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Reaching High-risk Families Through Home-Based Parent Training: A
Comparison of Interactive CD-ROM and Self-help Parenting Programs

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Abstract

Examined the effectiveness of two parent training interventions, an interactive CD-ROM parent training program titled Parenting Wisely (PW), and a set of parent training pamphlets titled Principles of Parenting (POP), with low-income, rural families. Parents of 80 4th-6th grade children were randomly assigned to complete either PW or POP in their homes. At a 6-week follow-up, both groups demonstrated significant improvement on measures of child problem behavior, parental depression, and general family functioning. The PW group reported greater improvements in the number of child behavior problems. Parents of 59 of the children completed 6-month follow-up measures assessing child behavior, and improvements were maintained. Although significant differences did not occur between the two groups over time, effect sizes suggest that PW was more effective. These results provide support for the effectiveness of both of these brief, home-based parenting interventions with high-risk families.

Reaching High-risk Families Through Home-Based Parent Training: A Comparison of Interactive CD-ROM and Self-help Parenting Programs

Research conservatively estimates that 12-22% of children and adolescents under the age of 18 suffer from developmental, emotional, or behavioral problems (Kazdin, 1993; Lewis, Dlugokinski, Caputo, & Griffin, 1988). However, only 10-30% of these youth receive mental health services (Lewis et al., 1988). As a result, children with emotional and behavioral problems, especially those in rural, economically disadvantaged areas, are an underserved population in need of access to effective interventions.

The prevalence of antisocial behavior in children may be as high as 10% in the total population, and children displaying antisocial behavior represent 30-50% of the cases seen in mental health facilities (Dumas, 1989; Kazdin, 1987). Many of these children enter the court system at an early age. Although youth in the 10-18 age range represent only 13% of the total population, they account for approximately one-third of arrests for serious crimes in the United States (Mulvey, Arthur, & Reppucci, 1993).

Antisocial problems often coincide with poor academic achievement (Dumas, 1989; Kazdin, 1987). The low educational success rates of children with behavior problems leads to future failures that maintain maladjustment throughout the life span (Kazdin, 1987). Children labeled as disruptive, defiant, or aggressive in the

early school years are at an increased risk for becoming delinquent (Dumas, 1989) and abusing substances (Lochman & Wayland, 1994) later in life.

In response to this mental health dilemma, attention has been focused on developing cost-effective programs to prevent and intervene with childhood disorders (Kazdin, 1993; Lewis et al., 1988; Mulvey et al., 1993). Parent training has been identified as one of the most promising of the available options for treating children with antisocial problems (Dumas, 1989; Kazdin, 1987; Kazdin, 1993; Mulvey et al., 1993). Parent training focuses on the interactions at home between parents and children, particularly those that are coercive in nature. These interventions typically seek to alter the social contingencies in the home by teaching parents to consistently reward prosocial behaviors and punish or ignore antisocial behaviors through positive reinforcement, assertive discipline, problem solving, and communication. (Serketich & Dumas, 1996).

The effectiveness of parent training interventions is well documented. Many parent training programs have reduced child behavior problems to normative levels (e.g. Wells, Forehand, & Greist, 1980; Webster-Stratton, 1992, Kacir & Gordon, 1999). In a meta-analysis of 26 controlled studies, it was found that the average child whose parents received parent training had lower levels of observed and parent reported problem behaviors than 80% of children whose parents did not (Serketich & Dumas, 1996).

Although the parent training model is promising, parent training tends to be less effective with isolated and socioeconomically disadvantaged families (Kazdin, 1987; Webster-Stratton & Hammond, 1990; Serketich & Dumas, 1996). In addition, these high-risk families often have inadequate access to parent training interventions. Rural, low SES families face many barriers to effective treatment. They often lack financial resources, reliable transportation, and childcare (Hardy-Brown, Miller, Dean, Carrasco, & Thompson, 1987). Parent training often occurs in group formats, which may be threatening to many parents who are not confident in speaking in public or disclosing private family information (Gordon, 2000). In addition, parents may not seek help for their children's problems because they are concerned about social stigma (Lewis, Dlugokinski, Caputo, & Griffin, 1988). Increasingly, home based interventions are being advocated for use with families in rural areas who are isolated from outside services because of distance or lack of transportation (Gordon, Graves, & Arbuthnot, 1995).

Several formats for parent training have been developed that may minimize treatment barriers and extend the accessibility of parent training programs to high-risk families. These formats include parenting videos (Webster-Stratton, Hollinsworth, & Kolpacoff, 1989), self-help manuals (Pardeck, 1991), and interactive computer programs (Kacir & Gordon, 1999; Lagges & Gordon, 1999; O'Dell, Mahoney, Horton, & Turner, 1979). Programs such as these are

more accessible to high-risk populations because they are cost-effective, less stigmatizing, and can be utilized as home-based interventions. In this study we evaluated a self-help parenting manual and an interactive CD-ROM program.

