COVER PAGE

The Dedicated African American Dad Study

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Study Protocol & Statistical Analysis Plan

Overall Study Design

The study was a randomized clinical trial comparing the effects of a 12-week, 9-session fatherhood intervention, Building Bridges To Fatherhood (BBTF), to an attention control Financial Literacy Program (FLP) for AA non-resident fathers. Both conditions had a booster session at 18 weeks. At the booster session, the BBTF intervention group met to problem-solve around remaining challenges to positive father involvement and to refresh the content offered during the 12-week program. The attention control FLP condition met to discuss progress towards acquiring financial literacy, but without mention of fatherhood or father involvement. AA non-resident fathers were randomly assigned to the two conditions. This study used a block randomization procedure to facilitate equitable distribution of fathers into the BBTF and FLP conditions. Data collection began in study year 2 and continued for 2 years. During each wave's 12 weeks of recruitment, there were six blocks with four participants in each block. Each block was constructed with an equal number of BBTF and FLP assignments. Data collection was done at baseline, immediately post intervention (12 weeks), and 3 months post intervention (24 weeks).

The BBTF sessions and FLP control sessions were held at community colleges or community neighborhood sites. The study was conducted in a series of 6 waves over 96 weeks, alternating from westside sites southside sites over 96 weeks. Each wave began with 12 weeks of recruitment at community locations in proximity to the site. After the intervention and control groups had been recruited at each site, the two conditions began in parallel. The BBTF intervention and FLP control groups met on different nights and in different locations at the facility in order to minimize contamination. Once the groups began at one site, recruitment began for the next wave that was to be conducted at the alternate site. This design minimized historical contamination within a site because of the 12-week hiatus between the beginning of one series of groups and the end of the previous groups.

Subjects and Setting

Inclusion Criteria. Inclusion criteria were: (1) AA biological father of a child 2 to 6 years old; (2) child lived with father no more than 48 hours per week (e.g., spends the weekends with his or her father); and (3) the child lived with the biological mother (or other custodial relative such as grandmother) in the metropolitan Chicago area. These fathers are referred to as AA non-resident fathers. Additional criteria included: (1) child's mother willing to consent to complete the child assessments--[this criterion was amended in order to allow fathers access to program content even when mothers were unwilling to complete research measures]; (2) child's mother amenable to facilitating opportunities for fathers to interact with their children in order to practice skills learned in the program; and (3) father able and willing to travel to one of two intervention sites to attend a weekly program. The study was limited to fathers with a target child aged 2-6 years. The rationale for this limit was based on the developmental phase when families are most vulnerable to decreased father involvement and children are highly dependent on parenting for their growth and development.

Exclusion criteria included: (1) fathers with histories of child abuse, neglect, or violence perpetuated against the child or the child's mother (based on mother or father report).

The city of Chicago is composed of 77 community areas identified by numbers. We recruited fathers from the approximately 171,000 AA men between the ages of 18 and 65 residing in 13 predominantly AA (73-98%) community areas. These mostly low-income community areas (median income $13,596-$43,728), with 23% to 55% of incomes below poverty level. Based on data that reveals that more than two-thirds of AA children live in homes without their biological fathers,[1,2] we are confident that the communities will serve as rich recruitment sites for AA non-resident fathers. We identified two conveniently located sites to conduct the programs, one located on Chicago's West Side and the other located on Chicago's South Side.

Power Analysis. Previous research[107] suggests that an intervention that is similar to BBTF could produce an improvement in father engagement (d = .42).[108] Assuming an effect size of d = .42, a one-tailed alpha of .05, and a sample size of 144 participants (72 per group), we obtained a power of .80 for this design. Assuming a 20% dropout rate, the total sample needs to be 180 participants, 90 per group.

Sample Recruitment. Three recruiters, ethnically matched to the participants and with ties to the community, were trained in minority outreach by the research team to establish relationships with fathers that supported recruitment. They were also trained to give presentations about the program to community groups. It was essential that the data collectors hired were comfortable in low-income communities, highly personable, and very patient (particularly when parents failed to show up for appointments). All program advertisements included a brief description of a self-improvement program for AA fathers, featured photographs of scenes of fathers meeting together, and provided a number to call and e-mail address for further information. We continued with the highly successful active (recruiters meet directly with potential participants) and passive (potential participants are prompted to contact the staff) recruitment strategies used in our extensive prior work in low-income Chicago communities.[95,104,105] Recruiters met with key informants already identified from churches, barbershops, community centers, schools, day care centers, local business establishments, dry cleaners, and sports venues to obtain the anticipated broad reach. Key informants were given brochures/flyers to pass on the information to potential participants. In addition, notices were placed in church bulletins and community newspapers. Active strategies included giving presentations at community churches and other community gathering places.

