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Decreasing Substance Use Risk Among African American Youth: Parent-based Mechanisms of Change

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Abstract

African American couples (N = 139; 67.7% married; with children between the ages of 9 and 14) were randomly assigned to (a) a culturally sensitive, couple- and parenting-focused program designed to prevent stress-spillover (n = 70) or (b) an information-only control condition in which couples received self-help materials (n = 69). Eight months after baseline, youth whose parents participated in the program, compared with control youth, reported increased parental monitoring, positive racial socialization, and positive self-concept, as well as decreased conduct problems and self-reported substance use. Changes in youth-reported parenting behavior partially mediated the effect of the intervention on conduct problems and fully mediated its impact on positive self-concept, but did not mediate effects on lifetime substance use initiation. Results suggest the potential for a culturally sensitive family-based intervention targeting adults' couple and parenting

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Compliance with Ethical Standards

Ethical approval. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent. Informed consent was obtained from all individual participants included in the study.

processes to enhance multiple parenting behaviors as well as decrease youths' substance use onset and vulnerability.

Keywords

African American; prevention; couples; parenting; substance use; adolescence

Youth substance use is a serious problem in the United States. By late adolescence, 78% of youth had consumed alcohol, 47% had reached regular drinking levels defined as at least 12 drinks within a given year, and 15% met criteria for lifetime abuse (Swendsen et al., 2012). Although African American youth tend to use alcohol at lower rates than do their European American peers, more than 10% of ninth-grade students and 23% of African American high school seniors report recent binge drinking (CDC, 2008). Mounting evidence also suggests that the consequences of substance use are greater for African Americans than for their European American peers (Zapolski, Pederson, McCarthy, & Smith, 2014). Thus, identifying effective strategies for reducing African American youth's risk for substance use, as well as strengthening protective factors that may enhance resilience, can confer substantial immediate and long-term benefits, strategies that also may generalize to other groups (cf. Hughes et al., 2006).

Family-based interventions, including programs targeting African American parenting and parent-child interactions, have had very promising effects on the delay and reduction of substance use during adolescence (Brody et al., 2006; MacPhee et al., 2015). African American parents, however, often confront chronic stressors related to limited economic resources, exposure to neighborhood violence, experiences with racial discrimination, and marital instability. According to the stress-spillover literature, these stressors can reduce parents' capacity to engage in positive co-parenting practices and increase their likelihood of using nonsupportive practices (e.g., Nelson et al., 2009). Experiencing high levels of stress can be particularly detrimental for family functioning because of its capacity to erode protective processes that would otherwise engender resilience in the family (e.g., Neff & Karney, 2009). For parenting specifically, studies show that interparental relationship problems, including disagreements about parenting, strongly predict the quality of the parenting experience (Cummings, Goeke-Morey, & Graham, 2002). Consequently, family-based psychoeducational interventions may be improved if they address not only effective parenting practices but also the couple relationship as a vehicle for enhancing the extent to which parents can effectively apply the parenting and co-parenting strategies taught in the intervention (see Beach et al., 2014; Epstein et al., 2015; McHale, Salman-Engin, & Coovert, 2015).

Theory of Change

Consistent with other family-centered substance use prevention programs (Brody et al., 2004), we hypothesized that intervention-related changes in parenting behaviors would function as mechanisms (i.e. mediators) through which the intervention exerts its effects on youth outcomes. In the current study, we examined the intervening effects of two aspects of parenting behaviors, parental monitoring and racial socialization. Parental monitoring, which

includes keeping track of children's activities and affiliations, has been associated across multiple studies with inhibition of substance use during adolescence (Dever et al., 2012; Lippold, Greenberg, Graham, & Feinberg, 2014). Racial socialization reflects the process by which parents convey messages about race to their children; it is also a primary mechanism through which minority youth develop a positive racial identity (Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004; Neblett et al., 2008). Racial socialization practices have been associated with positive self-concept in minority youth and are postulated to reduce youth substance use (Neblett, Terzian, & Harriott, 2010), although this assertion has not yet been tested empirically.

Both parental monitoring and racial socialization appear to be important processes for parents of African American adolescents. Few extant programs, however, have considered both processes simultaneously in predicting youth outcomes. Most interventions do not include racial socialization, and evaluations of programs that include both processes have examined them as indicators of a latent parenting variable (Brody et al., 2004). Thus, it remains unknown whether (a) family-based prevention programs can exert change in each type of parenting behavior, and (b) intervention-induced changes in these key parenting processes confer benefits across multiple domains of youth functioning or are specific to particular developmental domains.

Extension to Two-Parent Families

The current study also extends the basic and applied literature on African American families and the prevention of substance use through its focus on two-parent families with an adolescent. Prior research on family processes affecting African American youth development typically has focused on aspects of relationships between children and their single parents (e.g., Bean, Barber, & Crane, 2006). Even when research on African American families has focused on co-caregiving, studies typically have examined single mothers' interactions with nonparental co-caregivers, limiting generalizability to two-parent African American families (e.g., Gonzalez et al., 2014). With more than one-third of African American children residing in two-parent households (Child Trends, 2014), however, an exclusive focus on single-mother-headed households does not represent accurately the variety of family structures within the African American community or acknowledge pertinent factors influencing many youth's development.