Self-help manuals have been used frequently in the field of psychology. Mental health professionals, particularly cognitive-behavioral therapists, regularly prescribe self-help manuals as a part of therapy (Pardeck, 1991; Pardeck, 1993). These approaches are promising for use with high-risk families because they are inexpensive, and may be used without disclosing private information to a therapist. Mettetal (1996) investigated the effects of a popular self-help book that taught parents how to manage their temperamentally difficult children. One month after parents were given the book, parents' stress levels and reactions to the difficult behaviors of their children had improved. However, this study has a sample size of only nine, and did not utilize a comparison group. Therefore, more research is needed documenting the effectiveness of self-help approaches.

Interactive video programs actively engage participants in learning. The benefits of interactive programs include self-direction, self-pacing, a non-threatening environment, multiple methods for learning and studying, replay options, and flexibility for individual or group use (Gentry, 1992). Users have some control over the content that they view and must answer questions before addressing new information. Sections may be viewed multiple times, allowing individuals to work with their own style of learning and reviewing. Interactive

video programs may be used privately so the stigma attached to seeing a therapist is eliminated. Interactive instruction has also reduced the cost and time involved in training (Bosco, 1986; Cohen, 1984).

The effectiveness of interactive video programs has been demonstrated in a variety of populations (Alterman & Baughman, 1991; Browning, White, Nave & Barkin, 1986; Gentry, 1992). A meta-analysis conducted by McNeil & Nelson (1991) revealed an effect size of .53 on cognitive and performance measures when an interactive program was utilized. This effect size was consistent across age groups, educational content and environment.

The interactive program used in this study is Parenting Wisely (PW). Research reveals that parental use of PW results in decreased child problem behaviors (Hupertz, 1995; Kacir & Gordon, 1999; Segal, Chen, Gordon, Kacir, & Gyls, 1999; Gordon & Kacir, 1999). After completing the PW program, parents also demonstrated greater knowledge about parenting skills when compared to a no-treatment control group who did not improve at all (Hupertz, 1995; Kacir & Gordon, 1999; Lagges & Gordon, 1999; Segal, et al, 1999).

We compared the effectiveness of a self-help parenting manual, Principles of Parenting (POP), and an interactive parent training program, Parenting Wisely. Because other studies on the Parenting Wisely program have consistently demonstrated no improvements in control group participants, no control group was utilized in this study. Although child conduct problems are the primary target

of these interventions, we were also interested in investigating whether the interventions have positive effects on other, secondary problems. Therefore, we assessed the effects of both interventions on child behavior problems, family functioning, parental depression, child self-concept, and parental involvement. The major goal of this study was to determine whether an interactive intervention like Parenting Wisely would produce greater improvements than a more passive self-help program like Principles of Parenting.

Method

Participants

The participants for this study were 87 parents and their children who were enrolled in fourth, fifth, or sixth grade at three rural Southeastern Ohio schools. Of these families, 80 (92%) completed a follow-up assessment six weeks after the intervention. Of the seven families who did not participate in the six-week follow-up, three of the families declined to participate, and four of the families could not be contacted due to relocation or disconnected phones. Of the 80 families who completed the six-week follow-up, 59 (74%) participated in a six-month follow-up assessment.

There were two attempts to recruit families for the study. First, we sent families a letter inviting them to come to the school during the summer to use a parenting program. Transportation, childcare, food, and \$30 were offered in exchange for participation. Of the 400 letters sent, only one parent responded.

The procedure was then modified such that the intervention would be provided in the home, rather than at the child's school. We contacted the parents by telephone or by a brief letter describing the study. The overall response rate was 15.6%. Approximately 20% of the parents of 4th graders, 16% of the parents of 5th graders, and 13% of the parents of 6th graders responded to letters or phone calls regarding the project. Phone calls produced a greater response rate than letters (41% vs. 12.1%). Letters were also utilized due to the high percentage of families in the area (30% in one school district) without telephones. These families were asked to provide researchers with the phone number of a neighbor or relative, and five families without phones participated.

Participants were from rural Appalachia, a high-risk area of the country characterized by low SES single parent families who often lack access to transportation and are unaware of available services. Although the majority of adult participants were the children's biological mothers, 6 fathers, 2 grandmothers, one aunt, and one foster parent (all legal guardians) participated. For the purposes of this study, all adult participants will be referred to as parents. The high-risk status of this group is evident in the low income, low education, unemployed, non-married status of many of the parents. Twenty-four of the children lived in single parent families and ten of children lived with relatives or had other nontraditional living arrangements. Twenty-six children demonstrated low levels of literacy, and were unable to complete the measures independently.

In addition, eight of the parents had poor reading skills. Five parents reported that they and/or their children were currently receiving counseling. Table 1 summarizes the demographic characteristics of the sample.

Procedure

The researcher contacted the parents, briefly described the study, and asked the parents if they were willing to participate. Participants were randomly assigned to use either the PW or POP intervention in their homes. Childcare and snacks were provided while parents used the intervention.

Prior to the intervention, parents signed a written informed consent form, and completed a demographic questionnaire, the Beck Depression Inventory (BDI), the McMaster Family Assessment Device (FAD), and the Eyberg Child Behavior Inventory (ECBI). Children signed an assent form, and completed the Parental Involvement Questionnaire (PIQ) and the family and academic subscales of the Multidimensional Self-Concept Scale (MSCS). In cases of low reading ability, the researcher either provided an audio cassette version of the forms or read the forms aloud to the subjects.

