. Participants' residency varied between the four regions of the country: South (39%), Midwest (28%), West (18%), and Northeast (13%). The sample consisted of 79% females and 21% males. The age range of participants included 18–25 years (5%), 26–35 years (52%), 36–45 years (35%), 46–55 years (7%), and 56–65 years (1%). Respondents were selected from the following racial/ethnic groups: 67% selected Caucasian, 19% selected African American, 7% selected Hispanic, 3% selected Asian, and 4% selected other or multiracial. Education levels reported indicated 38% college graduates, 47% some college or trade school, 14% high school graduate, and 1% some high school. Family annual income levels reported indicated 2% less than \$19,999, 16% \$20,000–\$39,999, 24% \$40,000–59,999, 24% \$60,000–79,999, and 34% more than \$80,000. A total of 75% reported having used the Internet for more than 8 years, and 76% strongly agreed that using the Internet was easy.

Measures

Study outcome measures were organized into three domains: *parenting* (five scales with mean intercorrelation $r = .35$), *family* (four scales with mean intercorrelation $r = .31$), and *couple* (six scales with mean intercorrelation $r = .47$). Participants were instructed to identify one specific child or stepchild in their household between age 11 and 15 years to consider when responding to all the questions in the study. The mean item score was calculated for each outcome measure. In addition, we assessed each participant's satisfaction and usability rating of the program. Details on all items and measures used can be obtained from the first author.

Parenting domain. Eleven items were used to rate the participants' *parenting attitudes and beliefs* and coparenting issues addressed in the program content, such as "When my child or stepchild misbehaves, staying calm does me no good" on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*); $\alpha = .68$. Five items were used to assess the *parenting behavioral intentions* addressed in the program, such as "In the next month, when your child misbehaves, how likely is it you will avoid an argument" using a 6-point scale ranging from 1 (*not at all likely*) to 6 (*extremely likely*); $\alpha = .78$.

Three items from the Parental Self-Agency (Dumka, Stoerzinger, Jackson, & Roosa, 1996) were adapted to measure participants' *parenting self-efficacy*. Participants rated items such as "I feel sure about myself as a parent/stepparent" on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*); $\alpha = .64$. Twelve items from the Parenting Scale-Adolescent version (Irvine, Biglan, Smolkowski, & Ary, 1999) were adapted to assess *parenting practices*. For each item, a parenting "mistake" was contrasted with a more effective alternative to anchor the opposite ends of a 5-point scale. For example, a stem "When my child/stepchild misbehaves" identifies the topic of the item; the negative anchor = "I raise my voice and yell" and the positive anchor = "I speak to my child calmly." Two scale scores were computed: overreactivity, which measures parent coerciveness ($\alpha = .76$), and laxness, which measures parental follow-through ($\alpha = .80$).

Family domain. Four items developed by Higinbotham and Adler-Baeder (2008a) were used to assess the participants' realistic expectations of *stepfamily adjustment*, such as "Adjustment to living in a stepfamily should occur quickly" on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*); $\alpha = .82$. Four items developed by Banker and Gaertner (1998) were used to assess *stepfamily harmony*. Statements such as "Overall, there is more harmony in my house than discontent" were rated on a 7-point scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*); $\alpha = .85$. The Kansas Family Life Satisfaction Scale (Schumm, McCollum, Bugaighis, Jurich, & Bollman, 1986) was adapted to reflect *stepfamily life satisfaction*. The index comprised four questions and measured satisfaction with one's family life, relationship with spouse and child/stepchild, and sibling/steplibling relationships. Participants rated items such as "How satisfied are you with your family life?" on a 7-point scale ranging from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*); $\alpha = .80$. To assess *family conflict*, we asked participants to rate the frequency of conflict with 19 child behaviors such as "not doing chores" to reflect "family stage" issues facing stepfamilies with older children (Berger, 1995; Braithwaite, Olson, Golish, Soukop, & Turman, 2001; Walsh, 1992). Participants rated the frequency of each item on a 5-point scale ranging from 1 (*never*) to 5 (*always*); $\alpha = .91$.

