



Recruitment, Retention, and Intervention Outcomes from the Dedicated African American Dad (DAAD) Study

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Abstract A significant proportion of African American (AA) fathers live in households apart from their young children. This living arrangement can have detrimental effects for children, families, and fathers. One hundred seventy-eight ($n = 178$) AA fathers, not residing with their 2–6-year-old children, were enrolled in a randomized trial to test the Building Bridges to Fatherhood (BBTF) program against a financial literacy comparison condition. BBTF is an intervention that was developed collaboratively with a fathers' advisory council of AA fathers who oversaw all aspects of program development. Based upon advisory council feedback, short video scenes captured fathers interacting with their children, their children's mothers, and other fathers. These video scenes were used to jump start the discussion around fatherhood, parenting, communication, and problem solving during the intervention group meetings. The actors in the video scenes were recruited from the community. Two trained group leaders, using a

standardized group leader manual, delivered the intervention. The Money Smart Financial Literacy Program (MSFLP), which served as the comparator, was also delivered by AA men. Program satisfaction was high in both conditions. Even so recruitment and retention challenges influenced the ability to detect father and child outcomes. This study informs the participation of vulnerable urban AA fathers in community-based fatherhood intervention research and provides insight into bolstering engagement in studies focused on this population.

Keywords Fatherhood · Interventions · African American · Recruitment · Retention

Introduction

Although 2.3 million African American (AA) fathers live with their children, there are 1.7 million who do not [1]. AA families have the greatest percentage of children who live apart from their fathers [2], and these non-resident fathers are an understudied and vulnerable population [3]. Father non-residency can exert a negative influence on men's health and contribute to lower father involvement [4, 5]. Beyond residency status, there are a number of additional factors that influence father involvement, such as fathers' age, education, employment status, social support, mental health, marital status, and relationship with the child's mother [4, 6–10]. Thus, the phenomenon of father involvement for non-resident fathers is complex and multi-faceted.

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Most attention to the impact of father involvement is focused on child outcomes, possibly because of the plethora of literature demonstrating that positively involved fathers, even when they are nonresident, play key beneficial roles in the lives of their children [11, 12]. For example, the positive involvement of non-resident fathers contributes to children's academic achievement, behavioral, emotional, psychological, and social well-being; and the quality of involvement has been found to matter more than the quantity of involvement [13].

Fatherhood Interventions

In light of these positive findings, policymakers have advocated for fatherhood initiatives that strengthen father involvement [14]. More researchers have turned their attention towards developing and testing interventions to support positive and enduring involvement among non-resident fathers [15–17]. Additionally, the evaluation of randomized clinical trial interventions designed to support father involvement among diverse non-resident fatherhood populations is slowly emerging as a field of inquiry [15].

Recruitment and Retention

Preventive fatherhood interventions, designed to promote positive family interactions, have been impacted by recruitment, engagement, and retention challenges [18, 19]. Evidence suggests that recruiting, engaging, and retaining African American fathers in preventive interventions can be even more complex than engaging less diverse fathers [19]. This complexity is likely due to the multiple logistical factors that may influence fathers' ability to participate in interventions such as location, timing, and intentional focus on fathers [20]. The degree of participation in the intervention impacts study outcomes because of the importance of dosage in determining intervention efficacy. There are gaps in knowledge related to fathers' engagement (level of participation [21–23]; and retention (adherence to study protocol and maintenance in the study [24–26]; in fatherhood interventions.

Fatherhood intervention participation may be particularly desirable in vulnerable families because of the need to marshal all available parenting support for the benefit of children. Yet, in families with challenging societal contexts, optimal participation may be less likely. Therefore fatherhood interventions must align with the cultural perspectives of participants while also

considering potential challenges to recruitment, engagement, and retention. The findings from this study provide valuable insights into understanding the engagement of AA non-resident fathers in preventive fatherhood interventions. *The two-fold purpose of this paper is to report the outcomes of the Dedicated African American Dad (DAAD) study and lessons learned related to engaging AA non-resident fathers in a fatherhood intervention.*

Method

Sample Recruitment

We conducted a randomized controlled trial (RCT) of two fatherhood interventions. Data were collected from fathers via in-person interviews at their location of choice at three time points (baseline, post-intervention, and 6-month post-baseline). Mothers were recruited into the study as data informants who provided data via telephone interview on father involvement and child outcomes according to the same schedule. Father and mother reports of relationship quality were collected in order to test whether father-mother relationship quality and father outcomes mediated intervention effects on paternal involvement.

