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# Parenting Interventions Implementation Science: How Delivery Format Impacts the Parenting Wisely Program

Katie L. Cotter<sup>1</sup>, Martica Bacallao<sup>2</sup>, Paul R. Smokowski<sup>1</sup>, and Caroline I. B. Robertson<sup>1</sup>

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## Abstract

**Objectives:** This study examines the implementation and effectiveness of Parenting Wisely, an Internet-based parenting skills intervention. The study assesses whether parents benefit from Parenting Wisely participation and whether the delivery format influences program effectiveness. **Method:** This study uses a quasi-experimental design. Participating parents ( $N = 144$ ) come from a rural, impoverished, ethnically diverse county in a Southeastern state. The intervention is delivered via four formats: parents-only intensive workshop, parents-only 5-week group, parent and adolescent 5-week group, and parent and adolescent online format. **Results:** Findings show an association between Parenting Wisely participation and improvements in family problem solving, family roles, family involvement, parenting self-efficacy, parenting sense of competence, and decreased adolescent violent behavior. Effect sizes vary by delivery format. **Conclusion:** Positive program effects vary by delivery format and outcome. Practice implications are discussed.

## Keywords

parenting, implementation, rural, prevention, Internet-based intervention

Parenting Wisely is an interactive computer-based parent-training program that is designed to improve family communication and teach parents effective disciplinary strategies for use with adolescents. Parenting Wisely focuses on improving the competence and skills of parents whose adolescent children are engaging in or at risk of problem behaviors, including aggression, substance abuse, and delinquency. The intervention has been rigorously evaluated, garnering substantial credentials as an evidence-based practice, including evaluation as an “effective” program by Communities That Care (Fagan, Hanson, Hawkins, & Arthur, 2009), an “exemplary 2” program by Strengthening America’s Families (1999), and listed as a “promising” program in the *Model Programs Guide* (Office of Juvenile Justice and Delinquency Prevention, 2012). In addition, Parenting Wisely is highly ranked in the National Registry of Evidence-based Programs and Practices based on the quality of past research on the program and the program’s readiness for dissemination (Substance Abuse and Mental Health Services Administration, 2008).

A significant advantage of Parenting Wisely is the flexibility with which the intervention can be delivered. For example, Parenting Wisely has been implemented in an individual format and a small group format. (Cefai, Smith, & Pushak, 2010). Although the intervention was designed to be implemented with parents, Parenting Wisely has also been used in groups in which parents and adolescents participate together. The parent–adolescent format was an innovation developed in the field and has not been empirically tested (D. Gordon, personal communication,

September 2011). Even though this flexibility is advantageous to practitioners working with parents and families, the effectiveness of the various formats has not been evaluated, leaving a critical knowledge gap that underscores the need for further evaluation. Moreover, given that parenting hardships (e.g., inadequate skills and lack of confidence) have been identified as a major stressor among low-income parents in rural areas (Vandergriff-Avery, Anderson, & Braun, 2004) and that rural youth are at high risk of problem behaviors (Atav & Spencer, 2002), it is especially important to assess the effectiveness of Parenting Wisely formats for this population.

## Literature Review

### Parent-Training Interventions

Although parent-training interventions were first developed in the 1960s, the popularity of this practice method increased substantially with Patterson’s (1982) model of coercive

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parent-child interactions. Patterson's model explained how the reciprocal influences of both parent and child behaviors can exacerbate a child's problem behaviors and aggression (Long, Edwards, & Bellando, 2009). Specifically, the model posited that children use negative behaviors to obtain their parents' attention, and parents' coercive response (e.g., yelling and nagging) negatively reinforces the child's negative behavior, leading to further parent rejection (Patterson, 1982). The goal of many parent-training interventions has been to break this cycle by teaching parents techniques to prevent children's problem behaviors and to encourage positive family functioning.

Among the many parent-training models that have been developed, the two most common methodological approaches used are behavior modification and relationship enhancement (Briesmeister & Schaefer, 1998). Trainings based on behavior modification generally emphasize changing the reciprocal patterns of antecedents and consequences of problem behaviors and modifying ineffective child management techniques. In contrast, trainings based on relationship enhancement emphasize strengthening the family bonds and improving interactions within the family unit. Most parent-training programs use a combination of these methods.

Overall, meta-analytic studies have suggested that parent-training interventions have moderate to strong effects (Kaminska, Valle, Filene, & Boyle, 2008; Long et al., 2009; Lundahl, Risser, & Lovejoy, 2006; Maughan, Christiansen, Jensen, Olympia, & Clark, 2005; Serketich & Dumas, 1996). For example, Lundahl, Risser, and Lovejoy (2006) conducted a meta-analysis of 63 parent-training studies and found that, in general, immediate effects were moderate and follow-up effects were significant even though small in magnitude. Despite such positive evidence supporting the effectiveness of parent-training interventions, Long, Edwards, and Bellando (2009) cautioned that further work was needed to better understand possible moderating factors of program effectiveness (e.g., race/ethnicity, socioeconomic status, and family stressors). In fact, the moderating effect of some factors was shown by Lundahl and colleagues, who found that socioeconomic disadvantage was the strongest moderator of the effectiveness of parent-training interventions; economically disadvantaged children and parents did not benefit from the intervention to the same extent as their nondisadvantaged counterparts. Further, Lundahl and colleagues found the delivery method of the training was also a strong moderating factor of program effectiveness. For economically disadvantaged parents, Lundahl and colleagues found parent training delivered in an individual format was significantly more effective than training delivered in a group format. In addition, Kaminska, Valle, Filene, and Boyle (2008) found a consistent association of larger effect sizes (ES) with programs that required parents to practice their newly acquired skills during the parent-training sessions. Similarly, at a 1-year follow-up of parent interventions for Latino immigrants, Smokowski and Bacallao (2009) found that when compared to discussion-oriented support groups, programs that incorporated active techniques, especially role-playing and structured activities, to assist parents in practicing new skills

were significantly more effective. These findings suggest that in addition to the demographic factors outlined by Long et al. (2009), delivery format and specific program components and activities can substantially influence the effectiveness of parent-training interventions.