Several family-centered programs have been designed to promote positive development and deter substance use among African American youth (e.g., Brody et al., 2006; Brody et al., 2012; MacPhee, et al., 2015). These programs, however, are limited in several important ways. First, most family-centered prevention programs for African American youth have focused exclusively on the parent-child relationship, failing to address the needs and dynamics of two-parent households, in which co-parenting and couple relationship processes may play a key role in youth well-being (Cummings et al., 2002). Because of the salience of the interparental relationship to the parent-child relationship, scholars have emphasized the potential value of using the adult dyad as a point of intervention to change parenting (e.g., Knox, Cowan, Cowan, & Bildner, 2011), and some recent research of prevention programs has begun to emerge supporting this view (see Beach et al., 2014; Barton et al., 2015;

Epstein et al., 2015; McHale et al., 2015). By working with both parents together, positive changes in parent-youth relationships may be more readily initiated and maintained (DeGarmo, Patterson, & Forgatch, 2004). Second, African American men often are reluctant to participate in prevention programs, including couple-focused programs (Hurt et al., 2012). Thus, existing interventions typically influence only part of the family and do not address critical issues within the father-youth relationship, parents' couple relationship, and co-parenting relationship.

Description of the ProSAAF curriculum

Building on the success of other efficacious parent training interventions such as Prosper and Strengthening Families Program (see MacPhee et al., 2015) and leveraging findings from stress-spillover theory, the Protecting Strong African American Families (ProSAAF) program was developed to meet the needs of African American couples raising pre-adolescent and adolescent youth in the rural South. ProSAAF was designed to enhance family functioning holistically by targeting couple and parenting relationships to promote positive interactions among couples and to enhance positive youth development, including substance use resistance. Using previously tested parenting components from SAAF (Brody et al., 2004) and components of couple relationship enhancement included in an earlier version of ProSAAF (Beach et al., 2014), all components were revised and new material was added. Program presentation clarified that the relationship focus was in the service of enhancing coparenting and better protecting youth from the negative influences of economic stress and discrimination. The program was presented in a psychoeducational framework.

Consistent with past prevention research (e.g., Brody et al., 2004), we developed an intervention model and a curriculum manual based on protective processes identified in prior research (e.g., Beach et al., 2014; Brody et al., 2004). In addition to leveraging material from existing programs, the current ProSAAF program included content related to positive couple interactions, specific dimensions of protective parenting, and couple team work in the face of economic adversity and other daily stressors. To facilitate delivery feasibility, facilitators were drawn from local communities and the program employed a video driven, psychoeducational format. A detailed accounting of costs and considerations for implementation is planned for a companion manuscript that is in preparation.

The program comprises six 2-hour sessions and uses an "in-home" delivery format to maximize fathers' participation. Sessions focused primarily on parents, with youth involved in only the final 30 minutes of each session. Within each session, time was devoted to both couple issues and parenting/co-parenting issues. Specific couple issues targeted in the program included positive things in the partnership, daily hassles and burdens, and communication skills, particularly active listening and recognizing the way that emotional states may compromise listening. Specific parenting/co-parenting issues included parental monitoring, family rules, and building Black pride in children. Each session began with a focus on a particular domain of stress that African American couples experience (e.g., work, racism, money, kinfolk), and couples were instructed in cognitive and behavioral techniques for handling stressors. Session content then transitioned into encouraging the development of other protective couple and parenting processes. In each session, particular emphasis was

given to partners' use of enhanced communication in response to daily stressors and engagement in pro-relationship behaviors and cognitions that increase collaborative processes in areas such as couple conflict, parental monitoring, and racial socialization. Early content focused on the couple's relationship and provided a foundation for later discussion of aspects of parenting and co-parenting.

Specific Hypotheses

In sum, the purpose of the current study was to assess the short-term efficacy of the ProSAAF program for families participating in a randomized controlled trial. Specifically, we examined the effect of the intervention on parenting practices as well as on youth risk and protective factors for substance use. Youth outcomes of interest included early initiation of substance use, conduct problems, and positive self-concept, all of which have been noted to render youth vulnerable to future substance use (see Fite et al., 2014; Windle & Windle, 2012). We also determined whether changes in parenting processes would mediate any identified effects of the intervention on youth outcomes. This study examined several interrelated hypotheses:

1. Two facets of youth-reported parenting, parental monitoring and racial socialization, will change pre-to-post intervention as a function of participation in ProSAAF.
2. Youth substance use initiation and potential vulnerability factors for future use (i.e., conduct problems and negative self-concept) will improve in response to the ProSAAF intervention.
3. Parental monitoring will prove to be most consequential for preventing increases in conduct problems and substance use initiation, whereas racial socialization will be most consequential for fostering positive self-concept.
4. ProSAAF effects on parental monitoring and racial socialization will mediate the intervention effects on conduct problems, positive self-concept, and initiation of substance use.