Couple domain. We assessed participants' behavioral intention to address shared parenting issues using six items (e.g., "In the next month, how likely is it that you will talk to your spouse about your parenting or disciplinary styles") rated on a 6-point scale ranging from 1 (*not at all likely*) to 6 (*extremely likely*); $\alpha = .83$. Participants reported on their *couple self-efficacy* when addressing shared parenting issues using six items (e.g., "In the next month, how confident are you that you can discuss your parenting or disciplinary styles") rated on a 6-point scale ranging from 1 (*not at all confident*) to 6 (*extremely confident*); $\alpha = .91$. To assess *marital quality*, we adapted five items from the Quality Marital Index (Norton, 1983). Items assessed global satisfaction (e.g., "We have a good marriage/relationship") rated on a 7-point scale ranging from 1 (*very strongly disagree*) to 5 (*very strongly agree*); $\alpha = .96$. *Couple relationship quality* was also measured as a two-dimensional construct comprising three positive and three negative evaluations (Fincham & Bradbury, 1987). Items assessed the participant's sentiment as reflected in subjective, evaluative judgments of the marriage or partner with items such as "Considering only the positive qualities of your spouse/partner, and ignoring the negative ones, evaluate how positive these qualities are." Participants rated the positive qualities on a 5-point scale ranging from 1 (*not good at all*) to 5 (*very good*); $\alpha = .92$ and the negative qualities on a 5-point scale ranging from 1 (*not negative at all*) to 5 (*very negative*); $\alpha = .90$. To assess *couple difficulties*, we used three items from the Difficulties Scale (Beaudry, Parent, Saint-Jacques, Steacutephane, Boisvert, 2001; Schramm & Higginbotham, 2009), such as "Working together to resolve our problems as a couple" rated on a 5-point scale ranging from 1 (*no current difficulty*) to 5 (*currently experiencing high level of difficulty*); $\alpha = .86$.

Program satisfaction and usability ratings. After viewing the program, participants rated their satisfaction and quality of the program by responding to four consumer satisfaction items (e.g., satisfied, useful, enjoyable, and likely recommend) and five usability items (e.g., interesting, user-friendly, appealing, easy to understand, and value of video). All items were rated on a 5-point scale, with a higher score indicating greater satisfaction or usability.

Procedure

Participants were recruited primarily online through stepfamily discussion boards, email announcements, and Internet advertising. Other sources included word of mouth and flyers emailed to community educators. If interested in the Stepfamily Research Study, potential participants were directed to an online information page describing the purpose of the study, the random assignment process, the expectations of the two groups, and the compensation schedule. A between-subjects pretest and post-test randomized controlled trial with a within-subjects follow-up maintenance was used to evaluate the program with 300 parents/stepparents. Individuals were randomized into treatment ($n = 150$) or control ($n = 150$) groups and emailed a link to the online consent form. To evaluate whether baseline equivalency resulted from the random assignment of groups, the intervention and control conditions were compared in terms of demographic characteristics. The groups did not significantly differ on any of the baseline demographic characteristics. Following their agreement to participate, participants were then linked to the online pretest survey assessment. The treatment group was given immediate access (following the pretest survey) to the *Parenting Toolkit: Skills for Stepfamilies* program, and access to the program was delayed for the control group until they completed the post-test survey. The post-test survey was emailed to the treatment and control groups 8 weeks after they completed the pretest survey. A total of 288 post-test surveys (96%) were returned (treatment group $n = 140$; control group $n = 148$). The follow-up survey was emailed to the treatment and control groups 8 weeks after they completed the post-test. A total of 280 follow-up surveys were returned (treatment group $n = 136$; control group $n = 144$). Attrition across the three waves was low (treatment group = 9% vs. control group = 4%) and did not differ significantly between conditions, $\chi^2(1, N = 300) = 3.43, p > .05$. As needed, email and a phone prompt to complete the assessment were initiated. Participants could earn up to \$200 for participating and submitting all surveys. Both control and treatment participants received \$30 for pretest, \$50 for post-test, and \$60 for follow-up. In addition, treatment participants received \$20 for each program visit (up to three visits).