### *Parenting Wisely*

Parenting Wisely is a parent-training intervention that uses an interactive computer-based program developed to increase parenting knowledge and competence and to decrease child problem behaviors (Gordon, 2000). The Parenting Wisely design was based on cognitive-behavioral and family systems theories. Parenting Wisely differs from many parent-training programs in that it is a self-instructional program delivered primarily over the Internet. The program consists of nine video modules, with each module presenting a scenario of a parent-child interaction. For each scenario, participants view a video enactment of a typical family conflict and then select a response strategy from a list of options. The provided list of response strategies represents different levels of parenting effectiveness. The selected response strategy is then portrayed in a second video enactment and critiqued through interactive questions and answers (Kacir & Gordon, 1999). The four main themes covered in the nine scenarios include (a) helping around the house, (b) resolving conflict, (c) obeying requests and speaking respectfully, and (d) doing well academically and socially. Parent response options tend to reflect strategies that represent authoritarian, authoritative, or permissive parenting styles (e.g., ground the child for a month, calmly discuss why compliance is important, ignore the behavior). In this way, Parenting Wisely models effective and ineffective child management strategies for the program participants. Key concepts and lesson materials are provided in the accompanying manual that parents use with the video presentations. The Parenting Wisely program has been implemented in the United States, Australia, Canada, France, and the United Kingdom.

Several studies evaluating the effectiveness of Parenting Wisely have been conducted, with findings offering mixed conclusions. O'Neill and Woodward (2002) evaluated the effectiveness of Parenting Wisely with parents of adolescents (mean age 11.9 years) who were referred to a community psychology agency because of child misconduct. Evaluation results of pretest and posttest surveys revealed statistically significant decreases in child problem behavior as well as statistically significant increases in parenting knowledge, indicating program effectiveness.

Another study evaluated the effectiveness of Parenting Wisely implemented with a low-income population in rural Appalachia (Kacir & Gordon, 1999). These researchers found that when compared to a control group, the parents who participated in Parenting Wisely showed significant increases in parenting knowledge and decreases in child problem behaviors at both the 1- and the 4-month follow-up. Although the findings provided some evidence for the utility of Parenting Wisely with low-income rural parents, the research team found no significant

differences between the treatment and control groups on posttest measures of implementation of parenting skills. However, given the aforementioned salient moderating effect of delivery format of parent-training interventions for low-income parents (Lundahl et al., 2006), further research is needed to evaluate the effectiveness of Parenting Wisely using different delivery formats for a population of low-income, rural parents.

One study has evaluated the effectiveness of Parenting Wisely when delivered in individual sessions or group sessions (Cefai et al., 2010); however, the sample was not representative of low-income parents. Results revealed that participants in both delivery formats experienced significant decreases in child problem behaviors and significant gains in parental sense of competence; however, when assessed at a 3-month follow-up, the gains in competence were maintained only for the participants in the individual-format program (Cefai et al., 2010). These results further underscore the need to assess the effectiveness of Parenting Wisely by delivery format because the format appears to influence outcomes of interest. We turn to implementation science to develop a better understanding of the ways in which the delivery format can influence program effectiveness.

### Implementation Science

Implementation science is a rapidly expanding discipline and a key link between practice and research (Aarons, Hurlburt, & Horwitz, 2011). Implementation is a necessary component of intervention research; yet, studies often fail to adequately describe interventions, so that the programs can be replicated (Rosen, Proctor, & Staudt, 1999). A comparison of mixed results from several studies on a given intervention might lead to the conclusion that the variations in results were due to inconsistencies in the intervention, when in reality, the mixed results were due to differences in implementation. At the same time, researchers have acknowledged the importance of having a degree of flexibility in implementing an intervention in real-world settings; however, modifying the original intervention can affect program effectiveness (Proctor & Rosen, 2004). Unfortunately, implementation science in human services is lacking as compared with other disciplines (Fixsen, Blasé, Naom, & Wallace, 2009), which is problematic because ensuring consistent implementation is a necessary step in ensuring intervention fidelity. Therefore, evaluations of interventions' effectiveness, including Parenting Wisely, must account for differences in implementation.

The current gaps in the literature on parent-training programs in general and on Parenting Wisely in particular, as well as the gaps around implementation science, clearly warrant further research on the effectiveness of different Parenting Wisely formats for rural, low-income parents. Therefore, this study aimed to assess (a) whether participation in Parenting Wisely benefited parents in a low-income, ethnically diverse, rural community and (b) whether effectiveness of the Parenting Wisely program was influenced by the delivery format. Specifically, Parenting Wisely was delivered in four formats: (a) a parents-only 1- to 2-day workshop, (b) a parents and adolescents

5-week group, (c) a parents-only 5-week group, and (d) a self-paced online format for individual parent-adolescent dyads. Based on the study conducted by Kaminska et al. (2008), we formulated two hypotheses. First, as compared with the two parents-only Parenting Wisely formats, we hypothesized that the two formats that included adolescents as participants would result in greater positive changes in family functioning, adolescent behavior, and parenting confidence. Second, we hypothesized that delivery in a group format over 5 weeks in a setting that provided parents with enhanced activities, time, and support to practice new skills (Smokowski & Bacallao, 2009) would be more effective than delivery of Parenting Wisely through the online or workshop formats.