Method

Participants

Participants in the study were African American couples with a pre-adolescent or adolescent child. All participants lived in small towns and communities in Georgia in which poverty rates are among the highest in the nation and unemployment rates are above the national average (Proctor & Dalaker, 2003). It was not possible to target the specific population of interest. Accordingly, we sent out 3712 letters to likely families, but 1199 were lost because they did not respond and we had no phone contact information. Another 1311 with phone contact information were lost after three failed attempted phone calls. This left 1202 families to be screened. Of these, 719 met one or more exclusion criteria (e.g., single parent household; family enrolled in another program; child not within the age limits; child not African American), and 277 declined to participate (e.g., not interested; male caregiver refused; family could not schedule appointments). The remaining 206 were randomized to

intervention (n = 105) or control (n = 101) conditions. Some families were unavailable for eight month post-test either because their post-test was still pending (n = 15 intervention; n = 19 control) or because of difficulties preventing data collection (n = 20 intervention; n = 13 control). The consort diagram is provided in figure 1. In total, pre- and post-intervention data were collected from 139 families (70 intervention; 69 control) who met all study criteria. Of the randomized sample assessed at post-test, 67.7% percent were married, with an average marital duration of 10 years (range 0 – 34 years). Fathers' mean age was 40 (range 26 – 69) and mothers' mean age was 37 (range 25 – 64). Although only one partner was required to be African American, all adults in the sample self-identified as African American. Men's median education level was high school or GED (ranging from less than grade 9 to a doctorate or professional degree) and women's median education level was some college or trade school (ranging from less than grade 9 to a master's degree). The majority of men (79.6%) and women (61.0%) reported full- or part-time employment. Mean monthly income was $1,894 (range $200 – $5,000) for men and $1,195 (range $0 – $6,000) for women). The target adolescent's mean age was 10.92 years at enrollment in the program (range 9 – 14). Total number of children residing in the home ranged from 1 to 8, with a mean of 2.92.

Procedures

Families were primarily recruited to the project through lists provided by schools. Schools in 16 counties provided information of youth potentially meeting criteria and staff contracted families to determine their eligibility. To be eligible, families were required to self-identify as an African American couple with a child between the ages of 10 and 13. Couples had to be living together, partnered for 2 years or more, and co-parenting the target child together for at least 1 year. Both parents and the youth had to be willing to answer questions about their experiences inside and outside of the family. Couples had to be willing to spend 6 weeks engaged in an in-home educational program if they were randomly assigned to the intervention condition and not to be planning to move out of the study area during the intervention period. The target child also had to express willingness to participate in the individual and family portions of the session. Adults were compensated with a $50 check and youth with a $20 gift card for completing each wave of data collection.

Families were informed about the study by mail and phone based on school lists as well as through study advertisements. Those who responded were screened for eligibility. If eligible, families were randomly assigned to control or treatment condition following completion of pre-test measures. Block randomization was performed by county of residence and marital status to ensure group equivalence. For pre-test measures, project staff visited couples' homes, explained the study in more detail, and obtained participant consent and, for youth, minor assent. Parents and target children then completed their pre-test assessments using audio computer-assisted self-interviewing (ACASI) software installed on laptop computers. Families were visited for post-test an average of 9.4 months after pre-test. Project staff again visited participants' homes, and participants completed post-test measures using ACASI software installed on laptop computers.

Retention

Given the home-based model of implementation, participant enrollment and program implementation occurred on a rolling basis. Study hypotheses were tested with 139 families who had completed their post-test assessments. Attrition did not vary by condition.

ProSAAF implementation—A trained African American facilitator visited each couple's home for 6 consecutive weeks and facilitated a 2-hour session with co-parenting adults and children. All facilitators had received 40 hours of training in program content, facilitation and delivery methods, and adherence to the program manual. Facilitators were drawn from communities similar to those being served. All facilitators had either a bachelor degree or higher and /or had two or more years providing prevention programming or home visits in rural Georgia. Families participated in six primary sessions (with 97% participating in all six). The facilitator guided couples through video instruction and modeling, structured activities, and specific topics for discussion. The first 60 minutes of each session focused on the couple's relationship. The next 30 minutes of each session focused on parenting topics (e.g., school, peers, children's development, discipline). The facilitator then met with the target child for a youth activity (e.g. self-esteem, peer pressure, understanding parents) while the couple took a break in a different room. After the 15-minute youth activity, the entire family came back together to meet with the facilitator for a 15-minute family activity (e.g., discussions, games). One booster session was scheduled approximately 2 months after program completion and approximately 2 months before post-test assessment, was used to reinforce material covered during the main course of instruction, and 91.5% of intervention families participated. This implementation model included multiple components designed to achieve high rates of participation and retention among fathers and father figures, including refinement of engagement protocols and use of a home-based implementation model.

Control group—Couples in the control group were assessed on the same schedule as those in the intervention group, thereby controlling for effects of repeated measurement, maturation, individual differences, and external social changes. Couples were mailed the book, "12 Hours to A Great Marriage" (Markman, Stanley, Blumberg, Jenkins, & Whiteley, 2004), and an accompanying workbook after baseline. This book provides reasons for enhancing the marital relationship, guidelines and examples of communication and problem-solving strategies, and exercises that individuals and couples could implement to enhance their relationships.

Measures

Parental Monitoring—The Parental Monitoring Scale comprises 10 questions in which youth report the extent to which each parent takes the initiative to ask what the youth will be doing, where the youth will go and with whom, when the youth will come home, and check on the youth when he or she is away from home. The 10 items (5 for mother's and 5 for father's monitoring) were summed to create a scale with a theoretical range of 0 to 40 (observed range 0 to 40), and an alpha of .89 at pre-test and .91 at post-test. This scale has been utilized by researchers in previous research on parental monitoring by African American primary caregivers and has demonstrated good psychometric properties (Brody et al., 2004).

Racial Pride Socialization—The Racial Pride Socialization Scale comprises two items in which youth report the extent to which each parent "reminds me of why I should be proud of being African American." This scale represented an abbreviation of existing measures of African American parents' racial pride socialization, which have demonstrated good predicted validity (see Lesane-Brown, Scottham, Nguyen, & Sellers, 2006; Neblett et al., 2008) The two items were summed to create a scale with a theoretical range of 0 to 8 (observed range 0 to 8), and an alpha of .90 at pre-test and .87 at post-test.