After completing pretest, treatment group participants were emailed login information

and a link to the *Parenting Toolkit: Skills for Stepfamilies* program. They were asked to make three weekly visits to the program to review a minimum of two family challenges at each visit. In other words, participants were asked to self-select six of the nine family challenges most relevant to their family. A total of 136 participants completed six or more family challenges (76 completed six family challenges, 21 completed seven, 16 completed eight, and 23 completed nine). Four participants did not meet the minimum of six family challenges (two participants completed two family challenges, one completed three, and one completed four). Treatment participants received up to four automated reminder emails over a 1-month time period to complete their next scheduled visit. This prompting procedure commenced again after the next scheduled visit. After submitting the post-test survey, treatment participants still in the process of completing the six family challenges (four participants) were encouraged to continue using the program until they had completed at least six challenges.

Data Analysis

Multivariate analysis of covariance (MANCOVA) of the post-test measures, adjusting for the pretest measures, was conducted for each of the three domains to determine the overall multivariate effect size. To evaluate between-group differences in each of the outcome measures at post-test, analysis of covariance (ANCOVA) was used, controlling for pretest scores. Because the control condition received the program after the post-test assessment, paired *t* tests were used to evaluate whether the program effects persisted through follow-up within the treatment condition. MANCOVA of the post-test measures, adjusting for the pretest measures, was conducted for each of the three domains to determine the multivariate effect size. Effect sizes are reported as partial eta-square for the multivariate effect size and Cohen's *d* for the univariate tests (i.e., dividing the difference between the treatment and control group adjusted post-test mean scores by the pooled standard deviations). For the follow-up maintenance of gains within-subjects paired *t* tests, the *d* statistic was calculated by dividing the differences between the pretest and follow-up means by the paired difference standard deviation. A Bonferroni correction to α was applied within each of the three

domains (i.e., $p = .05$ divided by the number of measures within each domain) to determine the critical *p*-values of .010, .013, and .008 for the parenting, family, and couples domains, respectively.

RESULTS

Group Differences at Post-test

Parenting domain. The overall multivariate effect for condition was not significant, $F(5, 277) = 2.13, p = .062$; partial eta-square = .03 for the five post-test measures after adjusting for pretest scores. Results from the univariate ANCOVA models (Table 1) with critical *p*-value adjusted for multiple tests ($p < .01$) show that, compared to the control participants, the intervention participants had significantly greater improvement on the post-test outcomes for overreactive parenting practices, $F(1, 287) = 6.99, p = .009, d = .31$, and intentions $F(1, 287) = 7.43, p = .007, d = .32$, scales.

Family domain. An overall multivariate effect from the MANCOVA model showed a significant condition effect, $F(4, 279) = 3.38, p = .010$; partial eta-square = .05 for the four post-test measures after adjusting for pretest scores. Results of the univariate ANCOVA models, evaluated with a critical *p*-value of .013, indicate that the intervention condition had significantly lower unrealistic expectations of adjustment, $F(1, 287) = 6.23, p = .013, d = .30$, compared with the control condition. No other significant univariate effects were found.

Couple domain. The overall multivariate effect for condition from a MANCOVA model was not significant, $F(6, 275) = 0.75, p = .622$; partial eta-square = .02 for the six post-test measures after adjusting for pretest scores. None of the univariate ANCOVA results showed significant differential effects between the intervention and control conditions.