The PW group then completed the program in one session (approximately 2 hours) and received a workbook to keep as a supplement to the program. The PW program allows parents to read the text from the computer screen or to select an audio version of the text, allowing low literacy parents to complete the program without facilitation. The POP group read the pamphlets in one session

(approximately 1 1/2- 2 hours depending on reading ability) and kept the reading materials for future reference. Parents with low reading ability were provided with an audio cassette containing the information provided in the written materials. All parents completed a consumer satisfaction questionnaire and received payment of \$20 at the end of the intervention session. Six weeks after treatment, participants completed all of the dependent measures again, in their homes. After completing the follow-up questionnaires, participants received payment of \$10. At a 6-month follow-up, 59 parents completed the measure of child behavior (ECBI) again, and received 2 movie passes for their participation.

Interventions

Parenting Wisely (PW). PW is an interactive video parenting program (CD-ROM) that focuses on skills such as active listening, "I" statements, assertive discipline, contracting, contingency management, and positive reinforcement. In addition to child management skills, parents receive relationship enhancement training with a focus on warm involvement with children. Parents learn these skills through videotaped modeling, feedback, rehearsal, and quizzes. The skill training occurs in the context of a family systems perspective and a cognitive change strategy is used to reframe problematic interactions.

The PW program addresses problem situations relevant to everyday life. Chore completion, homework completion, stepfamily conflict, fighting amongst siblings, speaking respectfully and obeying are some of the problems presented.

Each of the nine situations begins with a short video illustrating a dilemma. Parents then choose one of three options for solving the problem. The program plays out the parents' choice demonstrating either a desirable or undesirable outcome. The program critiques the actions of the parents in the video, offering suggestions for why certain actions by parents produce certain responses by children. If the parents choose an incorrect solution, they have another opportunity to choose from the three possible solutions. This procedure continues until the parents choose the correct solution. After viewing the effects and critique of the correct solution, parents take a quiz. The parents then advance to the next problem. Upon completion of the program, parents receive a workbook that outlines each of the problems and solutions, as well as the critiques and practice exercises for the skills taught in the program (Gordon, Gyls, & Segal, 1996). Parents are told what content the workbook contains, and are instructed to refer to the workbook as needed.

Any population, regardless of literacy or technical experience, can use the PW program without assistance. These factors are important since many of the parents using the program will be low SES with very little education. The program can be used privately without instructors, another benefit for parents who may be hesitant to admit they need help with their children, and who may resent being told how to parent by a stranger.

Principles of Parenting (POP). Principles of Parenting is a self-help intervention designed to help parents improve their parenting skills. It consists of a several pamphlets, each of which addresses a different topic. These pamphlets teach skills such as active listening, clear communication, and being a positive role model. The pamphlets provide examples of common family situations, practice exercises, additional reading sources, and creative suggestions for engaging children in activities. We chose pamphlets for their similarity to the content of the PW program.

Measures

Beck Depression Inventory (BDI). (Beck, 1978). The BDI is a 21-item self-report questionnaire designed to measure the severity of depression. The items reflect categories of symptoms and attitudes typically manifested by depressed patients, including affective, cognitive, motivational, and physiological symptoms. Scores range from 0 to 63, with higher scores indicating more severe depression. Within nonpsychiatric populations, internal consistency coefficients ranged from .73 to .92. Test-retest reliability coefficients fluctuated between .62 for 4 months and .90 for 2 weeks.

The McMaster Family Assessment Device (FAD). (Epstein, Baldwin, & Bishop, 1983). The FAD consists of 53 items measuring family functioning, and yields one scale of General Functioning, and six dimension scales: Problem Solving, Communication, Roles, Affective Responsiveness, Affective

Involvement, Behavior Control. The reliability for these seven scales ranges from .72 to .92, and the scales are moderately independent, correlating from .4 to .6 with each other. A nonclinical population scored significantly higher on family functioning than a clinical population on every subscale. In a discriminant analysis, the FAD predicted which families belonged in the nonclinical or clinical populations with 67% accuracy for the nonclinical group and 64% accuracy for the clinical group (Miller, Epstein, Bishop, & Klitner, 1985).

Eyberg Child Behavior Inventory (ECBI). (Eyberg & Ross, 1978). The ECBI contains 36 items designed to assess parents' perceptions of their child's problematic behaviors. The ECBI measures the total number of problem behaviors displayed as well as the intensity of the problem behaviors. The Total Problem Score is calculated by summing of all items considered to be a problem based on a yes/no scale. The Problem Behavior Intensity Score equals the sum of intensity scores for all items measured by a 7-point scale (1=never; 7=always). The ECBI has demonstrated good test-retest reliability ($r = .86 - .88$), excellent internal consistency ($\alpha = .98$) (Eyberg & Ross, 1978; Robinson, Eyberg, & Ross, 1980), and moderately high inter-parent agreement ($r = .59$) (Eisenstadt, McElreath, Eyberg, & McNeil, 1994). Studies have also shown that the ECBI is sensitive to treatment and differentiates between clinical and normal populations (Eyberg & Robinson, 1982; Webster-Stratton et al., 1989).