The study was approved by the University Institutional Review Board. A Certificate of Confidentiality was obtained in order to protect the privacy of participants' sensitive information. Fathers were eligible to participate if they were the AA biological father of a child 2–6 years of age; the child stayed in the father's home no more than 48 h per week (i.e., weekends), and the father could spend time with the child who lived with the biological mother or other custodial relative. Additional inclusion criteria included the child's mother being amenable to father-child interaction so the father could practice skills learned in the program and the father's willingness to travel to the intervention site to attend the group meetings. Fathers were excluded if there were current safety concerns reported by the father or mother including having a history of child abuse, neglect, or violence perpetuated against the child or child's mother (based on mother or father report).

Intervention/Comparison Condition

The intervention, Building Bridges To Fatherhood (BBTF), is a 9-session intervention + booster session,

designed to be implemented with groups of 10–15 fathers. The intervention, delivered by two trained group leaders, was scheduled in 3-week intervals, with a 1 week break in between. Just prior to the break week, participating fathers were given activity vouchers to spend fun time with the target child in lieu of group attendance (e.g., museums, the zoo, movie theater). BBTF was developed in collaboration with a father's advisory council of AA fathers [27]. Program content includes the importance of fathers to the family, parenting strategies for fathers, and communication and problem solving [27]. Short video scenes, discussion questions, and a group leader manual are used by two trained group leaders to generate discussion, problem solving, and sharing among fathers in the group.

The comparison condition was the Money Smart Financial Literacy Program (MSFLP), which was developed by the Federal Insurance Deposit Corporation (FDIC). The MSFLP, which is freely available and without copyright restrictions, is designed to improve participants' financial skills and banking practices [28]. The comparator was delivered parallel to the BBTF intervention and facilitated by a trained AA male group leader who is also a father.

Subjects/Study Recruitment and Retention

African American non-resident fathers were recruited by AA male and female research assistants who were comfortable navigating urban communities of color. Recruitment sites included community settings frequented by AA men such as barber shops, gyms, and restaurants. Flyers were distributed in the community that included a dedicated recruitment study telephone line and a quick response (QR) code so that interested fathers could connect directly to the online interest form using their "smart" devices. Once participants were screened, and consented, an interview was scheduled, and fathers were incentivized with a \$50 gift card for completing study research measures at baseline, post-intervention, and 6 month post-baseline. They were then randomized into either the *BBTF* or *MSFLP* condition. An activity voucher, valued at \$30, was provided just prior to each of the three scheduled break weeks to support fathers' participation in fun activities with their children. Fathers also received dinner and reimbursement in the amount of \$10 for transportation costs at each group meeting. Mothers were incentivized with a \$40 gift card for completing research measures at each of three data collection time points.

Fidelity

The five components of treatment fidelity as outlined in the Behavior Change Consortium's model of treatment fidelity were followed [29]. These components include design, staff and training, intervention delivery, intervention receipt, and enactment. To monitor delivery of BBTF, all groups were audio recorded, and a random selection of 25% of audio recorded sessions were rated for adherence to the BBTF protocol and the quality of group leader facilitation skills using an adaptation of the Fidelity Checklist [30]. Detailed feedback on the BBTF Fidelity Checklist was provided to the group leaders to provide ongoing training and coaching, prevent intervention drift, and assure fidelity to the delivery model.