## Method

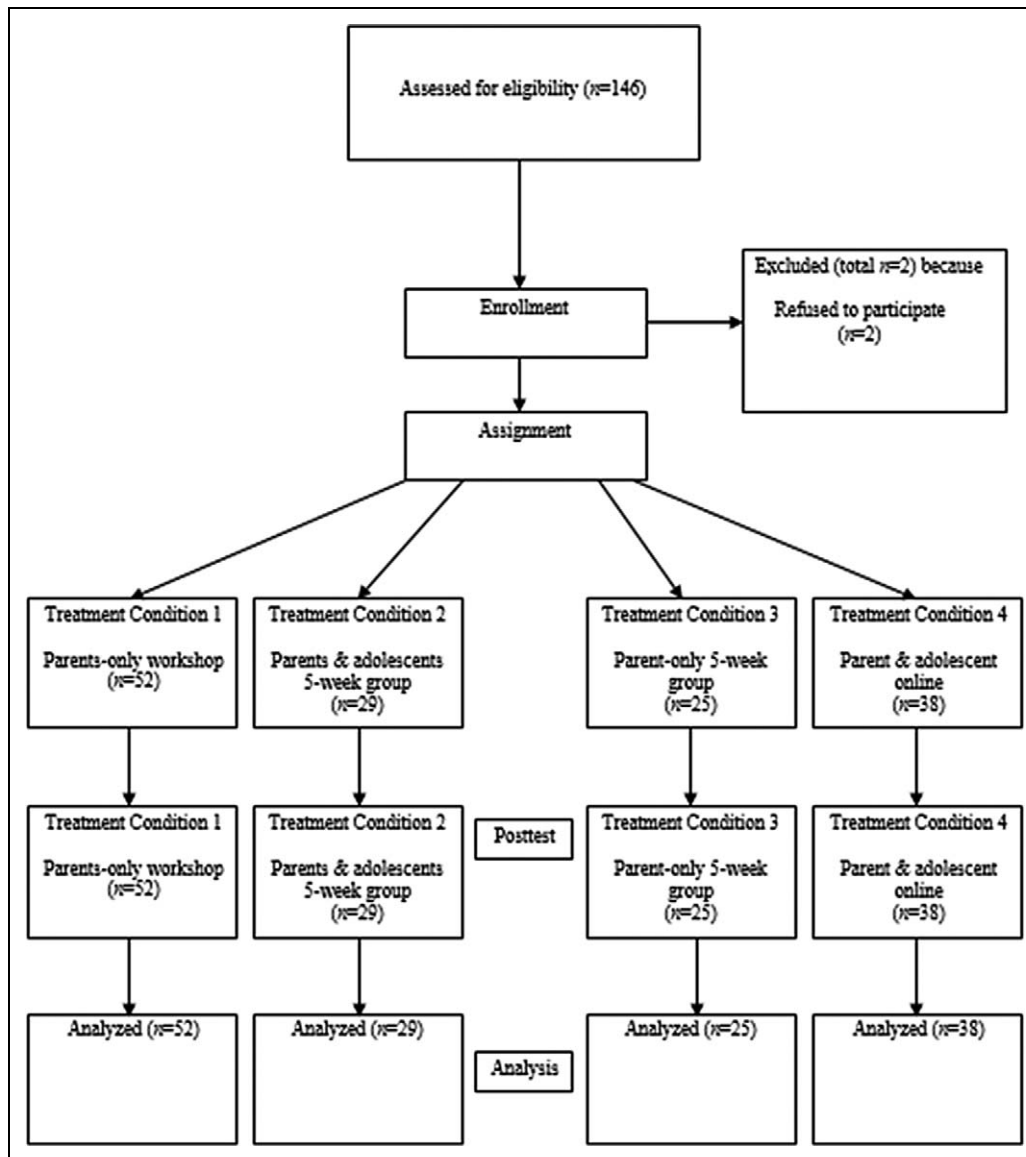
### Current Study

This project was funded by the U.S. Centers for Disease Control and Prevention through a cooperative agreement with the North Carolina Academic Center for Excellence in Youth Violence Prevention (NC-ACE). This project received appropriate approval from the Institutional Review Board. The goal of NC-ACE is to reduce youth violence in one target community—a rural, economically disadvantaged, ethnically diverse county in the Southeastern United States. To reach this goal, a multilevel youth violence prevention initiative was launched in the fall of 2011. This initiative included universal prevention programming in middle schools, parenting programming, and a juvenile justice diversion program called Teen Court. The current study examined implementation and effectiveness evaluation of the parenting programming (i.e., Parenting Wisely) delivered in the target community. The parents who participated in the Parenting Wisely program ( $N = 144$ ) were drawn from the target community (i.e., rural, impoverished, ethnically diverse county in a Southeastern state).

### Sample

All parents residing in a low-income, rural county who had an adolescent between the ages of 11 and 15 were eligible to participate in the study. Community-based recruitment was conducted over the course of 1 year. Project staff recruited parents in churches, schools, community centers within low-income housing authorities, and from social service agencies such as the county Department of Social Services. In addition, participants were recruited through community referrals and through recruitment posters and pamphlets. Two participants who were assessed for eligibility decided not to participate in Parenting Wisely (see Figure 1 for participant flowchart).

The majority of the sample was female (77.08%), and the average age of participants was 40 years. The sample was exceptionally racially diverse, consisting of 53% Native American, 27% African American, 10% Hispanic, 8% White, and 2% multiracial. The mean household income was \$564.47 per week, with a median income of \$416.50. Approximately 70% of the sample reported that their children received free or



**Figure 1.** Participant flowchart.

reduced-price lunch, which is a proxy for low socioeconomic status. See Table 1 for additional sample demographics.

## Measures

**Family-Related Variables.** To evaluate the effectiveness of Parenting Wisely, several self-report measures were used. Five subscales from the McMaster Family Assessment Device (Epstein, Baldwin, & Bishop, 1983) were used to measure family processes at pretest and posttest. Each of these scales measured responses on a 4-point Likert-type scale ranging from *strongly agree* (coded 1) to *strongly disagree* (coded 4).

Problem solving was measured with 5 items examining the family's ability to resolve problems in ways that maintain effective family functioning. Example items included, "We resolve most emotional upsets that come up," "We confront

problems involving feelings," and "We try to think of different ways to solve problems." Cronbach's  $\alpha$  for this sample was .75.

Family roles, that is, whether tasks are clearly and equitably distributed, was measured with 8 items. Examples of items included, "We make sure members meet their family responsibilities," "We discuss who is to do household jobs," and "We are generally dissatisfied with the family duties assigned to us." Cronbach's  $\alpha$  for the current sample was .70.

Affective involvement was measured with 7 items that considered the extent to which family members were interested in and placed value on each other's activities. Example items included, "We are reluctant to show our affection for each other," "Some of us just don't respond emotionally," and "We do not show our love for each other." Cronbach's  $\alpha$  for this sample was .81.