Parental Involvement Questionnaire (PIQ). The PIQ is a 7-item child report measure of parental involvement in children's schooling. This measure was adapted from the Parental Involvement in Schooling measure used by Steinberg, Lamborn, Dornbusch, & Darling (1992).

Multidimensional Self Concept Scale (MSCS). (Bracken, 1992). The MSCS is a 150-item self-report inventory that measures self-concept in children. The MSCS is composed of six subscales that measure various dimensions of self-concept: social, competence, affect, family, physical, and academic. Each subscale consists of 25 items and can be administered individually. In the present study, we used the family and academic subscales, which have internal consistency coefficients of .97 and .91, respectively, and test-retest reliability of .78 and .81, respectively (Bracken, 1992; Keith & Bracken, 1996).

Consumer Satisfaction Questionnaire. This questionnaire is composed of 7 items that assess the degree to which participants felt the intervention was relevant and helpful. Each item is rated on a five point scale, with higher ratings indicating greater satisfaction.

Results

Characteristics of the Treatment Groups at Pretest

Chi-square analyses and t-tests were conducted on all of the demographic variables, and all of the dependent measures. There were no significant differences between the PW and POP groups on any demographic variables.

However, parents in the PW condition reported higher numbers of child behavior problems, $t(77) = 2.35, p < .05$, and more intense child behavior problems, $t(77) = 2.50, p < .05$, than parents in the POP group at pre-test.

At pre-test, participants in this study reported high levels of behavior problems in their children. Forty-three percent of the child problem behavior scores and 28% of the problem intensity scores were in the deviant range of child behavior. At pre-treatment, parents in the current study reported significantly higher numbers of child behavior problems ($M = 10.41$) than a normative sample ($M = 6.9$), $t(78) = 4.00, p < .01$, and more intense child behavior problems ($M = 112.09$) than a normative sample ($M = 103.8$), $t(78) = 2.30, p < .05$.

In addition, immediately after the intervention, participants reported high levels of satisfaction with both the Parenting Wisely program and the Principles of Parenting pamphlets. The mean overall satisfaction rating was 4.57.

Comparison of Completers and Noncompleters

Participants who completed both the 6-week and 6-month follow-ups were compared with those who dropped out of the study after the 6-week follow-up, to determine whether they differed on any of the demographic variables or pretest measures. Although there were no differences between completers and non-completers on any of the pretest dependent measures, non-completers had lower levels of maternal education and parental occupation status than those who completed the study.

Repeated Measures Analysis of Variance (ANOVA)

Parent report measures - six-week follow-up. It was hypothesized that parents in both intervention conditions would report fewer and less intense child problem behaviors, decreased levels of depression, and increased family functioning, and that parents who used the PW intervention would report greater improvements than parents using the POP intervention. To test these hypotheses, a 2 (treatment: PW, POP) x 2 (time: pretest, 6-week follow-up) repeated measures ANOVA was performed on the dependent measures for these variables: ECBI Total Problems, ECBI Problem Intensity, BDI, and FAD. One parent in the PW group was not included in this analysis due to missing data.

There was a significant main effect for treatment for the ECBI Total Problems Score, $F(1,77) = 3.91, p < .05$ and the ECBI Problem Intensity Score, $F(1,77) = 6.42, p < .01$. Parents in the PW group reported higher numbers of problem behaviors and more intense problem behaviors than parents in the POP group across both time periods. This was due to the higher ECBI scores reported by the PW group at pre-test. After controlling for ECBI scores at pretest, the PW and POP groups did not differ on either the ECBI Total Problems Score, $F(1,76) = .767, p > .05$, or the ECBI Problem Intensity Score, $F(1,76) = .294, p > .05$, at the 6-week follow-up.

There was a significant main effect for time for all four dependent variables: ECBI Total Problems Score, $F(1,77) = 34.16, p < .01$, ECBI Problem

Intensity Score, $F(1,77) = 11.82, p < .01$, the BDI, $F(1,77) = 13.31, p < .01$ and FAD, $F(1,77) = 3.92, p < .05$. This indicates that participants in both treatment groups reported significant improvements in child behavior, parental depression, and family functioning six weeks after intervention. Table 2 provides the means, standard deviations, and univariate F statistics for the main effect of time for all four dependent variables.

There was a significant treatment x time interaction for the ECBI Total Problems Score, $F(1,77) = 3.93, p < .05$, with parents using the PW intervention reporting significantly greater improvements in the number of child behavior problems than parents using the POP intervention. (See Figure 1) However, there was no significant treatment x time interaction for the ECBI Problem Intensity Score, $F(1,77) = 0.18, p > .05$, BDI, $F(1,77) = 0.16, p > .05$ and FAD, $F(1,77) = 1.35, p > .05$. This indicates that parents using both interventions reported comparable improvements in the intensity of child behavior problems, parental depression, and family functioning.