The comparator (MSFLP), group leader training was conducted through the instructor-led Money Smart training CD, which includes a helpful guide to presenting the Money Smart Curriculum. Train-the-trainer videos provide instructors with an overview of the curriculum components and highlight effective teaching strategies. Videos also provide content designed to familiarize group leaders with the student materials and stress the importance of advanced preparation. Group leaders were trained in the use of the curriculum and completed weekly checklists to monitor attendance, adherence to the protocol and enactment of skills.

Research Measures

Measures

Proximal dependent variables included paternal involvement (material and in-kind (non-monetary) support and direct father/child interaction), father parenting competence (self-efficacy, satisfaction, parenting skills, and knowledge), father psychological well-being (self-esteem, general and racial stress), and father communication and problem solving. Distal outcomes included father and maternal reports of child behavior and development (cognitive, emotional, and social). Covariates included father demographics (age, marital status, highest grade completed, employment status, monthly income, conviction of a felony (yes/no), indicators of economic disadvantage, target child age/gender, and number of children) and satisfaction with social support. The Social Support Questionnaire (SSQ) [31] is a self-report measure of the availability (number of

Table 1 Description of father and child measures

Variable/measure	Description	Scale	Subscale (# of items)	Scale range ^a	Cronbach alpha ^b
Physiological well-being (father)					
Center for Epidemiological Studies-Depression (CES-D) (Radloff, [32])	Depression symptoms experienced in the past week	0 = rarely or none of the time 3 = most or all of the time	Total scale (20)	0–60 (S)	.82
Perceived Stress Scale (PSS) (Cohen et al., [33])	Degree in which situations are experienced as stressful	0 = never 4 = very often	Total scale (10)	0–40 (S)	.77
Taylor Inventory of Self-Esteem (Taylor & Tomasic, [34])	Measures of self-esteem and rewards and costs to self	0 = never 8 = always	Negative self-esteem (8) Positive self-esteem (8)	0–8 (M) 0–8 (M)	.65 .83
Communication and problem solving (father)					
Tolerance For Disagreement (TFD) (Teven et al., [35])	The degree of tolerance of interpersonal disagreement	1 = strongly disagree 5 = strongly agree	Total scale (15)	15–75 (S)	.68
Personal Problem Solving Inventory (PSI) (Maydeu-Olivares & D'Zurilla, [36])	Subscales of problem solving self-efficacy and problem solving skills	1 = strongly agree 6 = strongly disagree	Efficacy (7) Skills (9)	1–6 (M) 1–6 (M)	.70 .65
Father-mother relationship quality					
Quality of Relationship Inventory (QRI) (Pierce et al., [37])	Measure of support, conflict, and depth of father-mother relationship	1 = not at all 4 = very much	Conflict (12) Support (7) Depth (6)	1–4 (M) 1–4 (M) 1–4 (M)	.83 .87 .85
Parenting (father)					
Parent Behavior Checklist (PBC) (Fox, [38])	Measure of parenting skills and knowledge	1 = almost never/never 4 = almost always/-always	Discipline (10) Nurturing (10) Expectations (12)	1–4 (M) 1–4 (M) 1–4 (M)	.76 .75 .85
Parenting Sense of Competence Scale (PSOC) (Johnston & Mash, [39])	Parent satisfaction and self-efficacy in their role	1 = strongly disagree 6 = strongly agree	Satisfaction (9) Self-efficacy (7)	(S) (S)	.59 .70
Paternal involvement (father)					
Julion Index of Paternal Involvement (JIPI; Julion, [40])	Direct father-child interaction (caregiving, teaching, and nurturing)	1 = never 4 = almost always	Total scale (19)	1–4 (M)	.94
Fragile Families Survey (FFS; Reichman et al, [41])	Material and in-kind support fathers provide for their children	1 = never 4 = always	Total scale (13)	13–52 (S)	.84
Child behavior (child)					
Behavior Assessment System for Children 3 rd Ed (BASC-3) (Reynolds & Kamphaus, [42])	Adaptive and problem behaviors in community and home setting	0 = never 3 = almost always	Aggression (11) Attention (6) Depression (11–14) Hyperactivity (10, 11)	T-scores ^d	.45 .58 .69 .70