Behavior control was measured using 8 items that assessed the way in which a family expresses and maintains standards

**Table 1.** Sample Demographics.

	Total Sample	Parents-Only Workshop	Parents and Adolescents 5-Week Group	Parent-Only 5-Week Group	Parent and Adolescent Online
	M (SD) or Frequency (%)	M (SD) or Frequency (%)	M (SD) or Frequency (%)	M (SD) or Frequency (%)	M (SD) or Frequency (%)
Age	40.6 (9.8)	41.2 (9.2)	37.4 (7.5)	40.4 (9.4)	41.2 (10.4)
Gender					
Female	111 (77%)	39 (75%)	21 (72%)	19 (76%)	33 (85%)
Male	33 (23%)	13 (25%)	8 (28%)	6 (24%)	6 (15%)
Race					
African American	39 (27%)	19 (37%)	2 (7%)	14 (56%)	4 (10%)
Hispanic/Latino	14 (8%)	N/A	13 (45%)	N/A	1 (3%)
Multiracial	3 (2%)	N/A	1 (3%)	N/A	2 (5%)
Native American	77 (53%)	30 (58%)	12 (41%)	9 (36%)	26 (67%)
White	11 (7%)	3 (6%)	1 (3%)	2 (8%)	6 (15%)
Marital status					
Married	79 (56%)	26 (52%)	24 (83%)	9 (36%)	20 (51%)
Single	63 (44%)	24 (48%)	5 (17%)	16 (64%)	19 (49%)
Employment status					
Currently working	87 (61%)	30 (59%)	17 (59%)	12 (48%)	28 (72%)
Not currently working	56 (39%)	21 (41%)	12 (41%)	13 (52%)	11 (28%)
Level of education					
Less than some high school	10 (7%)	1 (2%)	8 (29%)	N/A	1 (3%)
Some high school	20 (14%)	5 (10%)	8 (29%)	4 (16%)	4 (11%)
High school graduate	35 (25%)	13 (25%)	1 (4%)	12 (48%)	9 (24%)
Some college	30 (21%)	18 (35%)	2 (7%)	3 (12%)	7 (19%)
College graduate	45 (32%)	14 (27%)	9 (32%)	6 (24%)	16 (43%)
Number of children	2.9 (1.2)	2.7 (1.0)	3.3 (1.6)	3.3 (1.4)	2.8 (1.1)
Weekly household income (\$)	\$594 (\$556)	\$563 (\$417)	\$446 (\$380)	\$562 (\$423)	\$626 (\$408)
Receipt of free/reduced lunch	104 (70%)	35 (67%)	19 (68%)	20 (80%)	27 (69%)

Note. M = mean; SD = standard deviation.

for the behavior of its members. Example items included, “We don’t hold to any rules or standards,” “There are rules about dangerous situations,” and “You can easily get away with breaking the rules.” Cronbach’s  $\alpha$  for the sample was .76.

General functioning was measured by 12 items that examined the overall health or pathology of the family. Example items included, “There are lots of bad feelings in the family,” “We feel accepted for what we are,” and “We don’t get along well together.” Cronbach’s  $\alpha$  for the current sample was .88.

**Parenting Variables.** The 17-item Parenting Sense of Competence scale (Gibaud-Wallston & Wandersman, 1978; Johnston & Mash, 1989) was used to measure parenting efficacy and satisfaction. Example items included, “Being a parent makes me tense and anxious,” “I meet my own personal expectations for expertise in caring for my child,” and “My mother/father was better prepared to be a good mother/father than I am.” Items were rated on a 6-point Likert-type scale ranging from *strongly disagree* (coded 1) to *strongly agree* (coded 4). Cronbach’s  $\alpha$  in this sample was .80.

A 10-item Parenting Self-efficacy scale was created by Parenting Wisely developers to determine the extent of confidence a parent has in implementing specific skills emphasized in the Parenting Wisely program (Gordon, 2011). Example

items included, “I am able to give my adolescent clear expectations about a task or responsibility,” “I am able to provide good supervision when my adolescent is with her/his friends,” and “I am able to give consequences for misbehavior.” Responses to items were recorded using a 5-point Likert-type scale ranging from *very confident* (coded 1) to *not at all confident* (coded 5). Cronbach’s  $\alpha$  for this sample was .85.

The 25-item Conflict Behavior Questionnaire (CBQ; Prinz, Foster, Kent, & O’Leary, 1979) was used to measure parent-adolescent conflict. All items were dichotomous (*true/false*); example items included, “My child and I have big arguments over little things,” “My child thinks my opinions don’t count,” and “My child is defensive when I talk to him/her.” Cronbach’s  $\alpha$  for this sample was .91.

Finally, parental satisfaction with the program was assessed using the 10-item Consumer Satisfaction Questionnaire (CSQ; Gordon, 2011), which was created by the Parenting Wisely developers. Example items included, “My child’s problems that have been discussed in the parent-training program are . . . ,” “The major problem(s) that made me want help for my child is(are) . . . ,” and “Would you recommend the program to a friend or relative?” Each item was rated on a 5-point Likert-type scale. This scale had a Cronbach’s  $\alpha$  of .85 in the study sample.

**Adolescent Behavior Variables.** The 10-item (Smokowski, 2011) NC-ACE Violent Behavior Checklist was used to measure adolescent violent behaviors and asked parents how often (i.e., never, once, sometimes, or often) their child exhibited specific violent behaviors (e.g., “Hit or kicked someone,” “Beaten somebody up,” and “Used any weapon in a fight”) in the last 6 months. In the current sample, the Cronbach’s  $\alpha$  for this scale was .80.

A 29-item subscale from the parent-reported Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) was used to measure externalizing behaviors. Parents were asked to indicate the extent to which each behavior is true for their child. Items included, “Argues a lot,” “Disobedient at school,” and “Impulsive or acts without thinking.” Response options for each item use a 4-point scale ranging from *not true* (coded 1), *somewhat or sometimes true* (coded 2), *very true* (coded 3), or *often true* (coded 4). The subscale had a Cronbach’s  $\alpha$  of .94 for this sample.

All scales were calculated by adding the individual items and then dividing by the number of items answered for that scale. If less than half the scale items were answered, the scale score was considered missing data. This procedure helps to minimize the impact of missing data and puts the scale range in the original Likert scale metric.