Moderating effects of parent gender. To evaluate whether the intervention effects were significantly different for female versus male participants, parent gender was included as another between-subjects factor in the MANCOVA models and the Multivariate Condition \times Gender interaction effects were tested. The Multivariate Condition \times Gender interaction

Table 1. Descriptive Statistics for Pretest and Post-test Outcome Measures and ANCOVA Results

Domain: Measure	Control (n = 148)					Treatment (n = 140)					F-value	p-value	Cohen's d
	Pretest		Post-test			Pretest		Post-test					
	M	SD	M	SD	M _{Adj}	M	SD	M	SD	M _{Adj}			
Parenting domain													
Lax parenting	3.74	0.69	3.74	0.73	3.72	3.70	0.71	3.79	0.66	3.80	1.73	.185	.16
Overreactive parenting	3.48	0.70	3.48	0.73	3.44	3.40	0.69	3.57	0.71	3.61	6.99	.009	.31
Attitudes and beliefs	5.01	0.51	5.00	0.52	5.00	5.00	0.58	5.07	0.62	5.08	1.45	.229	.14
Self-efficacy	3.72	0.77	3.77	0.80	3.79	3.77	0.78	3.91	0.71	3.89	2.27	.133	.18
Intentions	3.99	0.93	4.01	0.94	4.06	3.88	0.92	4.26	0.93	4.30	7.43	.007	.32
Family domain													
Stepfamily adjustment	2.58	0.84	2.53	0.87	2.54	2.62	0.76	2.39	0.72	2.37	6.23	.013	.30
Life satisfaction	4.94	1.00	5.00	1.06	4.95	4.91	1.03	5.06	0.91	5.07	1.69	.195	.16
Stepfamily harmony	3.98	1.01	4.04	1.19	4.01	3.89	0.99	4.18	0.95	4.21	5.37	.021	.28
Child conflict	2.69	0.67	2.64	0.75	2.68	2.80	0.65	2.62	0.63	2.59	2.33	.128	.18
Couple domain													
Intentions	4.33	1.18	4.49	1.14	4.51	4.38	1.04	4.74	1.08	4.72	3.94	.048	.24
Self-efficacy	4.30	1.19	4.47	1.19	4.47	4.29	1.19	4.64	1.09	4.64	2.63	.106	.19
Marital quality	5.54	1.27	5.51	1.13	5.51	5.54	1.17	5.57	1.19	5.57	0.41	.523	.06
Positive marital quality	4.46	0.63	4.44	0.72	4.38	4.49	0.64	4.41	0.71	4.40	0.05	.816	.02
Spousal difficulties	2.51	0.98	2.38	1.00	2.37	2.47	0.88	2.32	0.88	2.33	0.16	.685	.06
Negative marital quality	2.50	1.02	2.44	0.93	2.44	2.48	0.92	2.38	0.90	2.39	0.28	.597	.06

Note: M_{Adj} = post mean adjusted for pretest levels; Adj = adjusted; ANCOVA = analysis of covariance. Significant effects are shown as bold values after applying a Bonferroni correction to α within each of the three domains (critical p-values for parenting, family, and couple domains were .010, .013, and .008, respectively).

term was nonsignificant for each of the three domains: parenting domain, $F(5, 275) = 1.31$, $p = .260$; family domain, $F(4, 277) = 0.75$, $p = .561$; and couple domain, $F(6, 273) = 0.43$, $p = .857$.

Pretest to Follow-up Change (Treatment Condition Only)

To assess the maintenance of the intervention effects, paired t tests were conducted within the treatment condition to determine whether there were significant changes on the outcome measures from pretest to follow-up (Table 2).

Parenting domain. Significant gains from pretest to follow-up ($p < .01$) were obtained on four of the five parenting domain scales in the predicted direction: lax parenting ($d = .24$), overreactive parenting ($d = .48$), self-efficacy ($d = .31$), and intentions ($d = .63$). The mean effect size across the five parenting domain scales was $d = .37$.