Conduct Problems—Conduct problems were assessed using the Self-Report Delinquency scale (SRD; Elliott & Ageton, 1980). Thirteen items from the SRD were used to assess the number of times in the past 6 months youth reported engaging in mild acts of delinquency (e.g., shoplifting, vandalism, getting into fights). The total score for each individual was calculated by summing the number of acts that the youth reported committing at least once. The observed range was from 0 to 13 (Wave 1) and 0 to 9 (Wave 2). Cronbach's alpha for the scale was .79 at pre-test and 0.68 at post-test.

Positive Self-Concept—Two scales were used to assess youth's self-concept. The first was the 20-item Center for Epidemiological Studies-Depression scale (CES-D; Radloff, 1977). The CES-D assessed symptoms of depression such as "how often were you bothered by things that usually don't bother you?" and "how often did you feel depressed?" in the past week; response options ranged from 0 (*Rarely or none of the time [0-1 days]*) to 3 (*Most or all of the time [6-7 days]*). Items were averaged to create a scale with a theoretical range of 0 to 3. The observed range was 0 to 1.8. Feelings of pride in being Black were assessed with a 15-item scale adapted from Sellers and colleagues' (1997) Inventory of Black Identity (IBI) Centrality and Private Regard scales. Items were reworded based on focus group feedback, and several items were added as positive and negative exemplars of Black pride. The current measure included items such as, "I feel good about Black people" and "I believe that because I am Black I have many strengths," with a response set that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Items were averaged to create a scale with a theoretical range of 1 to 5. The observed range was 2.64 to 5. Cronbach's alphas for the CES-D were 0.77 at pre-test and 0.74 at post-test; for the IBI scale, alphas were 0.63 at pre-test and 0.62 at post-test, not dissimilar from previous research using items from this scale (e.g., Murry, Berkel, Brody, Gibbons, & Gibbons, 2007).

Substance Use Initiation—Substance use initiation was assessed based on youth's self-reported use of cigarettes, alcohol, and marijuana. For each substance, youth were asked if they had ever used that particular substance in their lifetimes (1 = *yes*). Given low rates of usage, responses across each substance were summed and then recoded into a binary variable (1 = *reported use of any substance in lifetime*).

Treatment Fidelity—All sessions were audiotaped to allow monitoring of treatment implementation. A subsample of sessions was coded for adherence to intervention guidelines, with 20% being coded by more than one rater on a scale of 0 to 100% adherence. All facilitators contributed to the sample of tapes to be rated. The intraclass correlation

between raters was .94. Mean fidelity adherence score across facilitators was 92.1% (SD = 7.10).

Plan of Analysis

We first assessed group equivalence on sociodemographic measures and study variables. Following these comparisons, we executed a series of analyses using structural equation modeling (SEM) using Mplus 6.11 software (Muthén & Muthén, 2010). As no variables in the analyses originated from parents' reports, dyadic data considerations were not pertinent to analyses. To test Hypotheses 1 and 2, we examined two models examining the effect of the intervention on changes in parenting and youth outcomes, respectively. A third model examined parenting processes as mediators of the intervention's effects on youth outcomes. To determine whether parenting processes demonstrated developmentally specific effects on youth outcomes (Hypothesis 3), pathways from each parenting process to a particular youth outcome were constrained to be equal and the resulting model fit compared to the model fit from the unconstrained model using a likelihood ratio test, with significant differences in model fit indicating that the constrained pathways differed significantly. Conduct problems represented a count variable with many zero responses and was modeled using a zero-inflated Poisson distribution. To determine whether intervention-induced changes in parenting mediated changes in youth outcomes (Hypothesis 4), we calculated indirect effects following procedures for multiple mediation (Preacher & Hayes, 2008). As bootstrapped analyses are excluded in Mplus for models with endogenous count variables, we conducted two parallel, multiple mediation models for testing indirect effects. The first model (Model 4a) involved non-categorical outcomes, permitting the testing of indirect effect significance levels via bootstrapping. The second model (Model 4b), involving the categorical variable of conduct problems, tested indirect effects using the Sobel test (Sobel, 1982). Missing data was minimal (<1% on all variables) and handled using full information maximum likelihood estimation.

Results

Treatment and Control Groups Equivalence & Descriptive Statistics

Equivalence analyses were conducted to verify similarity of couples in treatment and control conditions (see online supplement S2). No baseline differences were observed between conditions for family characteristics such as education, marital status, age of child, parental monitoring, racial socialization, conduct problems, positive self-concept, or substance use initiation. Groups differed on age of adults, with ProSAAF couples being, on average, around three years older; analyses of intervention effects therefore controlled for couple's average age. Table 2 presents the means, standard deviations and correlations among study variables.

Intervention Effects on Parenting Behaviors and Youth Outcomes (Hypotheses 1 and 2)

Table 3 summarizes the direct effect of the intervention on changes in youth's assessments of parenting processes (Model 1) and of their own outcomes (Model 2). With pretest levels of the variables controlled, youth from ProSAAF families reported significantly greater gains from pre-test to 9.4 months after baseline in parental monitoring compared with

control-group families; group differences in racial pride socialization closely approached significance ($p = .05$). Youth in the ProSAAF group also reported significantly greater declines in conduct problems and lower levels of substance use initiation than did youth in the control group. ProSAAF adolescents also made greater gains in positive self-concept than did control youth. Thus, results supported Hypotheses 1 and 2, in that facets of youth-reported parenting as well as youth's substance use vulnerability would differ between ProSAAF and control families.