## Procedure

Parents received the Parenting Wisely program in one of the four delivery formats: (a) parents-only workshop; (b) parents and adolescents 5-week group; (c) parent-only 5-week group; and (d) self-paced online format for parent and adolescent dyads. Parents were assigned to a format based on their preference and availability.

The workshop format ( $n = 52$ ) involved facilitators delivering the Parenting Wisely program to parents during an intense 1- or 2-day group session in which parents worked through the video enactments of family conflicts using a single, large screen. Although the workshop included role-plays and activities, time for discussion, processing, and skills training was severely limited.

The parent and adolescent 5-week group ( $n = 29$ ) was a facilitator-led group in which the participants worked through the video enactments together on a large screen and participated in role-plays and activities. This format provided ample time for discussion, processing group concerns, and skills training.

The parents-only 5-week group ( $n = 25$ ) was also a facilitator-led group in which the participants worked through the program on a large screen and participated in role-plays and activities. This format also provided ample time for discussion, processing group concerns, and skills training.

The self-paced online format for parents and adolescents ( $n = 38$ ) was a slight variation of the traditional Parenting Wisely implementation method in which individual dyads of parents and adolescents work together without any facilitation to complete the program. This format uses the standard online curriculum that displays video vignettes, prompts for parenting

solutions, and provides feedback on choices. The online format does not include additional skills training or extra activities.

Each parent participant was asked to fill out the assessment package before participating in the Parenting Wisely program (pretest) and then again at program completion (posttest). Each of the measures previously described in this article was completed at pretest and posttest with the exception of the CSQ, which is a posttest-only measure. Each parent received \$10 compensation for each completed assessment package.

Parenting Wisely was implemented according to the original program model (i.e., viewing the videos and answering the questions). All participants received the same program manual with identical lesson content. Watching videotaped vignettes designed by the program developers and answering questions and quizzes after each vignette standardizes essential lesson content. All participants completed the nine sessions in the Parenting Wisely curriculum. Consequently, the critical differences between the study conditions were defined by whether

- participants completed the program by themselves (online) or in a group setting,
- whether their adolescent child was present for the program,
- whether the group met for one or two long, intense sessions or for shorter sessions over 5 weeks, and
- whether the implementation was enhanced with role-playing and activities to help maximize parent learning of the standard lesson content.

## Statistical Analysis

Homogeneity of variance tests showed no statistically significant differences in variances among the delivery formats on most outcome variables, except problem solving, violent behavior, and the parenting self-efficacy pretest. A series of dependent groups (i.e., paired sample) *t*-tests were conducted to measure mean differences between pretest and posttest for each Parenting Wisely format. The procedure computes the differences between values of the pretest and posttest variables for each case and tests whether the average differs from 0. Given the large number of *t*-tests (i.e., 40), a Bonferroni-corrected  $\alpha$  level (.001) was used. Because Bonferroni adjustments are quite conservative, previous researchers (e.g., Duffany & Panos, 2009; Shek, Siu, & Lee, 2007) have reported significance based on both adjusted and unadjusted  $\alpha$  levels. Following this convention, we present results that are significant at the unadjusted and adjusted  $\alpha$  levels. Primary analysis used an unadjusted  $\alpha$  level of .05. Using this analysis, we present effects based on an  $\alpha$  level of .001 adjusted for making multiple comparisons. A one-way analysis of variance (ANOVA) was also conducted to evaluate between-group difference on the CSQ across the four formats. These analyses are appropriate, given the current study’s exploratory goals to determine whether the program influenced change in family functioning, child behavior, and parenting skills and if Parenting Wisely format affects program effectiveness.

## Results

### *Program Effectiveness for Parents in Target Community*

Our first research question focused on whether the Parenting Wisely program was an effective intervention when used with parents who lived in a low income, ethnically diverse, rural community. Our results indicate that parents from the target community (i.e., low-income, ethnically diverse, rural community) benefited from their participation in the Parenting Wisely program. We found evidence of program effects demonstrated by statistically significant changes (pretest to posttest) in the desired direction on measures of problem solving, family roles, affective involvement, behavior control, general functioning, parenting sense of competence, parenting self-efficacy, parent-child conflict, and adolescent violent and aggressive behavior. Table 2 presents pretest and posttest scores by delivery method, *t*-statistics, and Cohen's *d* ES.

### *Impact of Delivery Format on Program Effectiveness*

Our second research question focused on whether the delivery format used to implement Parenting Wisely influenced the program effectiveness. We found that the delivery format not only clearly influenced the effectiveness of the program but also that some delivery formats displayed ES dramatically higher than the ES of other formats. For the family process outcomes, scores on problem solving differed significantly between pretest and posttest for the parent and adolescent 5-week group ( $p < .05$ ) and the parents-only 5-week group ( $p < .001$ ). The ES was .33 for the parent and adolescent 5-week group and .59 for the parents-only 5-week group. Scores on family roles were statistically significant between pretest and posttest for the workshop format ( $p < .01$ ), parent and adolescent 5-week group ( $p < .001$ ), and parents-only 5-week group ( $p < .001$ ), with ES of .37, .78, and .51, respectively. Scores on affective involvement were significantly different between pretest and posttest for the parents-only 5-week group ( $p < .001$ ), with an ES of .41. Scores on behavior control were significantly different between pretest and posttest for the workshop format ( $p < .05$ ) and parents-only 5-week group ( $p < .01$ ), with ES of .24 and .38, respectively. Finally, differences between pretest and posttest measures of general functioning were statistically significant for the parent-only 5-week group ( $p < .01$ ) and the self-paced parent and adolescent online format ( $p < .05$ ), with ES of .40 and .23, respectively.

For some of the Parenting Wisely formats, we found significant changes between pretest and posttest scores on the two adolescent behavior scales (i.e., violent behavior checklist and CBCL). Specifically, scores on the violent behavior checklist decreased significantly between pretest and posttest for the parent and adolescent 5-week group ( $p < .001$ ) and the parent and adolescent online format ( $p < .01$ ), with ES of .20 and .13, respectively. Scores on the CBCL-externalizing scale differed significantly between pretest and posttest for the parent and adolescent 5-week group ( $p < .01$ ), the parents-only 5-week

group ( $p < .01$ ), and the parent and adolescent online format ( $p < .05$ ); ES were .29, .18, and .20, respectively.