Family domain. Significant gains from pretest to follow-up ($p < .013$) were obtained on all

four of the family domain scales in the predicted direction: stepfamily adjustment ($d = .40$), life satisfaction ($d = .42$), stepfamily harmony ($d = .57$), and child conflict ($d = .57$). The mean effect size across the four family domain scales was $d = .49$.

Couple domain. Significant gains from pretest to follow-up ($p < .008$) were obtained on three of the six couple domain scales in the predicted direction: intentions ($d = .38$), self-efficacy ($d = .50$), and spousal difficulties ($d = .29$). The mean effect size across the six couple domain scales was $d = .26$.

Program satisfaction and usability. The program was rated quite favorably by the participants with respect to program satisfaction and usability. Mean scores across the four program satisfaction ratings ranged from 4.2 ($SD = 0.8$; How enjoyable was the program?) to 4.5 ($SD = 0.8$; How likely is it that you would recommend the program to another stepfamily?) on a 5-point scale ranging from 1 (not at all) to 5 (very). Mean scores across the five program

Table 2. Descriptive Statistics for Treatment Condition Pretest and Follow-up Outcome Measures With Paired *t* Test Results

Domain: Outcome	Pretest		Follow-up		Test Statistics		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>T</i> -value	<i>p</i> -value	Cohen's <i>d</i>
Parenting domain							
Lax parenting	3.70	0.71	3.86	0.69	-2.84	.005	.24
Overreactive	3.40	0.69	3.70	0.70	-5.65	<.001	.48
Attitudes and beliefs	5.00	0.58	5.12	0.70	-2.18	.031	.18
Self-efficacy	3.77	0.78	4.00	0.72	-3.72	<.001	.31
Intentions	3.88	0.92	4.50	1.00	-7.50	<.001	.63
Family domain							
Stepfamily adjustment	2.62	0.76	2.36	0.68	4.78	<.001	.40
Life satisfaction	4.91	1.03	5.29	0.90	-4.93	<.001	.42
Stepfamily harmony	3.89	0.99	4.38	0.92	-6.70	<.001	.57
Child conflict	2.80	0.65	2.44	0.67	6.76	<.001	.57
Couple domain							
Intentions	4.38	1.04	4.81	1.07	-4.51	<.001	.38
Self-efficacy	4.29	1.19	4.85	1.10	-5.91	<.001	.50
Marital quality	5.54	1.17	5.75	1.16	-2.56	.012	.22
Positive marital quality	4.49	0.64	4.49	0.67	0.04	.971	<.01
Spousal difficulties	2.47	0.88	2.20	0.93	3.42	.001	.29
Negative marital quality	2.48	0.92	2.34	0.94	1.78	.077	.15

Note: Significant effects are shown as bold values after applying a Bonferroni correction to α within each of the three domains (critical *p*-values for parenting, family, and couple domains were .010, .013, and .008, respectively).

usability ratings ranged from 4.4 (*SD* = 0.8; The program has much that is of interest to me.) to 4.7 (*SD* = 0.6; The content of the program is easy to understand.) on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Program Usage and Dose-Response Analysis

Program usage was measured by the number of visits to the website, total amount of time spent on the website across all visits, and number of individual pages viewed across all visits. On average, the intervention group visited the site 5.0 times (*SD* = 2.5) for an average of 184.3 minutes (*SD* = 100.0) and viewed an average of 79.4 (*SD* = 40.1) pages across all visits.

The total number of minutes spent on the site, number of visits, and number of screens viewed were standardized and an overall dose composite score computed as the mean of the three standard scores. The composite dose measure was correlated with standardized change scores for the outcome measures at the domain level. For the intervention condition, the correlation between increases in the dose composite score and increases in change scores in the couple domain was small but significant ($r = .24$, $p = .004$) from pretest to post-test.