Differential Effects of Parenting Processes on Youth Outcomes (Hypothesis 3)

We then examined a model to test if intervention-induced changes in parenting processes were linked to changes in youth outcomes (Model 3). As shown in Figure 2, Wave 2 levels of monitoring and racial pride socialization were associated with significantly lower increase in conduct problems over the 9-month period. Wave 2 racial pride socialization predicted greater increase in positive self-concept. Wave 2 parenting processes, however, did not predict substance use initiation.

We then executed two nested models in which the effects of parenting processes on conduct problems and positive self-concept, respectively, were constrained to be equal. Model fit of each nested model was then compared to the fit with the original model. For conduct problems, model fit for the constrained model was not significantly different from that of the unconstrained model (likelihood ratio [LR] = 2.58, $p = .07$), indicating that the effects of change in parental monitoring and racial pride socialization on change in conduct problems did not differ significantly. For positive self-concept, the fit of the constrained model was significantly different from that of the unconstrained model (LR = 6.74, $p < .01$), indicating that the effects of change in parental monitoring and racial pride socialization on change in positive self-concept differed. Thus, Hypothesis 3 regarding specificity of parenting process effects on youth outcomes was supported for positive self-concept but not for conduct problems.

Effect sizes were computed as standardized coefficients (β) for continuous variables, odds ratio (OR) for dichotomous variables and Incident rate ratio (IRR) for count variables. We found that youth assigned to ProSAAF reported more positive parenting (0.37 standard deviations higher for parental monitoring, 0.35 standard deviations higher for racial pride socialization), and reported positive self-concept that was 0.18 standard deviations higher than youth in the control group. Likewise, odds of reporting substance use were 89% lower for youth in the ProSAAF condition, and count of conduct problems was 44% lower for ProSAAF youth.

Mediational Analyses (Hypothesis 4)

To test our hypothesis that changes in parenting processes would mediate the effect of treatment condition on changes in youth outcomes, total and specific indirect effects (IEs) were quantified for the association between intervention status and each youth outcome through changes in parental monitoring and racial pride socialization. Consistent with our hypothesis, analyses indicated that intervention-related effects linked to reductions in youth conduct problems and increases in positive self-concept were partially or completely

attributable to changes in parenting processes. The total IE for ProSAAF participation on self-concept was .08 with a bootstrapped 95% confidence interval (CI) of [0.004, 0.177]. For conduct problems, the total IE of the intervention's effect through changes in parenting processes was -.16 and the corresponding significance level was $p = .03$. As noted parenthetically in Figure 2, after accounting for changes in parenting, participation in ProSAAF remained associated with conduct problems but not with youth self-concept. These results suggest that ProSAAF increased youth positive self-concept by improving parental monitoring and racial socialization; they also suggest that ProSAAF decreased youth conduct problems through a combination of improved parental monitoring, enhanced racial socialization, and additional pathways. The bootstrapped CIs for the total and specific IEs for the association between intervention status and substance use initiation all contained zero, suggesting that the program reduced substance use initiation through pathways other than those examined in the current study.

Discussion

The ProSAAF program was developed to maximize the impact of a family-centered intervention on health-promoting outcomes for African American pre-adolescent and adolescent youth. In contrast to previous programs, ProSAAF targeted couple *and* parenting dimensions to prevent spillover from economic and other contextual stressors that could influence parenting interactions. In the current study, we empirically tested both the short-term efficacy (average of 9.4 months after baseline) of this program for youth outcomes and a model of change based on intervention-targeted parenting constructs. Chief outcomes of interest for youth were risk and protective factors associated with later substance use problems (i.e., substance use initiation, conduct problems, positive self-concept). Further, we examined the possibility that specific aspects of parenting might mediate program effects on specific youth outcomes.

Analyses of program efficacy supported the causal effects of ProSAAF on both parenting and youth outcomes. Specifically, consistent with our hypotheses, rural African American parents who participated in ProSAAF experienced increases in parental monitoring and positive racial socialization with medium effect sizes. Youth experienced a small, but significant, increase in positive self-concept, a decrease in conduct problems, and a relatively large decrease in early substance use initiation compared to those in the control group. However, because of the low absolute rates of use of any substance in either group and potential for substance use misreporting at young ages, this effect size estimate is likely unstable and should be interpreted with caution. On average, these changes were assessed approximately 9.4 months after the initial baseline assessments and 5 months after the ProSAAF intervention concluded.

We used the context of a preventive intervention to test causal hypotheses regarding family interactions and youth development. Changes in parenting processes fully mediated the effect of ProSAAF on youths' positive self-concept and partially mediated program effects on youths' conduct problems. Consistent with our expectations, intervention-induced increases in parental monitoring predicted reductions in conduct problems, but not increases in positive self-concept. Intervention-induced increases in racial socialization, however,

predicted increases in positive self-concept as well as decreases in conduct problems. These results support the contentions of researchers about the importance of racial socialization in prevention programs for African American youth to enhance their impact on both affective and behavioral outcomes (Coard, Wallace, Stevenson & Brotman, 2004; Mandara, 2006).