Each of the parenting scales revealed a statistically significant change between pretest and posttest for at least three of the four Parenting Wisely formats. First, significant differences in pretest and posttest scores were found on the measures of parenting sense of competence and parenting self-efficacy for all four Parenting Wisely formats. Specifically, parenting sense of competence for the workshop format ( $p < .01$ ) was associated with an ES of .25; for the parents and adolescents 5-week group ( $p < .01$ ), the ES was .48; for the parents-only 5-week group ( $p < .001$ ), the ES was .70; and the parent and adolescent online format ( $p < .001$ ) was associated with an ES of .55. Scores on parental self-efficacy for the workshop format ( $p < .001$ ) were associated with an ES of .52; for the parents and adolescents 5-week group ( $p < .001$ ), an ES of .84; for the parents-only group ( $p < .01$ ), an ES of .88; and for the parent and adolescent online format ( $p < .01$ ), an ES of .75. Finally, differences in parent-child conflict scores between pretest and posttest were statistically significant for the parents and adolescents 5-week group ( $p < .01$ ), the parents-only group ( $p < .01$ ), and the parent and adolescent online format ( $p < .01$ ), with ES of .47, .22, and .28, respectively.

Based on the extant research literature, we hypothesized that as compared with the two parent-only formats, the two Parenting Wisely formats that included adolescents as participants would result in greater positive changes in family functioning, adolescent behavior, and parenting confidence. However, we found that integrating adolescents in program delivery was more effective for family roles, adolescent violent behavior, externalizing problems, and parent-child conflict. On the other outcomes (i.e., problem solving, affective involvement, behavior control, general functioning, parenting sense of competence, and parenting self-efficacy), we had to reject this hypothesis that integrating adolescents in parenting intervention significantly improves outcomes.

We also hypothesized that delivery in a group setting over 5 weeks that provided parents with structured activities, time, and support to practice new skills would be more effective than either online delivery or as a 1- or 2-day group workshop. This hypothesis was not only supported for all of the outcomes considered but also the ES for some outcomes were nearly double for group administration as compared with online or brief workshop administration.

Given the number of *t*-tests performed, our secondary analysis used a conservative Bonferroni adjusted  $\alpha$  level of .001. After this adjustment, the following pretest to posttest differences remained significant: problem solving for parents-only group; roles for both the parents and adolescents 5-week group and the parent-only group; affective involvement for parents-only group; violent behavior checklist for parents and adolescent 5-week group; parenting sense of competence for both the parents-only group and the parent and adolescent online format; and parenting self-efficacy for both the workshop (parent-only) and the parents and adolescents 5-week group formats. This conservative  $\alpha$  level suggests 99.99%



**Table 2.** Descriptive Statistics, *t*-Statistics, and Effect Sizes From Pretest to Posttest.

	<i>N</i>	Pretest		Posttest		<i>t</i> ( <i>df</i> )	Cohen's <i>d</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
<b>Problem solving</b>							
Parents-only workshop	52	2.989	0.397	3.055	0.299	−1.155 (51)	
Parents and adolescents 5-week group	29	3.200	0.553	3.366	0.478	−2.227 (28)**	0.326
Parent-only 5-week group	25	3.072	0.476	3.328	0.412	−3.9 (24)*	0.587
Parent and adolescent online	38	3.074	0.445	3.163	0.344	−1.535 (37)	
<b>Roles</b>							
Parents-only workshop	52	2.190	0.481	2.354	0.427	−3.21 (51)**	0.365
Parents and adolescents 5-week group	29	2.006	0.397	2.344	0.475	−3.8 (28)*	0.786
Parent-only 5-week group	25	2.050	0.552	2.327	0.560	−4.9 (24)*	0.508
Parent and adolescent online	38	2.237	0.550	2.377	0.527	−1.785 (37)	
<b>Affective involvement</b>							
Parents-only workshop	52	2.699	0.510	2.749	0.451	−1.098 (51)	
Parents and adolescents 5-week group	29	2.921	0.458	2.975	0.452	−0.752 (28)	
Parent-only 5-week group	25	2.709	0.540	2.945	0.631	−4.1 (24)*	0.410
Parent and adolescent online	38	2.823	0.573	2.838	0.513	−0.271 (37)	
<b>Behavior control</b>							
Parents-only workshop	52	3.113	0.411	3.209	0.388	−2.246 (51)**	0.242
Parents and adolescents 5-week group	29	3.065	0.391	3.142	0.356	−1.362 (28)	
Parent-only 5-week group	25	3.320	0.362	3.457	0.382	−3.0 (24)**	0.375
Parent and adolescent online	38	3.298	0.500	3.304	0.396	−0.073 (37)	
<b>General functioning</b>							
Parents-only workshop	52	3.053	0.404	3.077	0.410	−0.689 (51)	
Parents and adolescents 5-week group	29	3.129	0.477	3.227	0.435	−1.348 (28)	
Parent-only 5-week group	25	3.147	0.442	3.323	0.455	−3.25 (24)**	0.402
Parent and adolescent online	38	3.066	0.511	3.178	0.455	−2.496 (37)**	0.230
<b>VBC</b>							
Parents-only workshop	52	0.492	0.426	0.435	0.387	2.362 (51)	
Parents and adolescents 5-week group	29	0.516	0.439	0.434	0.386	4.12 (28)*	0.202
Parent-only 5-week group	25	0.688	0.119	0.700	0.117	−0.355 (24)	
Parent and adolescent online	38	0.482	0.368	0.437	0.327	2.820 (37)**	0.125
<b>CBCL externalizing</b>							
Parents-only workshop	52	0.409	0.371	0.394	0.394	0.722 (51)	
Parents and adolescents 5-week group	29	0.505	0.366	0.409	0.303	3.545 (28)**	0.292
Parent-only 5-week group	25	0.568	0.430	0.496	0.394	3.066 (24)**	0.180
Parent and adolescent online	38	0.453	0.250	0.402	0.252	2.534 (37)**	0.199
<b>PSOC</b>							
Parents-only workshop	52	4.048	0.762	4.233	0.750	−2.99 (51)**	0.247
Parents and adolescents 5-week group	29	3.803	0.550	4.065	0.557	−2.84 (28)**	0.481
Parent-only 5-week group	25	3.920	0.590	4.329	0.605	−4.2 (24)*	0.699
Parent and adolescent online	38	4.043	0.676	4.403	0.682	−4.6 (37)*	0.546
<b>PSE</b>							
Parents-only workshop	52	3.432	0.437	3.663	0.459	−3.9 (51)*	0.521
Parents and adolescents 5-week group	29	3.251	0.749	3.779	0.504	−4.1 (28)*	0.842
Parent-only 5-week group	25	3.180	0.708	3.684	0.430	−2.88 (24)**	0.879
Parent and adolescent online	38	3.074	0.820	3.666	0.852	−3.45 (37)**	0.752
<b>CBQ Parent-child conflict</b>							
Parents-only workshop	52	6.519	5.989	5.981	5.782	1.83 (51)	
Parents and adolescents 5-week group	29	9.103	6.020	6.586	4.952	3.537 (28)**	0.465
Parent-only 5-week group	25	9.320	6.625	7.880	6.604	3.166 (24)**	0.222
Parent and adolescent online	38	7.789	6.456	6.158	5.258	3.119 (37)**	0.275
<b>CSQ</b>							
Parents-only workshop	52			4.320	0.570		
Parents and adolescents 5-week group	23			4.329	0.487		
Parent-only 5-week group	25			4.404	0.508		
Parent and adolescent online	38			4.512	0.416		