^a Letter in parentheses indicates whether mean (M) or sum (S) scored

^b Cronbach alpha reliability coefficient in study sample at baseline assessment (N =178)

^c Individual items used for analysis

^d Preschool and school age version of the BASC-3 was used and scores were converted to T-scores using norms based on age and gender

individuals) and satisfaction of a person's social support. Cronbach's alpha reliability for the number scale (number of support individuals) and satisfaction scale (fathers satisfaction with support; 1 = *very dissatisfied* to 6 = *very satisfied*) were .88 and .84, respectively. See Table 1 for a description of the father and child outcome measures. All outcome measures are self-reported by fathers, and data were collected at baseline, 12-week post-baseline, and 24-week post-baseline.

Attendance and weekly parent satisfaction data were collected from fathers in both conditions. BBTF intervention treatment fidelity was assessed using an adaptation of The Fidelity Checklist [30]. The fidelity of the weekly comparator sessions was assessed with an investigator developed weekly group leader checklist.

Data Analysis

Handling of Missing Data

Missing data were imputed using chained equations [43] to create fifty imputed datasets. All assessments of all outcome variables and key covariates were included in the imputation model to satisfy the assumption of missing at random. Estimates from the imputed datasets were then pooled to account for within- and between-dataset variation. Analyses were performed using SAS software [44].

Statistical Analyses

Descriptive statistics were used to report program usage metrics and satisfaction. Data were analyzed using a 3×2 repeated measures analysis of covariance (RM-ANCOVA) with three assessment time points (baseline, 12 weeks, and 24 weeks) crossed with two between-subject treatment conditions (BBTF and MSFLP). The null hypothesis for all of these analyses was that all outcomes remained equal across the two groups over time. Planned follow-up analyses parameterized time into a set of two orthogonal Helmert contrasts (1, $-\frac{1}{2}$; 0, 1, -1). The first contrast tested whether critical changes occurred between times 1 and 2. The second contrast tested whether critical changes occurred between times 2 and 3. Covariates were selected based on associations with outcome variables. Five variables were included as covariates: father's age, father's highest level of education, number of members in father's social network,

number of adults in the household, and sex of the target child.

In addition to the primary intent-to-treat analyses, we tested attendance as a moderator of intervention effects. We created a dichotomous measure of attendance, defined as attending 5 or more of the 10 sessions. This resulted in a $3 \times 2 \times 2$ repeated measures analysis of variance (RM-ANOVA). Planned contrasts (described above) were estimated separately for high and low attenders.

Results

The results of this study are described according to the

Table 2 Study participant demographic characteristics (N=178)

Demographic variable	n	%
Father characteristics		
AgeM(SD)	33.54 (8.96)	
Marital status		
Married/living with partner	6	3
Separated	22	12
Divorced	21	12
Never married	129	73
Education		
<High school degree	81	46
Some college or more	97	54
Employment status		
Part-time	43	24
Full-time	58	33
Not currently working	64	36
Going to school	5	3
Working and going to school	8	4
Monthly income		
<\$500	47	26
\$501–\$1000	37	21
\$1001 to \$2000	46	26
\$2001 to \$3000	16	9
\$3001 +	31	18
Child characteristics		
Age M (SD)	3.83 (1.24)	
Gender		
Male	93	53
Female	84	47

following domains: participant descriptives, treatment fidelity, satisfaction, engagement (recruitment, attendance, retention), and study outcomes. All fathers were self-identified as African American as part of our eligibility requirement. A little under half (46%) of fathers had a high school diploma with the majority of the fathers having some college or more (54%), low income (26%), and unemployed (36%; see Table 2). The mean child age was 3.83 years, and 53% ($n=93$) were male and 47% ($n=84$) were female.