The significant effects of ProSAAF on multiple domains of youth development are also notable. As positive youth development represents a constellation of factors (Lerner, Lerner, & Benson, 2011), strengthening youth competency in multiple areas offers the potential for broader impact on important developmental issues. Although not empirically tested in the current study, these domains may influence each other over time, facilitating a self-reinforcing spiral of positive development. If so, parenting pathways that begin by targeting one area of youth strength and resilience may, over time, amplify the effect of positive changes in other domains.

Given ProSAAF's focus on the couple (rather than parent-child) dyad, the current results suggest considerable potential for increased attention to couple and co-parenting processes in family-based preventive interventions. A focus on working with couples in addition to parent-child dyads may increase the effectiveness of parents' messages by increasing consistency across sources, helping parents more effectively deliver key messages and carry out key parenting activities. At a practical level, parents may sometimes offer a useful focus of intervention for family-based programs designed to build greater youth resilience. The relative utility of a parent focus compared to a more direct adolescent focus is likely amplified by a range of factors, including the extent to which youth are already at risk for problems at baseline. Examination of factors with potential to predict differential responses deserves explicit empirical attention in studies that can directly contrast parent- vs. adolescent-focused interventions.

Several limitations in this study should be addressed in future research. First, results are only applicable to short- to -moderate-term program impact; it is unknown whether ProSAAF participation will continue to deter the development of risk factors and promote positive youth development in the long-term or whether the hypothesized vulnerability factors will be related to future substance use. Second, the study focused only on youth outcomes in relation to competence-promoting parenting practices that the program targeted. Future analyses with the complete sample will be required to test for treatment effects in other areas including couple adaptive processes and coping with economic distress and other stressors. Third, future work is warranted to examine variability in program effects on adult and child outcomes by family structure. Lastly, future work will be needed to examine the potential for wider-ranging impacts on biological markers of health and longer-term trajectories of substance use.

These limitations notwithstanding, the results of this prevention trial are particularly important to the families who participated in this study, as few empirically based programs designed to strengthen couple and parenting process and deter youth risk behaviors are available for this population. Findings support continued examination of family-centered preventative interventions with a focus on co-parenting as a means to deter the development of risk factors for substance use among rural African American youth. Continued research is

needed into the long-term effects of such programs on multiple family sub-systems. Likewise, a focus on cost-effective approaches to dissemination, and methods for bolstering participation within the targeted populations is needed, a point underscored by the fact that over half those approached failed to respond, and over half those deemed eligible declined to participate. Although it is premature to advocate for widespread adoption of co-parent focused programs to enhance youth outcomes, the current research suggests the value of continued attention to this mode of intervention in enhancing resilience among African American youth.

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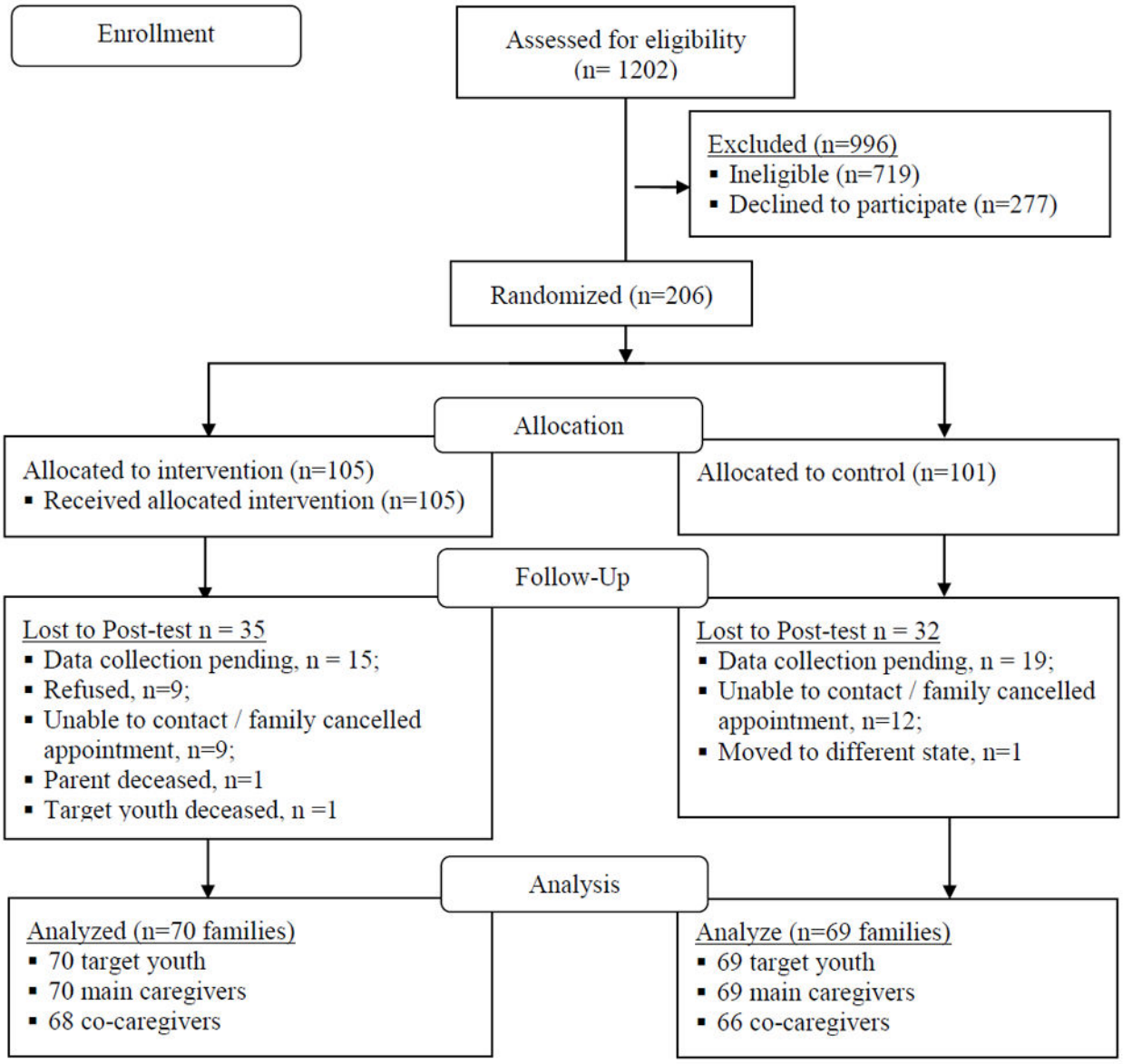