Fathers who meet inclusion criteria were informed that half of the fathers in the study would be randomly chosen to participate in the intervention group or the control group. Fathers had to agree to this procedure. After informed consent was obtained and baseline measures were completed, randomization took place. Block randomization assignments were kept in sealed envelopes in the research office in the order in which they were generated and then communicated by the project director to the data collector via text message, who was blind to the assignment prior to consenting and enrollment. The intervention and control groups began simultaneously at the end of the 12-week recruitment period

Sample Retention. We continued with the successful strategies that resulted in 80% retention in prior community-based studies.[47,106] First, the sessions were offered at two sites convenient to public transportation and with free parking. Participants were reimbursed for the cost of public transportation for coming to and from the study sites for the sessions and data collections (round-trip public transit card or $10 gas card). They received a $40 gift card after completing each of the three data collections. At the sessions, they were given a healthy drink and snack. Three times during the BBTF program (Weeks 4, 8, and 12), there were no scheduled session. To enhance fathers' opportunities for spending time with their child and serve as a motivator for continued involvement in the BBTF program, they were given a $30.00 activity voucher for these weeks. Our prior work with fathers suggested that this was a retention strategy that was highly valued by AA fathers who were often seeking opportunities and resources for spending fun, engaging, and educational time with their children.[9,47,109] We identified multiple means of remaining in contact with fathers including: work, home, and cell phone numbers; noted if they accepted text messages; home and e-mail addresses; and the contact information of three friends, relatives, or coworkers who would know how contact them should their phone service be terminated or mailing address change. Fathers received two reminder telephone calls, text messages, or e-mails two days prior to and the day of each group session and data collection. Fathers were given the opportunity to have the baseline, 12- and 24-week data collections either at the community college or another location of their choosing, such as their homes.

Mothers received a $40 gift card for completing child outcome and father involvement assessments. Data collection for the mothers at baseline, 12 and 24 weeks was conveniently conducted via phone administration, mailed paper-and-pencil survey or online via SurveyMonkey (based on the mother's preference). Our intent was to ensure that the process of collecting data from the mother was not overly burdensome. Contact information was obtained as with the father.

Procedures

Fathers were given an explanation of the study in person or over the phone. This included informing them that half of the fathers in the study would be randomly chosen to participate in the intervention group and half in the control group. Fathers who were interested gave verbal consent to be screened for eligibility criteria. Fathers were also: (1) asked for the mother's contact information (home phone, work phone, cell phone, and e-mail), (2) provided a letter to give the child's mother informing her of the study and asking her to contact us within one week if not interested in participating. All mothers who did not contact us were contacted for consent and data collection. If mothers were interested, arrangements were made to meet them at a place of their convenience (e.g., their home, work, community gathering place). Mothers were also given the opportunity to complete data collection via telephone interview. The father's written consent was obtained at first contact (if in person), or we scheduled to meet at a place of his convenience. These consent strategies were successfully used in preliminary study. After obtaining fathers' and mothers' written consent, baseline measures were administered. Baseline father questionnaires were father outcomes, paternal involvement, father-mother relationship quality, and child outcomes. Baseline mother questionnaires were child outcomes, paternal involvement, and father-mother relationship quality. Fathers were then assigned to one of the two conditions. Fathers in both conditions participated in three 3-week sessions, each of which was followed by a break week (total of 12 weeks); and participated in a booster session at 18 weeks. The BBTF and FLP were held at the community colleges or other their community (South or West Side of Chicago) with two trained group leaders. A cohort of 12-15 fathers will be assigned to each condition. The program sessions for both conditions begin with a greeting, a healthy snack, and the introduction of their respective program material. Data collection occurred again at 12 and 24 weeks. They received reminder calls two to three times in the week before each of the nine program sessions, the booster session, and the three data collections (baseline, 12, and 24 weeks). Fathers received a $40 gift card and mothers received a $40 gift card at baseline, 12, and 24 weeks for completion of measures administered at those times.