Note. CBCL = Child Behavior Checklist; CBQ = Conflict Behavior Questionnaire; CSQ = Consumer Satisfaction Questionnaire; *df* = degrees of freedom; *M* = mean; PSE = Parenting Self-efficacy scale; PSOC = Parenting Sense of Competence scale; *SD* = standard deviation; VBC = Violent Behavior Checklist.

\*Indicates significance at Bonferroni-adjusted  $\alpha$  level ( $p < .001$ ). \*\*Indicates significance at unadjusted  $\alpha$  level ( $p < .05$ ), two-tailed test.

confidence that the stated effects are real and not a statistical artifact.

Results of the one-way ANOVA revealed that no significant differences existed on measures of program satisfaction (CSQ) between Parenting Wisely formats,  $F(3, 134) = 1.18, p = .320$ . All formats had equivalently high consumer satisfaction ratings, averaging more than a rating of 4 on a 5-point scale, with higher values indicating greater satisfaction.

## Discussion and Applications to Social Work

The current study makes an important contribution to the implementation science literature because it explores the effectiveness of Parenting Wisely when implemented with differing delivery formats, which is a previously unstudied influence on program effectiveness. Regarding the research questions, the results suggest that, overall, Parenting Wisely yields positive changes and that the delivery format influences program effectiveness. Intervention researchers should carefully consider these findings because many studies have compared the intervention condition to a control group without accounting for differences in delivery formats or considering which intervention delivery format was optimal for program effectiveness in the sample population. Further, as dissemination of empirically supported interventions becomes more widespread, adaptations to the delivery of the program are inevitable; however, such adaptations should be based on the most current implementation science.

Group delivery over 5 weeks in a setting that provided parents with structured activities, time, and support to practice new skills was more effective than either online delivery or delivery via a group workshop. For some outcomes, ES were nearly double for group delivery as compared with either online delivery or delivery through a brief workshop. In addition, we found substantial positive changes in family roles and family problem solving, but only for the facilitator-led group formats (i.e., workshop, parents and adolescents 5-week group, and parents-only 5-week group). Further, the effects were greatest for the 5-week groups as compared to the brief 1- or 2-day workshops, as evidenced by differences in ES. One potential explanation of the greater changes in family roles and problem solving found in the 5-week groups might be that when the multiweek format was combined with facilitation, the resulting program allowed more time for role-plays and structured activities, which enabled the participants to practice newly learned skills and behaviors (Smokowski & Bacallao, 2009).

The overall superiority of group delivery contrasts with previous work in parenting intervention that showed delivery of parent-training content for economically disadvantaged parents was significantly more effective when delivered in an individual setting than in a group setting (Lundahl et al., 2006). However, our sample was clearly economically disadvantaged (see Table 1) but showed the opposite result. Delivery of Parenting Wisely in an individual setting through the online administration had modest effects on general family functioning, youth violence and aggression, parent-adolescent conflict,

parenting self-efficacy, and parenting sense of competence. Nevertheless, these effects were consistently smaller than the effects produced in the group delivery settings.

Kaminska et al. (2008) reported a consistent association of larger ES with having parents practice new skills with their children during the parent-training session. Similarly, Smokowski and Bacallao (2009) demonstrated the superiority of action-oriented activities in parenting groups by showing sustained program effects 1 year after the intervention ended. Our study results add to this scholarship on the importance of incorporating role-playing and other structured activities in parenting interventions.

Beyond the influence of group delivery, we also found that constituents of the audience receiving the parenting training affected program effectiveness. Integrating parents and adolescents in a group format proved beneficial for family roles, adolescent violent behavior, externalizing problems, and parent-child conflict; however, the results were less clear for the other outcomes. For example, relative to the groups that included adolescents, the parents-only group had larger ES for problem solving, affective involvement, behavior control, general functioning, parenting sense of competence, and parenting self-efficacy. This finding suggests that parents were more honest and open about certain topics when adolescents were not present. Perhaps parents did not want to reveal to their adolescent children that they have struggled with establishing rules, solving problems, displaying affective involvement, or being in control. Parents might be concerned that such revelations would diminish their child's respect for the parent or might fear that their adolescents could exploit this potential weakness. This area is an important focus for future research. Research on parent-training interventions that include adolescents should focus on what topics parents are and are not comfortable discussing in the presence of their adolescents because it appears that these concerns influence outcomes.