Figure 1.
CONSORT flow diagram.

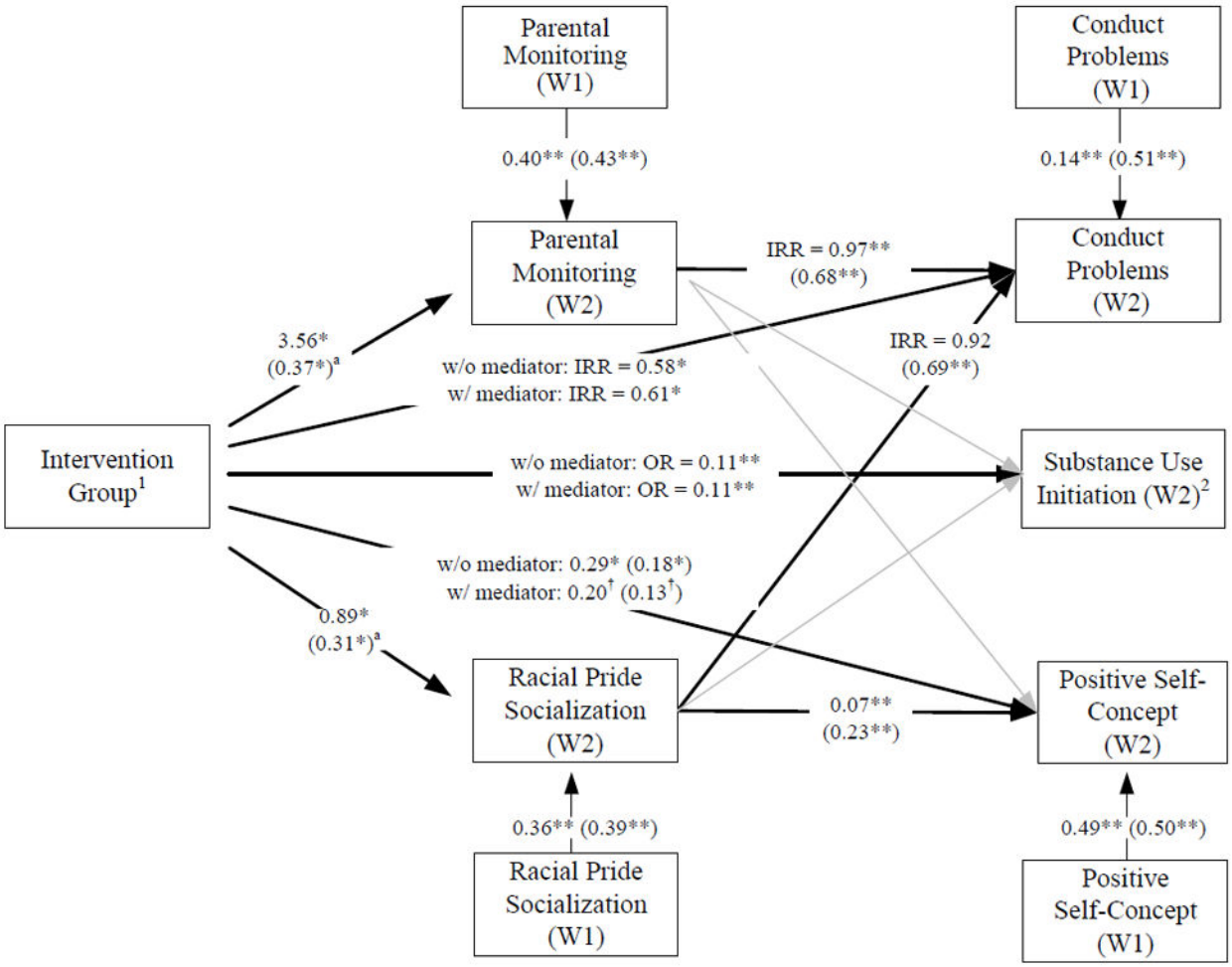

Figure 2.