Treatment Fidelity and Satisfaction

A random selection of audio recorded BBTF group sessions were reviewed and coded using an adaptation of the Fidelity Checklist [30]. The overall group leader competence was 2.72 (range = 2.46–2.86), and the average adherence to the BBTF protocol was 87.6% (range = 78.6–100%). In addition, group leaders completed a weekly self-report checklist to monitor adherence to the weekly protocol. We received checklists from 56 of the 81 groups (9 groups, 9 sessions each). Of those, group leaders reported an average of 95.7% adherence to the group sessions (range = 93.6 (session 6)–98% (session 4)). Participants completed weekly and end of program satisfaction surveys. BBTF and MSFLP satisfaction were high. In the BBTF condition, 26 participants completed 154 weekly program surveys across 9 sessions (that averaged 5.9 surveys ($SD=2.6$) per participant). On individual survey items that focused on program content, the video scenes, group leaders, group discussion, and practice assignments, the percent of participants who found those elements *helpful* or *very helpful* were 99%, 95%, 99%, 99%, and 93%, respectively. The group leaders and program content were rated most highly, and the practice assignments were rated the lowest. Of the 143 MSFLP satisfaction forms completed by 42 participants, 85% agreed or strongly agreed that the program was useful. Fathers endorsing that the instructor and overall program were *good*, *very good*, and *excellent* were 100% and 99%, respectively.

Engagement

We define engagement as the recruitment of participants into the study, participant attendance, and retention of participants across assessments [45, 46]. We recruited 192 fathers, and 178 were randomized; 124 mothers were recruited into the study. The initial intent of the

study was to recruit mothers to provide multi-informant perspectives on father involvement, mother-father relationships, and child outcome measures. However, we successfully recruited only 65% of mothers in the study, making it difficult to perform these multi-informant analyses (see Fig. 1). Session attendance did not differ by study condition. Of 10 sessions, average attendance was 2.52 ($SD=3.43$) sessions for BBTF and 2.35 ($SD=3.16$); $t(176)=-0.35, p=.73$. A majority of participants attended zero sessions for both BBTF ($n=53, 57.6%$) and MSFLP ($n=44, 51.2%$). The rate of non-attendance was not different between conditions; $\chi^2(1, n=178)=0.75, p=.39$. Attendance at five or more sessions did not differ between BBTF ($n=28, 30.4%$) and MSFLP ($n=22, 25.6%$), $\chi^2(1, n=178)=0.52, p=.47$. There were 87 (49%) fathers who completed the post-intervention assessment and 104 (58%) fathers who completed the 3-month follow-up assessment.

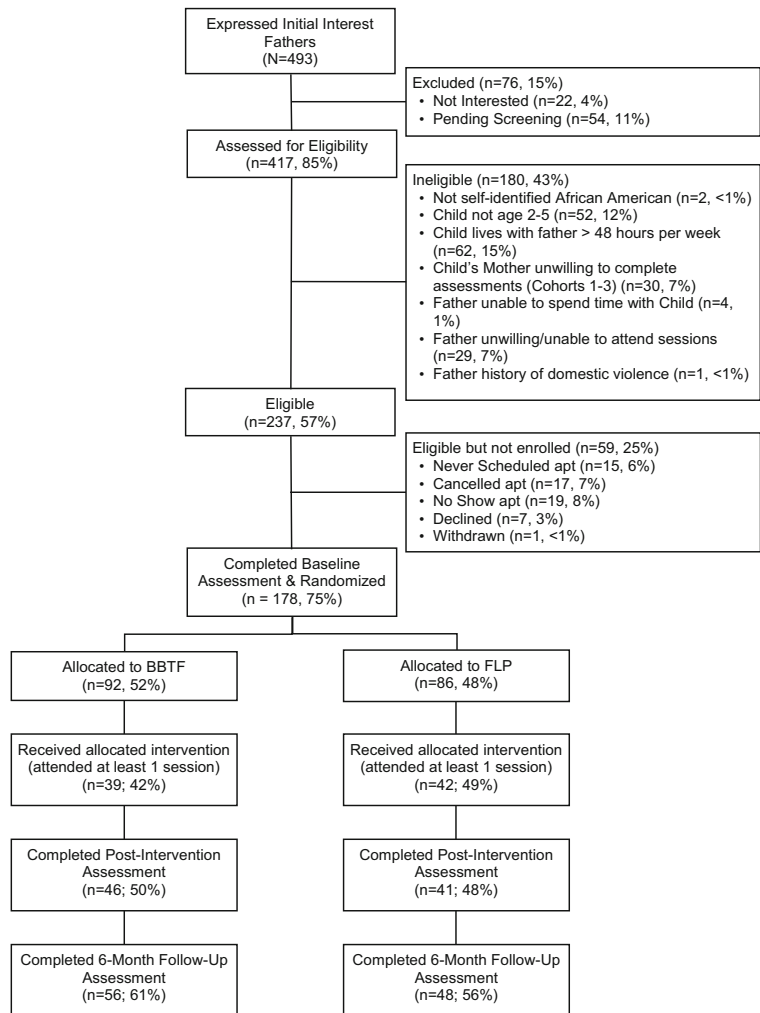
DAAD Study Effects on Father-Child Outcomes