Data Analysis Data analysis is described with respect to the three specific aims and hypotheses that were tested. Missing data was imputed using SAS Proc MI, a multiple imputation computer program based on the work of Rubin.[131] All continuous data was examined for statistical normality. Histograms were obtained for these variables, and skew and kurtosis were assessed in order to assess statistical normality. Where possible, we normalized these data using Tukey's ladder of transformation[132] before conducting statistical analysis. SPSS for Windows (Version 11) and SAS (Version 9.1) was used for data management and statistical analysis. A two-tailed 0.05 significance level was used for all statistical tests except where noted below. All analyses were performed on an intent-to-treat basis. Outcome measures that could be successfully transformed to achieve normality were in all likelihood close enough to a normal distribution that the robust nature of the F-test made it possible to obtain reasonable p values in the study.

Descriptive statistics on the sample data for all research variables were obtained. In addition, one-way ANOVAs and chi-square analysis on the demographic and baseline research measures were performed between the intervention and control groups to determine that they

were comparable. The effects of participant attrition on the research variable were also assessed using one-way ANOVAs.

Hypothesis 1: **Relative to the attention control condition, BBTF program fathers will report better father outcomes (psychological well-being, parenting competence, and father-mother relationship quality) and greater paternal involvement (material support, in-kind support, father-child interaction) at 12 weeks and 24 weeks.**

Data analysis were a repeated measures analysis of variance (RM-ANOVA) to address Hypothesis 1. The basic design for these analyses was a 2x3 design with three assessment time points (the within-subjects factor) crossed with the two treatment conditions (BBTF and the comparison group [the between-subjects factor]). The null hypothesis for all these analyses was that changes for all dependent measures (psychological well-being, parenting competence, father-mother relationship quality, material support, in-kind support, and father-child interaction) would remain constant for the two groups over time. The alternative hypothesis was that they would increase over time in the BBTF group relative to the control group. This was the interaction effect in the RM-ANOVA. An initial multivariate analysis was be conducted first to see if there was any overall effect. If the null hypothesis was rejected in the multivariate analysis, we examined the univariate analyses. We tested for violations of sphericity, and if they were in evidence, then a Greenhouse-Geisser correction was used to estimate probability values.

In order to determine when these changes occurred across the three assessment time points, a follow-up analysis was conducted with time reparameterized into a set of two orthogonal Helmert contrasts. The two contrasts were of the form (1, -1/2, -1/2; 0, 1, -1), where if the first contrast was significant, this indicated that the critical differences occurred between times 1 and 2; and if the second was significant, the changes took place between times 2 and 3. This informed us as to the transition point or points where the velocity changes were greatest between the treatment and comparison groups.

Hypothesis 2: **Across both conditions, father outcomes and post-intervention ratings of father-mother relationship quality will mediate paternal involvement at 12 weeks and 24 weeks.**

This analysis used a regression approach to mediation analysis, as that described in MacKinnon, 2008.[133] This approach looked at the extent to which changes in paternal involvement over time were explained by changes in the father outcomes and the mother-father relationship in both the treatment and control groups. This effect was estimated using a series of three regression analyses. The dependent variable (a measure of paternal involvement) at Time 2 (12 weeks) was regressed on a dummy-coded treatment variable and the same paternal involvement measure at Time 1 (baseline). Then the mediators (father outcomes and mother-father relationship) were included in the regression models, and the change in R-squared was used to determine their impact. These analyses were repeated for Times 1 and 3 (24 weeks).

Hypothesis 3a: **Relative to the attention control group, BBTF children will have improved child outcomes (behavioral, emotional, and social) at 12 weeks and 24 weeks.**

The analysis of Hypothesis 3a was directly parallel those described for Hypothesis 1. The only difference was in the dependent measures, which were be child outcomes instead of paternal involvement outcomes.

Hypothesis 3b: **Across both conditions, father outcomes, father-mother relationship and paternal involvement will mediate child outcomes at 12 weeks and 24 weeks.**

This analysis used the same regression approach to mediation analysis described in Hypothesis 2, with the only differences being that the outcome variable was the child outcomes

rather than paternal involvement; paternal involvement acted as a mediator along with father outcomes and father-mother relationship.