Effect of Intervention on Changes in Parenting and Youth Outcomes (N = 138 families). *Note*: 1 = ProSAAF Condition. 2 = Reported using substance use in lifetime. A = standardized coefficient calculated from standardized dependent (but not independent) variable (given dichotomous independent variable). OR = Odds Ratio. IRR = Incident Rate Ratio. W1 = Wave 1. W2 = Wave 2. Values presented are unstandardized parameter estimates; standardized parameter estimates are presented in parentheses (standardized parameter estimates are not presented when binary variable predicting non-continuous outcome). Parents' age controlled for in all endogenous variables; target gender controlled for in all youth outcomes. Covariance (*cov*) between parenting processes not shown for clarity purposes (W1: $cov = 10.11$, $p < .01$; W2: $cov = 9.17$, $p < .01$). Grayed lines are non-significant paths included in model. Model fit information: AIC = 4173.16; BIC = 4284.40; $BIC_{adj} = 4161.18$; $H_0 = -2048.58$. $df = 38$. $^{**}p \leq .01$; $^{*}p \leq .05$, $^{\dagger}p \leq .10$ (two-tailed test).

Table 1

Descriptive Statistics for Treatment and Control Groups (N = 139 families)

	Treatment (n = 70)		Control (n= 69)		*Test*
	Mean	***SD***	***Mean***	***SD***	***Statistic***
Demographic characteristics					
Married[a]	0.70	na	0.66	na	0.85
Length of marriage	10.54	7.29	9.33	6.07	0.76
Number children in home	3.07	1.48	2.75	1.27	1.34
Education (fathers)	5.22	1.69	7.15	12.93	1.13
Education (mothers)	5.97	2.05	5.83	1.63	0.44
Age of adults (fathers)	42.03	10.07	38.56	8.13	1.98*
Age of adults (mothers)	38.10	8.34	35.75	6.03	1.86†
Age of target child	10.89	0.87	11.14	0.85	1.64
Gender of target child[b]	0.50	na	0.61	na	0.23
Study Variables					
Parental monitoring	26.74	10.32	27.71	10.43	0.55
Racial pride socialization	4.31	3.07	3.70	3.18	1.17
Conduct problems	1.34	2.11	1.57	2.21	0.61
Positive self-concept	-0.02	0.80	0.02	0.82	0.25
Substance use initiation	0.11	na	0.17	na	1.00

Notes. T-test for continuous and ordinal variables; Chi-squared cross-tab statistic for binary variables.

[a] 1 = Married (0 = Cohabiting).

[b] 1 = Male (0 = Female).

* $p \leq .05$;

† $p < .10$ (two-tailed tests).

Table 2

Correlation Matrix for the Study Variables (N = 139)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Intervention[a]	---											
Baseline												
2. Parental monitoring	-.037	---										
3. Racial pride social.	.081	.320**	---									
4. Conduct problems	-.049	-.086	-.132	---								
5. Positive self-concept	-.031	.021	.007	-.284**	---							
Post-test												
6. Parental monitoring	.187*	.427**	.260**	.056	.069	---						
7. Racial pride social.	.172*	.175*	.438**	-.015	.053	.466**	---					
8. Conduct problems	-.161	-.173*	.010	.264**	-.329**	-.223**	-.238**	---				
9. Positive self-concept	.139	.044	.071	-.217*	.502**	.216*	.311**	-.426**	---			
10. Substance use initiation	-.353**	-.025	.011	.137	.046	-.030	-.148	.227**	-.048	---		
Controls												
11. Child sex [b]	-.122	-.051	-.109	.095	-.009	-.114	-.009	.115	.131	.081	---	
12. Parents' age	.224**	-.004	.150	.051	.030	.186*	.068	-.016	.054	.062	-.114	---
Mean	.50	27.22	29.65	4.01	4.84	1.45	1.20	0.00	0.00	0.18	.55	38.57
SD	na	10.35	9.71	3.13	2.94	2.15	1.67	0.81	0.82	na	na	7.54
Range	0-1	0-40	0-40	0-8	0-8	0-13	0-9	-2.61-1.22	-2.45-1.47	0-1	0-1	26.5-63.5

[a] 1 = ProSAAF assignment.

[b] 1 = male.

** $p \leq .01$;

* $p \leq .05$;

† $p < .10$ (two-tailed tests)

Table 3

Direct Effects of ProSAAF on Parenting and Youth Outcomes (N = 138)

Outcome (at post-test)	Coefficient	SE	*t*
Model 1: Parenting Outcomes			
Parental Monitoring			
Intervention	3.56	1.46	2.43*
Pretest	0.40	0.06	6.27**
Parents' age	0.19	0.10	1.92†
Racial Pride Socialization			
Intervention	0.89	0.46	1.95†
Pretest	0.36	0.07	5.35**
Parents' age	-0.01	0.03	0.31
Model 2: Youth Outcomes			
Conduct Problems			
Intervention	-0.54	0.22	2.42*
Pretest	0.13	0.05	2.60**
Parents' age	0.00	0.02	0.02
Child gender	0.11	0.21	0.53
Substance use initiation[1]			
Intervention	-2.25	0.64	3.54**
Parents' Age	0.07	0.03	2.26*
Child Gender	0.32	0.51	0.63
Positive self-concept			
Intervention	0.29	0.12	2.38*
Pretest	0.51	0.08	6.69**
Parents' age	0.00	0.01	0.22
Child gender	0.26	0.12	2.17*

Note:

[1] Yes. Model 1 fit statistics: $\chi^2(6)=7.34$, $p = .29$. CFI = 0.99. TLI = 0.98. RMSEA = 0.04. Model 2 fit statistics: AIC = 833.740; BIC = 880.576; BIC_{adj} = 829.957. 1 observation was not included in Mplus analyses due to missing data on x-variables that did not meet requirements of Mplus software missing data estimator to be including in analyses.

** $p \leq .01$;

* $p \leq .05$;

† $p < .10$ (two-tailed tests)