[INSERT FIGURE 1 ABOUT HERE]

Six month follow-up. In order to determine the longer-term effects of each program on the number and intensity of problem behaviors, a 2 (treatment: PW, POP) x 3 (time: pretest, 6-week follow-up, 6-month follow-up) repeated measures ANOVA was performed on the ECBI Total Problems Score and ECBI Problem Intensity Score. These analyses included only the 59 subjects who

completed the ECBI at a 6-month follow-up in addition to the pretest and 6-week follow-up. There was a significant main effect for treatment on the ECBI Problem Intensity Score, $F(1,57) = 5.70, p < .05$, with parents in the PW group reporting significantly more intense child behavior problems than parents in the POP group at pretest and both follow-up periods. The main effect for treatment was not significant for the ECBI Total Problems Score, $F(1,57) = 3.56, p > .05$, indicating that parents in both treatment groups reported similar numbers of problem behaviors. (See Figure 1 for the Total Problem scores at all time periods).

There was also a main effect for time, which was significant for both the ECBI Total Problem Score, $F(2,114) = 10.67, p < .01$, and the ECBI Problem Intensity Score, $F(2,114) = 12.81, p < .01$, indicating that both groups of participants improved significantly over time. Tukey's post-tests were performed on the main effect for time for both the ECBI Total Problem Score and the ECBI Problem Intensity Score. Post-tests indicated that participants demonstrated significant improvements on the ECBI Total Problem Score between pretest and the 6-week follow-up, and pre-test and the 6-month follow-up, but not between the 6-week and 6-month follow-ups. Similarly, post-tests indicated that participants demonstrated significant improvements on the ECBI Problem Intensity Score between pretest and the 6-week follow-up, and pre-test and the 6-

month follow-up, but not between the 6-week and 6-month follow-ups, although there was a nonsignificant trend in that direction.

Child report measures. It was hypothesized that children whose parents used the PW and POP programs would report significantly increased parental involvement in schooling, academic self-concept, and family self-concept, and that children whose parents uses the PW program would report significantly greater increases. To test these hypotheses, a 2 (treatment: PW, POP) x 2(time: pre-intervention, 6-week follow-up) repeated measures ANOVA was performed on each of these variables. Four children (three in the PW group and one in the POP group) were not included in this analysis because of missing data.

There was no significant main effect for treatment or time for academic self concept or family self concept. There was no main effect for time on parental involvement in schooling, but children whose parents used the POP program reported significantly more parental involvement in schooling, at pretest and 6 week follow-up, $F(1,74) = 6.33, p < .05$. These results suggest that neither intervention had positive effects on children's self-concept or their reports of parental involvement in schooling.

Family Assessment Device subscales. An exploratory 2(treatment: PW, POP) x 2(time: pretest, 6-week follow-up) repeated measures ANOVA was conducted on each of the six Family Assessment Device subscales. The results revealed no significant main effect for treatment, indicating that both groups

reported comparable levels of family functioning on all six subscales. There was a significant main effect of time for both the Problem Solving Subscale $F(1,77) = 11.65, p < .01$ and the Behavior Control Subscale $F(1,77) = 5.31, p < .05$. Both groups of parents combined reported significantly better functioning on these scales at 6-week follow-up. These analyses also revealed a significant treatment x time interaction for the Roles Subscale $F(1,77) = 4.29, p < .05$. The PW group improved significantly more over time than the POP group.

Effect Sizes

Effect sizes (Cohen's d ; Cohen, 1977) were computed for the PW and POP groups for each of the dependent variables found to be significant in the main effect for time at 6 weeks. On the ECBI Total Problems Score, a small to moderate effect (Cohen, 1977) was found for the PW group, $d = .37$, and a small effect was found for the POP group, $d = .22$. This is consistent with the results of the treatment x time interaction in which the PW group improved significantly more over time than did the POP group. Table 3 displays the effect sizes for the ECBI Problem and Intensity Scores, the BDI, and the FAD.

Effect sizes were also computed for the three FAD scales for which there were significant results. On the Roles subscale of the FAD, the PW group demonstrated a small to moderate effect size of $.35$, and the POP group demonstrated an effect size of $d = -.01$. This is consistent with the treatment x time interaction that suggested the PW group improved significantly more on this

subscale than the POP group. On the Problem Solving subscale of the FAD, there was a small to moderate effect for the PW group, $d = .37$, and a small effect for the POP group, $d = .15$. On the Behavior Control subscale of the FAD, the effect size for the PW group was .21, and the effect size for the POP group was .14.

Clinical Significance

Clinical significance was calculated using the method described by Jacobson & Truax (1991), which utilizes cut-off scores and indices of reliable change. Participants whose scores improved by two standard deviations and crossed the cut-off score between functional and dysfunctional populations were considered to have ‘recovered.’ Participants whose scores improved by two standard deviations but did not cross over the cut-off score were considered to have ‘improved.’ Subjects whose scores worsened by two standard deviations were considered to have ‘deteriorated.’

Clinical significance was computed for participants who scored in the clinically deviant range on the dependent measures at pretest. Table 4 shows the percentage of participants in the deviant range who had recovered or improved at the 6-week follow-up on all of the measures; deterioration was found in only one instance, among 38% of the POP group on the FAD General Functioning scale. On the ECBI Total Problems Score, the BDI, and the FAD Problem Solving, Roles, and Behavior Control Scores, more participants in the PW group than in the POP group had improved or recovered. On the ECBI Problem Intensity Score, more

participants in the POP group than in the PW group had improved or recovered. Finally, on the FAD General Functioning Score, more participants in the POP group had improved or recovered than participants in the PW group, but 38% of participants in the POP group also deteriorated, while no participants in the PW group had deteriorated.