DISCUSSION

This study provides information on the development and initial efficacy trial of an online family life education program for parents/stepparents in stepfamilies. The program features behavior modeling and informs the family science field in several ways. Although the BMT method of educational content delivery has been used with success in formal adult learning contexts (Taylor et al., 2005), tests of this model in parent training and family life education programs are limited (Doherty, Erickson, & LaRossa, 2006; Gardner, Burton, & Klimes, 2006; Gordon, 2003; Huebner & Meltzoff, 2005), and are nonexistent for stepfamily-focused education. Furthermore, web-based delivery of family life education typically consists of written information and instruction only (Elliott, 1999; Steimle & Duncan, 2004), and only a handful of the many online family life education programs have undergone any type of evaluation. Of those examined, primarily initial utilization, formative, and/or basic post-use summative studies have been conducted (Grant, Hawkins, & Dollahite, 2001; Hughes, 2001; Morris, Dollahite, & Hawkins, 1999; Steimle & Duncan). Only one published efficacy trial of online family life

education programs using control groups can be found (Duncan et al., 2009). Finally, despite the common experience of rearing children in stepfamilies, extremely limited empirical information exists regarding efficacy of prevention programs for these families (Nicholson et al., 2007). Most previous studies have used small, homogeneous samples (i.e., 6 of the 10 studies had samples <25) and a limited number of outcome measures, they did not use a control group, and they produced mixed results. This study, therefore, is the first of its kind, and it presented findings from a rigorous evaluation for an underserved and understudied group, involved a moderately large sample, and used a novel family life education program design and delivery method.

Evidence of Benefit

Findings from a fairly diverse sample (i.e., 33% non-Caucasian, multiple geographic locations, and broad distribution of income level) suggest that relatively brief exposure to a behavioral stepparent-training program presented over the Internet may positively influence the family domain (i.e., adjustment, harmony, life satisfaction, and parent-child conflict) and elements of the parenting domain (i.e., overreacting and positive parenting intentions) at completion of the program, and it may continue to influence these outcomes 60 days after initial exposure. In addition, dimensions in the couple domain (efficacy, difficulties with spouse, and intentions) and parenting domain (i.e., lax parenting and efficacy) may be positively affected at 60-day follow-up. Although treatment effects were not found for the parenting and couple dimensions initially, the within-subject pretest to follow-up showed significant shifts in a desirable direction for parenting and couple outcomes. In this study, a large number of variables in several domains were assessed at program completion as possible impact areas. Effects documented in the couple domain at 2 months postprogram may indicate a sequencing of impact rather than concurrent benefit in multiple areas. This assumption is consistent with a systems perspective and empirical evidence of influences between the couple and the parenting domain (Krishnakumar & Buehler, 2000). It is likely that initial effects in one or some areas affect other areas over time. As with any study of outcomes after education exposure, further exploration of the processes involved in program effects is warranted. These efforts

may also help in the further development of theory related to stepfamily functioning (Ganong & Coleman, 2004).

It is noteworthy that, for education programs, an effect size of .25 or higher is considered to have "practical" significance (Wolf, 1986). At follow-up, the mean effect size across the three domains was $d = .37$ (Parenting = .37, Family = .49, and Couple = .26). Although this study did not simultaneously test methods of delivery of programs for stepfamilies, some basis for comparison exists. A recent large-scale study of a 12-hour in-person community program for stepfamilies also demonstrated effects at 3 months postprogram follow-up in several areas of family functioning (Higginbotham & Adler-Baeder, 2008b), and effect sizes were comparable to those found in our study. In addition, studies of "general" (i.e., nonstepfamily specific) group parent training programs demonstrate similar effects sizes for parent behavior change, perceptions, and efficacy, ranging from $d = .21$ to .45 (Kaminski et al., 2008; Lundahl et al., 2006). In Nicholson et al.'s (2008) study of in-person and self-administered (non-BMT) stepfamily education, the effects were similar for both groups, as was found for marriage programs (Duncan et al., 2009). These comparable findings across studies suggest that self-administered BMT family life education programs are a potentially successful alternative to the more traditional in-person community education program.