The current study also contributes to scholarship on Parenting Wisely by testing the intervention effects on adolescent aggressive behavior and violence. Previous studies assessed the influence of Parenting Wisely on these domains as measured by the Eyberg Child Behavior Inventory (Eyberg & Ross, 1978), which measures problem behaviors in younger children (e.g., bed-wetting, temper tantrums, whining, or crying easily). This study provided preliminary data showing significant, though modest, effects on decreasing serious problem behaviors in adolescents, including aggression and violence. In the parents and adolescents 5-week group, we found a moderate effect ( $ES = .29$ ) showing decreased parent-reported externalizing problems. Other delivery formats displayed small effects. This level of impact on serious aggressive behavior is noteworthy for a relatively brief parenting intervention.

The greatest changes in parent-reported adolescent behavior between pretest and posttest were generally reported for the formats that included adolescents. This finding suggests that including adolescents and parents as co-participants in the program can lead to greater changes in adolescent behavior; a finding that is consistent with previous research. Specifically, Kaminska and colleagues (2008) found the programs that

included a component that required parents to practice skills with their children during the training session were consistently related to higher ES. Further, this finding has implications for the way in which parent-training interventions are categorized. For example, a meta-analysis of parent-training interventions reported no significant differences existed in child behavior outcomes between interventions categorized as “parent-only” and those categorized as “parent-child interventions,” which were defined as interventions which offered child therapy sessions that were separate from the parents’ training sessions (Lundahl et al., 2006). Under this categorization scheme, interventions in which both parents and children were participants in the parent-training sessions were not differentiated from the parent-only interventions. However, our study results indicate that researchers should differentiate between these two formats because it appears that the participation of adolescents in the Parenting Wisely program was associated with greater changes in adolescent aggression and violence.

Study results show that one domain improved regardless of delivery format: confidence in parenting. Moreover, parenting self-efficacy, which measured parents’ confidence in applying specific skills learned in the program, increased significantly between pretest and posttest for all the delivery formats. The largest ES for parenting self-efficacy were associated with the parents-only group (ES = .88), parents and adolescents 5-week group (ES = .84), the parent and adolescent online format (ES = .75), and the workshop format (ES = .52). Parenting sense of competence, which measured parents’ confidence in parenting in general, differed significantly between pretest and posttest for the parents-only group (ES = .70), the parent and adolescent online format (ES = .55), the parents and adolescents 5-week group (ES = .48), and the workshop format (ES = .25). Several of these ES are large and should be considered noteworthy for a relatively brief family intervention. Parenting Wisely clearly appears to increase parents’ confidence in their ability to effectively manage child behavior problems.

Improvement in parent-child conflict was also significant for all of the formats, with the exception of the workshop format. This finding suggests that the intense, abbreviated workshop is not as effective at influencing the fundamental nature of the parent-child relationship even though the workshop format appears to effectively influence confidence in parenting skills. The greater length of time over which the program was delivered in the group settings and the online format provided parents with the time to practice newly learned skills and receive feedback from facilitator or staff member (in the case of the online format) on their real-life experiences. Receiving feedback might have improved the parents’ effective use of skills and thereby reduced parent-child conflict. Opportunities to receive such feedback were not readily available to participants in the workshop setting. Although workshop participants were encouraged to check-in with the facilitators after the workshop, few participants did so. Perhaps future workshop facilitators should initiate follow-up contact with parents, so they can work through some of the issues parents might have in implementing the parenting skills.

Despite the differential changes on outcomes among Parenting Wisely formats, overall participant satisfaction did not vary significantly across delivery formats. Parents who participated in Parenting Wisely were generally highly satisfied with their experience and indicated that they would likely recommend the program to a friend.

These results must be interpreted in light of the study’s limitations. The results of this study are limited to the current sample. The parents who participated in this intervention were members of a low-income, ethnically diverse, rural community in the Southeastern United States. Caution is warranted in generalizing these results to other communities in similar circumstances. Although the external validity of the results is limited, research on this population is an important addition to the literature.

Another limitation is the lack of a no-treatment comparison group. It is possible that the observed changes between pretest and posttest were due, at least in part, to bias associated with history, regression to the mean, normal developmental change, or testing effects. Without a no-treatment comparison group, these threats to internal validity cannot be discounted. We did not include a no-treatment comparison group in this pilot study because our priority was to serve as many families as possible with the intervention. However, the next stage of our research includes collecting data from a no-treatment comparison group.

Selection bias might be present in the sample because parents volunteered to participate in the Parenting Wisely program. It is possible that this self-selected sample of parents was different than the general population of parents in the target community; perhaps the participating parents were more motivated to improve their parenting skills. In addition, parents were assigned to treatment formats based on their preferences and availabilities. This nonrandom assignment presents another potential source of selection bias. For example, parents who were available and preferred to participate in group-delivered formats might differ in important ways from parents who were not available or preferred not to participate in group formats. Similarly, parents who elected to participate with their adolescent might have qualitatively different relationships with their children than parents who elected to participate alone. This study was an exploratory investigation that sets the stage for a more rigorous randomized controlled trial of Parenting Wisely implementation formats. As such, our current results should be considered preliminary.

The small sample sizes in our delivery formats did not provide sufficient power to conduct more sophisticated multivariate data analyses. As we continue to conduct the intervention and collect data, we will have more latitude for using advanced statistical techniques and adding covariates to predictive models.

Finally, the current study did not include any long-term follow-up assessments, making it impossible to ascertain whether the observed changes were sustained over time. We are currently collecting 6-month follow-up assessments that will further our understanding of the persistence of intervention effects for Parenting Wisely.

Despite these limitations, the preliminary evidence provided by this study shows that Parenting Wisely is effective in helping disadvantaged parents in a rural community. Further, the evidence from this study clearly shows that implementation format influences outcomes. Future research should incorporate more rigorous research designs to evaluate the effectiveness of the various formats used to deliver Parenting Wisely. However, it appears that Parenting Wisely has mounting evidence supporting its usefulness for clinical social workers working with parents and families. The strongest effects were observed for delivery in a group setting over a 5-week period. Clinicians using this program should ensure that participants are provided with opportunities for skills practice and active exploration of parenting themes as well as opportunities to receive regular feedback. The inclusion of adolescents as participants within parenting sessions enhances the effects of the treatment on most outcomes.

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