Discussion

In this study we compared the effects of an interactive computer parenting program and a self-help parenting manual with socioeconomically disadvantaged families from rural Appalachia. Many of the families reported high levels of child behavior problems, as well as problems with family and psychological functioning. Because there is little evidence for the effectiveness of traditional parent training with isolated and socioeconomically disadvantaged populations, the primary goal of this study was to evaluate the effectiveness of brief, home-based parenting interventions with a high-risk population.

The results of this study suggest that both Parenting Wisely and Principles of Parenting had positive effects on the intensity of child behavior problems, with improvements being maintained over the six-month follow-up period. Similarly, participants in both groups reported lower levels of depression and improved family functioning at a six-week follow-up. Participants also reported improvements in the number of child problem behaviors, and these improvements were maintained over six months.

A substantial percentage of participants in both groups who were functioning in the deviant range on child behavior, parental depression, and family functioning had recovered or improved six weeks after treatment. In addition, effect sizes calculated on these measures suggest that the interventions produced small to moderate effects at a six-week follow-up. These small to moderate effect sizes produced by Parenting Wisely and Principles of Parenting are impressive given the brief nature of the interventions and the isolation and low socioeconomic status of the participants. These results suggest that child conduct problems in high-risk populations can be effectively treated with home-based parent training interventions. In particular, the home-based nature of these interventions was important. Home visits facilitated the inclusion of and interactions among friends and family members. Many parents commented that they would not have participated if they had been required to go to a community facility to use the program.

The parenting interventions had no effects on parental involvement in schooling or child reported family and academic self-concept. This suggests that, although the interventions were effective in reducing behavior problems, the effects of parent training did not generalize to these areas of functioning. Measurement difficulties may have also contributed to the lack of positive findings in these areas. The measure of parental involvement in schooling measured some behaviors that would be very difficult for parents in this

population to change. For example, many of these parents are unable to meet with teachers at school due to lack of transportation or minimum wage jobs with inflexible work schedules. Therefore, this measure may not accurately measure parental involvement for this population. The participants in this study also had difficulty answering some of the questions on the self-concept measures. For example, some of the questions contained double negatives or unfamiliar words, and many of the children had trouble answering these questions. As a result, it is unclear whether the lack of improvement reported on these measures was due to an actual lack of improvement in these areas. Different methods for measuring these constructs, particularly for disadvantaged populations, may be in order.

Although both parenting programs produced improvements, the results of this study suggest that Parenting Wisely may be more effective than Principles of Parenting in reducing child behavior problems. At pre-treatment, participants who used Parenting Wisely reported more child behavior problems than participants who used Principles of Parenting. At the six-week follow-up, there were no differences between the two groups in the number of child behavior problems reported, and the Parenting Wisely group had improved more than the Principles of Parenting group. In addition, Parenting Wisely had a larger effect on the number of behavior problems reported than Principles of Parenting. Finally, parents who used Parenting Wisely were more likely to report clinically

significant reductions in the number of child behavior problems than parents who used Principles of Parenting.

These brief interventions are not adequate for many of the family problems we encountered. For families needing professional help and who are willing to accept it, the second author recently described brief family consultation in conjunction with the PW program. Four follow-up sessions with the family are psychoeducational and seek to increase the number and frequency of parenting skills taught in the PW program which family members implement (Gordon, in press).

The Parenting Wisely program has some advantages over the Principles of Parenting that cannot be quantified. The most noticeable advantage is the level of engagement the PW program produces. During these home visits, parents encouraged their children and adolescents to view the program with them. Neighbors, friends and other family members such as spouses, grandparents, and aunts demonstrated interest in the program and engaged in discussion over the problems and solutions with the participating parent. The researcher allowed natural interactions to occur and kept an informal count of how many parents used the program in conjunction with their children or other adults. Forty percent of the parents included someone else in using the program. This type of inclusion and interaction could not happen with POP although two spouses did read the materials after the participating parents completed the reading. Allowing multiple

individuals to use PW together may act as a confound in this study, however, statistical analyses revealed no differences between the group of single users and the group of multiple users.

In addition, participants in the POP group were required to read the pamphlets at the time of their appointment with the researcher. This was advantageous because the parents had set aside this time to read about parenting issues and were motivated to complete the reading during the set appointment time. In real life, therapists recommend that parents read parenting materials at home on their own time. The parents become responsible for locating materials and taking time to read them. Therefore, the results for the POP group cannot be generalized to unsupervised reading of self-help materials.

In summary, Parenting Wisely and Principles Of Parenting both demonstrated improvements in child problem behavior, family functioning, and depression. The results of this study suggest that brief, home-based parenting interventions are a promising, cost-effective way to reach high-risk families, many of whom will not participate in traditional interventions. Trained professionals are not necessary for these interventions, so their delivery can be made more widely and with less expense.