Potential for Effectiveness of Delivery Model

It appears that web-based IMM behavioral modeling programs hold promise as effective family life education delivery mechanisms. First, Internet use as a source for information and education, particularly in the United States, continues to increase from 44% population penetration in 2000 to 74.1% population penetration in 2009, the highest in the world (Internet World Stats, 2009). Steady increases in access and use are also documented among minority and low-income populations. Time spent viewing videos online has seen a particularly steep increase, with a 49% increase per user from 2008 to 2009 (Nielson/NetRatings Video Census, 2009).

IMM programs that use BMT offer significant advantages over noninteractive and nonvideo-based formats, including efficiency, ease of use, and the tailoring of materials to the needs or interests of individual users (Budman, 2000;

Cairncross & Mannion, 2001; Kreuter, Farrell, Olevitch, & Brennan, 2000). IMM programs typically are easy to use. If properly designed, keyboarding is not needed, because the user may mouse-click over on-screen buttons to make responses. Text may be supplemented by narration, which is helpful for users with poor reading skills or language skills (e.g., non-native speakers). Information can be repeated at the viewer's discretion. Thus, individuals are free to absorb and review the materials at an individually appropriate pace. An additional clear advantage is that the program may be accessed at the convenience of the parent/stepparent, which may help decrease attrition rates, and it can be offered at low or no cost.

In addition, program users can move quickly through or skip subject matter that they already know or that is not relevant, and spend more time on new, pertinent, and more difficult material. Users interact with the IMM program, which adds interest and motivates users to pay more attention as compared to written and even linear visual educational content (Brug, Campbell, & Van Assema, 1999). As an added advantage, a self-administered program provides a "safe" learning environment; there is no group leader or other parents present who may "judge" their presenting challenge (MacKenzie & Hilgedick, 1999).

Limitations

We acknowledge several limitations in this initial efficacy trial and offer some caution in interpreting the findings. First, although random assignment was used, all the participants volunteered for the study and thus represent a convenience sample of interested parents/stepparents and cannot be considered representative of the population of parents/stepparents. Second, all the participants were in married stepfamilies and therefore do not represent the experiences of those in cohabiting stepfamily households. Third, participants completed self-report surveys. Observational and multi-informant methods would enhance the validity of the measurement of the impact areas of interest. Fourth, when households consisted of more than one child between age 11 and 15 years, participants self-identified one child to focus on when answering child-related questions. It was also the case that a proportion of respondents had both a biological child and a stepchild and

could select a target child when responding. It will be important in future research to clearly identify the specific referent parent-child and stepparent-stepchild relationships. Fifth, four of the parenting domain scales had only moderate levels of internal consistency reliability (α between .64 and .78), which may have attenuated the measurement of the intervention effects.

The attrition rate was very low for both the control and the treatment groups. Although this is a strength of the study, it cannot be interpreted as an outcome of the program. Because this was a sponsored research that provided compensation to participants, it cannot be determined whether continuation and completion of the program would occur at the same rate without compensation.

Focused recruitment efforts included the use of websites and electronic mailing lists that target fathers/stepfathers and posted ads in racially diverse communities. Although the sample is more diverse (i.e., 33% ethnic minority) than most other published studies of online family life education and stepfamily education programs, the final sample is predominantly Caucasian and female. Thus, study findings reflect women's experience with the program more so than men's and majority culture parents/stepparents' experiences more so than minority parents/stepparents'. In addition, although an increasing number of families have high-speed Internet access, the sample was limited to those with an email address and access to broadband Internet and thus included a limited number of very low-income parents.

Although this is the only prevention program study involving stepfamilies that uses a large sample, a randomized control group, and pre-, post-, and follow-up assessments, the follow-up of 60 days is a relatively short time frame and provides only an initial indicator of delay effect in two domains and sustained effect in another one. In addition, the subsequent release of program access to the control group did not allow for tracking of their natural trajectory to the third time point. More definitive explication of delayed and sustained program impact cannot be asserted until longer term follow-up is conducted with comparison groups at each time period.