Intent to Treat Analyses Treatment effects (i.e., treatment condition \times assessment interactions) were non-significant for measures of father involvement (primary outcome measure) and other intervention targets (i.e., psychological well-being, parenting competence, communication, problem-solving ability, father-mother relationship quality (see Table 3). Table S4 in the Supplemental Material presents findings on planned contrasts for the main analyses. Treatment effects were also non-significant for child behavior outcomes.

Moderation Analyses Analyses testing moderation of treatment effects by intervention participation yielded no significant interaction effects for any of the outcomes. Tables S5 and S6 in the Supplemental Material summarize intervention effects moderated by level of father participation and planned contrasts for moderation analyses.

Discussion

In spite of the high degree of satisfaction among participating fathers, our findings reveal that the BBTF intervention did not significantly impact father or child outcomes. Our endeavor to detect changes in child outcomes as a result of fatherhood intervention participation is seldom attempted. Even so, there are several

Fig. 1 Consort diagram

potential reasons why our results did not meet hypothesized expectations—many of which are related to participant engagement. We discuss challenges associated with conducting intervention research with AA non-resident fathers, describe limitations, and offer recommendations for future research.

In light of the recognized importance of father involvement and the preponderance of AA fathers who do not live in the household with their biological children [13], it is important to address the question of engagement in fatherhood intervention research. We view our ability to screen 495 African American men, identify 251 eligible non-resident fathers, collect 192 baseline interviews, and randomize 178 non-resident African American fathers into the study as a successful step in engaging AA fathers [47]. Even so, we did not meet ongoing targets to enroll 20–30 fathers into

each cohort (10–15 per allocated group). Study recruitment was influenced by our initial inclusion criteria, which required maternal consent to participate as data informant prior to fully enrolling fathers into the study. We amended this criterion after experiencing challenges contacting and enrolling mothers in the first three cohorts. The need to amend this inclusion criterion is an important reminder that among couples with fractured relationships, ongoing communication and contact can constrain fathers' efforts to remain engaged in the lives of their children, and efforts to engage in preventive fatherhood interventions [8]. Fathers interested in bolstering their involvement with their children should not be stymied by maternal-related methodological constraints.

Societal, structural, and family barriers (e.g., structural racism, harsh policing, and potential discord with