References

- Alterman, A. I., & Baughman, T. G. (1991). Videotape versus computer interactive education in alcoholic and nonalcoholic controls. Alcoholism: Clinical and Experimental Research, 15, 39-44.
- Beck, A. T. (1978). Beck Depression Inventory. Philadelphia: Center for Cognitive Therapy.
- Bosco, J. (1986). An analysis of evaluations of interactive video. Educational Technology, 26, 7-17.
- Bracken, B. A. (1992). Multidimensional Self Concept Scale. Austin, TX: Pro-Ed.
- Browning, P., White, W. A. T., Nave, G. & Barkin, P. Z. (1986). Interactive video in the classroom: A field study. Education and Training of the Mentally Retarded,
- Cedar, B. & Levant, R. (1990). A meta-analysis of the effects of Parent Effectiveness Training. The American Journal of Family Therapy, 18, 373-384.
- Cohen, J. (1977). Statistical power analysis for the behavior sciences. San Diego, CA: Academic Press.
- Cohen, V. B. (1984). Interactive features in the design of videodisc materials. Educational Technology, 24, 16-20.
- Dumas, J. E. (1989). Treating antisocial behavior in children: Child and family approaches. Clinical Psychology Review, 9, 197-222.

- Eisenstadt, T. H., McElreath, L. H., Eyberg, S. M., & McNeil, C. B. (1994). Interparent agreement on the Eyberg Child Behavior Inventory. Child and Family Behavior Therapy, 16, 21-27.
- Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). The McMaster Family Assessment Device. Journal of Marital and Family Therapy, 9, 171-180.
- Eyberg, S. M. & Robinson, E. A. (1982). Parent-child interaction training: Effects on family functioning. Journal of Clinical Child Psychology, 11, 130-137.
- .
- Eyberg, S. M. & Ross, A. W. (1978). Assessment of child behavior problems: The validation of a new inventory. Journal of Clinical Psychology, 16, 113-116.
- Gentry, D. B. (1992). Using computer aided interactive video technology to provide experiential learning for mediation trainees. Journal of Divorce & Remarriage, 17, 57-74.
- Gordon, D. A. (2000). Parent training via CD-ROM: Using technology to disseminate effective prevention practice. Journal of Primary Prevention, 21, 227-251.
- Gordon, D.A. (in press). Intervening with families of troubled youth: Functional family therapy and Parenting Wisely. In J. MdGuire (Ed.) Offender Rehabilitation and Treatment: Effective Programmes and Policies to Reduce Re-offending. West Sussex: John Wiley & Sons, Ltd.

Gordon, D. A., Graves, K., & Arbuthnot, J. (1995). The effect of functional family therapy for delinquents on adult criminal behavior. Criminal Justice and Behavior, *22*, 60-73.

Gordon, D. A., Gyls, J., & Segal, D. (1996). Parenting Adolescents Wisely: Parent-training workbook, (2nd ed.). Athens, OH: Family Works.

Gordon, D. A., & Kacir, C. D. Interactive videodisc training for court mandated parents. Unpublished manuscript.

Hardy-Brown, K., Miller, B., Dean, J., Carrasco, C., & Thompson, S. (1987). Home based intervention: Catalyst and challenge to the therapeutic relationship. Zero to Three, *7*, 8-12.

Hupertz, M. K. (1995). The effectiveness of teaching parenting skills with interactive video. Unpublished senior thesis. Ohio University, Athens.

Jacobson, N. S. & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. Journal of Consulting and Clinical Psychology, *59*, 12-19.

Kacir, C. D. & Gordon, D. A. (1999). Parenting Adolescents Wisely: The effectiveness of an interactive video intervention in Appalachia. Child and Family Behavior Therapy, *21*, 1-22.

Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. Psychological Bulletin, *102*, 187-203.

Kazdin, A. E. (1993). Psychotherapy for children and adolescents: Current progress and future research directions. American Psychologist, 48, 644-657.

Keith, L. K. & Bracken, B. A. (1996). Self-concept instrumentation: A historical and evaluative review. In B. A. Bracken (Ed.), Handbook of self-concept: Developmental, social, and clinical considerations. New York: John Wiley & Sons, Inc.

Laggos, A. & Gordon, D. A. (1999). Use of an interactive laserdisc parent training program with teenage parents. Child and Family Behavior Therapy, 21, 19-37.

Lewis, R. L., Dlugokinski, E. L., Caputo, L. M. & Griffin, R. B. (1988). Children at risk for emotional disorders: Risk and resource dimensions. Clinical Psychology Review, 8, 417-440.

Lochman, J. E., & Wayland, K. K. (1994). Aggression, social acceptance, and race as predictors of negative adolescent outcomes. Journal of the American Academy of Child and Adolescent Psychiatry, 33, 1026-1035.

McNeil, B. J. & Nelson, K. R. (1991). Meta-analysis of interactive video instruction: A 10 year review of achievement effects. Journal of Computer-Based Instruction, 18, 1-6.

Mettetal, G. (1996). Non-clinical interventions for families with temperamentally difficult children. Early Child Development and Care, 121, 119-133.

Miller, I. W. Epstein, N. B. Bishop, D. S. & Keitner, G. I. (1985). The McMaster Family Assessment Device: Reliability and validity. Journal of Marital and Family Therapy, 11, 345-356.

Mulvey, E. P., Arthur, M. W. & Repucci, N.D. (1993). The prevention and treatment of juvenile delinquency: A review of the research. Clinical Psychology Review, 13, 133-167.