Future Directions

As a next step, within-study comparisons of program effects based on delivery model could

further inform the family life education field regarding the best use of web-based BMT programs. Are these programs more beneficial than in-person programs? Are they comparable in their benefits? A recent study of marriage education programs found similar gains for participants in self-administered and in-person programs (Duncan et al., 2009). It will also be valuable to know whether online self-administered programs provide added value when combined with in-person community education programs and for whom different delivery models are most effective. Recent meta-analyses of parent training programs have demonstrated the value of considering moderators of program effects that include participant characteristics (e.g., race and income) and program characteristics (individual, group; Lundahl et al., 2006). Some scholars note that men are traditionally less likely to seek out and participate in community family life education and may be more amenable to web-based program participation (Higginbotham, Miller, & Niehuis, 2009; Steimle & Duncan, 2004). Testing this tendency further is recommended. Other participant characteristics relevant to programs for stepfamilies include residence of the stepchildren (i.e., full-time and part-time) and marital status and history of the parents (e.g., both remarried and one remarried). It is also important to understand how the key elements of the design—Internet accessible, IMM, and BMT—promote program impact. Is one element more important than the others, or is it the combination of elements that is most important? These considerations of participant characteristics, context, and design represent the current state of the science of family life education and deserve focused attention.

Dosage questions should also be addressed in the future. Follow-up analyses revealed a significant dose-response relationship in the couple domain, indicating increasing effect size with increasing exposure to the program. There are two ways to look at this. First, a significant correlation is expected, and some offer assumptions that more exposure to educational content should lead to greater benefit (Duncan & Goddard, 2005). The magnitude of the correlation is, however, considered small (i.e., $r = .25$), and that should be considered as well in future research. It may be that participants benefit from even minimal exposure to an intervention or program, particularly if the most salient issue can be addressed initially. Exposure to

program content may also serve as a “launch” toward other helpful resources outside the program. This is certainly a possibility, given the design of the program. Users on the Internet may continue to search for and access other web-based educational resources. This may be another advantage of the web-based delivery model. Users have autonomy in determining the content and the quantity of the information received. Understanding both the usage patterns and the meaningfulness of usage patterns will further advance this field of study.

In addition, as with in-person voluntary community education programs, we know little about effective methods for marketing online programs and recruiting for participation. A recent study indicated only a small percentage of couples entering a remarriage seek preparation resources, and less than 10% of men and women use web-based resources (Higginbotham et al., 2009). This study also indicated that there may be gender differences in stepfamily education participation patterns, with women more likely to seek self-administered resources. Much remains to be learned regarding recruitment and retention in these online family life programs.

Framework for Summarizing Potential Value of Program

When viewed from the RE-AIM perspective (i.e., reach, efficacy/effectiveness, adoption, implementation fidelity, and maintenance; Glasgow, Vogt, & Boles, 1999) to determine public value, this program has significant potential for benefiting stepfamilies. The reach (i.e., to anyone with access to the Internet) is very wide and is increasing exponentially each year. The efficacy shown in this initial study is reasonable for a psychoeducational intervention. Adoption potential is high, given the very high level of user satisfaction with the program design and content and the evidence of impact. In addition, access is determined by the availability of the individual, further enhancing the potential for adoption. There is reason to believe that the program would be broadly used and well received. Essentially, perfect implementation fidelity is ensured because the content is not interpreted, facilitated, or delivered by an educator, but is contained and provided by the program itself. In addition, perhaps one of the strongest elements is maintenance of the program. Costs are minimal for a program such as this, once it has been developed.

Thus, our study supports the notion that there is potential public health value in an interactive, behavior-modeling, web-based education program for parents and stepparents in stepfamilies.

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