Table 3 Main father and child outcomes of intervention effects

Outcome	Covariate/effect	F	df	p
Fragile Families Scale (FFS) of Paternal Involvement				
	Father's age (log transformed)	1.84	1167	.177
	Number of adults in HH	0.36	1167	.548
	Father highest grade completed	1.93	1167	.166
	Number of social network members (log transformed)	3.09	1167	.081
	Target child's sex is female	0.16	1167	.691
	Wave	0.06	2167	.940
	Treatment condition	0.08	1167	.779
	Wave × treatment condition	0.04	2167	.962
Julion Index of Paternal Involvement (JIPI)				
	Father's age (log transformed)	0.33	1167	.569
	Number of adults in HH	2.34	1167	.128
	Father highest grade completed	0.15	1167	.697
	Number of social network members (log transformed)	0.05	1167	.817
	Target child's sex is female	1.18	1167	.279
	Wave	1.66	2167	.193
	Treatment condition	0.01	1167	.914
	Wave × treatment condition	0.02	2167	.982
Taylor Inventory of Self-Esteem_positive				
	Father's age (log transformed)	0.70	1167	.405
	Number of adults in HH	0.07	1167	.799
	Father highest grade completed	3.91	1167	.050
	Number of social network members (log transformed)	0.11	1167	.737
	Target child's sex is female	0.26	1167	.608
	Wave	0.75	2167	.473
	Treatment condition	2.08	1167	.152
	Wave x Treatment Condition	0.63	2167	.534
Taylor Inventory of Self-Esteem_negative				
	Father's age (log transformed)	0.99	1167	.321
	Number of adults in HH	0.00	1167	.952
	Father highest grade completed	3.14	1167	.078
	Number of social network members (log transformed)	0.11	1167	.742
	Target child's sex is female	1.46	1167	.229
	Wave	0.72	2167	.489
	Treatment condition	0.14	1167	.710
	Wave × treatment condition	0.32	2167	.730
Perceived Stress Scale_neg				
	Father's age (log transformed)	1.11	1167	.293
	Number of adults in HH	0.06	1167	.813
	Father highest grade completed	4.97	1167	.027
	Number of social network members (log transformed)	0.89	1167	.347
	Target child's sex is female	3.88	1167	.050
	Wave	1.44	2167	.240
	Treatment condition	0.44	1167	.510

Table 3 (continued)

Outcome	Covariate/effect	F	df	p
Perceived Stress Scale_pos	Wave × treatment condition	0.08	2167	.927
	Father's age (log transformed)	0.13	1167	.714
	Number of adults in HH	0.08	1167	.778
	Father highest grade completed	2.42	1167	.122
	Number of social network members (log transformed)	0.19	1167	.664
	Target child's sex is female	1.54	1167	.216
	Wave	2.49	2167	.086
	Treatment condition	0.16	1167	.687
	Wave × treatment condition	0.17	2167	.841
CESD	Father's age (log transformed)	0.19	1167	.667
	Number of adults in HH	0.25	1167	.621
	Father highest grade completed	4.91	1167	.028
	Number of social network members (log transformed)	1.19	1167	.276
	Target child's sex is female	3.46	1167	.065
	Wave	0.23	2167	.798
	Treatment condition	0.55	1167	.460
	Wave × treatment condition	0.33	2167	.722
Parenting Sense of Competence_satisfaction	Father's age (log transformed)	0.10	1167	.750
	Number of adults in HH	0.01	1167	.917
	Father highest grade completed	4.72	1167	.031
	Number of social network members (log transformed)	0.00	1167	.997
	Target child's sex is female	0.22	1167	.641
	Wave	0.23	2167	.792
	Treatment condition	1.68	1167	.196
	Wave × treatment condition	0.34	2167	.715
Parenting Sense of Competence_efficacy	Father's age (log transformed)	0.03	1167	.871
	Number of adults in HH	0.00	1167	.998
	Father highest grade completed	0.82	1167	.367
	Number of social network members (log transformed)	0.26	1167	.613
	Target child's sex is female	0.97	1167	.325
	Wave	0.19	2167	.828
	Treatment condition	0.01	1167	.923
	Wave × treatment condition	0.11	2167	.900
Parent Behavior Checklist_expectations	Father's age (log transformed)	0.01	1167	.904
	Number of adults in HH	0.02	1167	.894
	Father highest grade completed	4.54	1167	.035
	Number of social network members (log transformed)	0.20	1167	.653
	Target child's sex is female	0.02	1167	.900
	Wave	1.54	2167	.218