O'Dell, S. L., Mahoney, N., Horton, W. & Turner, P. (1979). Media-assisted parent training, alternative models. Behavior Therapy, 10, 103-110.

Pardeck, J. T. (1991). Self-help books and clinical intervention. Journal of Instructional Psychology, 18, 270-272.

Pardeck, J. T. (1993). Using bibliotherapy in clinical practice: A guide to self-help books. Westport, CT: Greenwood Press.

Robinson, E. A., Eyberg, S. M., & Ross, A. W. (1980). The standardization of an inventory of child conduct problem behaviors. Journal of Clinical Child Psychology, 8, 22-29.

Segal, D., Chen, P., Gordon, D.A., Kacir, C., & Gylys, J. (1999). Parenting Adolescents Wisely: Comparing interactive computer-laserdisc and

linear-video methods of intervention in a parent-training program. Unpublished manuscript.

Serketich, W. J., & Dumas, J. E. (1996). The effectiveness of behavioral parent training to modify antisocial behavior in children: A meta-analysis. Behavior Therapy, *27*, 171-186.

Steinberg, L., Lamborn, S. D., Dornbusch, S. M., & Darling, N. (1992). Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. Child Development, *63*, 1266-1281.

Webster-Stratton, C. (1992). Individually administered videotape parent training: 'Who Benefits?' Cognitive Therapy and Research, *16*, 31-52.

Webster-Stratton, C., & Hammond, M. (1990). Predictors of treatment outcome in parent training for families with conduct problem children. Behavior Therapy, *21*, 319-337.

Webster-Stratton, C., Hollinsworth, T., & Kolpacoff, M. (1989). The long-term effectiveness and clinical significance of three cost-effective training programs for families with conduct-problem children. Journal of Consulting and Clinical Psychology, *57*, 550-553.

Wells, K. C., Forehand, R. L., & Greist, D. L. (1980). Generality of treatment effects from treated to untreated behaviors resulting from a parent training program. Journal of Clinical Child Psychology, *9*, 217-219.

Table 1

Demographic Characteristics of the Participants

Variable	N
Parent Marital Status	
Married	46
Single	9
Divorced	23
Widowed	2
Mother's Education Level (# of years)	
9 th Grade	3
10 th Grade	8
11 th Grade	7
12 th Grade	25
13-15 years	21
16 or more years	13
Father's Education Level (# of years)	
9 th Grade	3
10 th Grade	5
11 th Grade	6

12 th Grade	31
13-15 years	10
16 or more years	14
Mother's Occupation	
Unemployed	24
Employed (non-professional)	36
Professional	16
Father's Occupation	
Unemployed	9
Employed (non-professional)	52
Professional	7
Family Income	
Less than \$10,000	13
\$10,000-\$25,000	35
More than \$25,000	32

Table 2

Descriptive Statistics and Analysis of Variance for the Significant Time MainEffect at 6-week Follow-up

Dependent Measure	<u>PW Group</u>		<u>POP Group</u>		<u>F</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
ECBI Total Problems					
Pretest	12.44	8.56	8.43	6.48	34.16**
Follow-up		8.39	6.75	6.43	6.39
ECBI Problem Intensity					
Pretest	120.92	33.78	103.48	28.07	11.82**
Follow-up		111.08	34.06	95.78	27.08
Beck Depression Inventory					
Pretest	11.18	11.40	9.63	7.62	13.31**
Follow-up		9.03	9.96	6.95	6.52
Family Assessment					

Device					
Pretest	1.75	.53	1.66	.43	3.93*
Follow-up		1.61	.46	1.62	.49

Note. df(1,77)

* $p < .05$. ** $p < .01$.

Table 3

Effect Sizes (d) for the Significant Time Main Effect

Dependent Measure	<u>d</u>
Eyberg Total	
Problems	
PW	.37
POP	.22
Eyberg Problem	
Intensity	
PW	.21
POP	.20

Beck Depression

Inventory

PW	.14
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POP	.27
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Family Assessment Device

General Functioning

PW	.19
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POP	.05
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Table 4

Percentage and Frequency of Clinically Deviant Participants Demonstrating
Clinically Significant Change at 6-week Follow-up

Measure	<u>Recovered</u>	<u>Improved</u>
	% (n/possible)	% (n/possible)
Total Problems Score		
PW	15.8% (3/19)	26.3% (5/19)
POP	26.7% (4/15)	0% (0/15)
Problem Intensity Score		
PW	12.5% (2/16)	12.5% (2/16)
POP	50% (3/6)	0% (0/6)
Beck Depression Inventory		
PW	17.7% (3/17)	11.8% (2/17)
POP	18.8% (3/16)	6.3% (1/16)

Family General Functioning

PW 29.4% (5/17) 0% (0/17)

POP 15.4% (2/13) 38.4% (5/13)

Family Problem Solving

PW 25% (5/20) 0% (0/20)

POP 16.7% (2/12) 0% (0/12)

Family Roles

PW 12% (3/25) 12% (3/25)

POP 14.8% (4/27) 0% (0/27)

Family Behavior Control

PW 36.4% (4/11) 0% (0/11)

POP 27.3% (3/11) 0% (0/11)

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