Table 3 (continued)

Outcome	Covariate/effect	F	df	p
	Treatment condition	0.25	1167	.618
	Wave × treatment condition	0.03	2167	.967
Parent Behavior Checklist_discipline				
	Father's age (log transformed)	0.86	1167	.354
	Number of adults in HH	0.98	1167	.324
	Father highest grade completed	3.63	1167	.058
	Number of social network members (log transformed)	3.99	1167	.047
	Target child's sex is female	3.00	1167	.085
	Wave	0.49	2167	.616
	Treatment condition	0.39	1167	.533
	Wave × treatment condition	1.32	2167	.271
Parent Behavior Checklist_nurturing				
	Father's age (log transformed)	0.61	1167	.434
	Number of adults in HH	0.37	1167	.544
	Father highest grade completed	4.59	1167	.034
	Number of social network members (log transformed)	0.23	1167	.632
	Target child's sex is female	0.88	1167	.350
	Wave	0.44	2167	.646
	Treatment condition	0.21	1167	.645
	Wave × treatment condition	0.01	2167	.987
Tolerance for Disagreement Score				
	Father's age (log transformed)	5.23	1167	.023
	Number of adults in HH	1.14	1167	.288
	Father highest grade completed	2.85	1167	.093
	Number of social network members (log transformed)	0.01	1167	.942
	Target child's sex is female	0.21	1167	.647
	Wave	0.54	2167	.585
	Treatment condition	0.54	1167	.464
	Wave × treatment condition	0.23	2167	.791
Personal Problem Solving Inventory_self-efficacy				
	Father's age (log transformed)	0.05	1167	.828
	Number of adults in HH	2.37	1167	.126
	Father highest grade completed	9.63	1167	.002
	Number of social network members (log transformed)	0.07	1167	.796
	Target child's sex is female	0.14	1167	.709
	Wave	1.72	2167	.183
	Treatment condition	0.02	1167	.897
	Wave × Treatment Condition	0.54	2167	.583
Personal Problem Solving Inventory_skills				
	Father's age (log transformed)	0.23	1167	.635
	Number of adults in HH	0.66	1167	.419
	Father highest grade completed	5.27	1167	.023
	Number of social network members (log transformed)	0.04	1167	.848
	Target child's sex is female	0.49	1167	.487

Table 3 (continued)

Outcome	Covariate/effect	F	df	p
	Wave	1.99	2167	.140
	Treatment condition	0.00	1167	.998
	Wave × treatment condition	0.16	2167	.851
Quality of Relationship	Inventory_support			
	Father's age (log transformed)	0.08	1167	.777
	Number of adults in HH	0.58	1167	.447
	Father highest grade completed	1.59	1167	.208
	Number of social network members (log transformed)	0.83	1167	.364
	Target child's sex is female	0.32	1167	.574
	Wave	0.32	2167	.729
	Treatment condition	0.29	1167	.593
	Wave × treatment condition	0.37	2167	.693
Quality of Relationship	Inventory_conflict			
	Father's age (log transformed)	0.01	1167	.937
	Number of adults in HH	0.14	1167	.708
	Father highest grade completed	0.00	1167	.971
	Number of social network members (log transformed)	0.00	1167	.957
	Target child's sex is female	0.01	1167	.924
	Wave	1.77	2167	.173
	Treatment condition	0.00	1167	.993
	Wave × treatment condition	0.59	2167	.557
Quality of Relationship	Inventory_depth			
	Father's age (log transformed)	0.63	1167	.427
	Number of adults in HH	0.26	1167	.609
	Father highest grade completed	0.87	1167	.352
	Number of social network members (log transformed)	0.00	1167	.944
	Target child's sex is female	0.39	1167	.536
	Wave	0.44	2167	.647
	Treatment condition	2.03	1167	.156
	Wave × treatment condition	0.39	2167	.681
Behavior Assessment System for Children (BASC)_aggression				
	Father's age (log transformed)	0.53	1167	.466
	Number of adults in HH	0.05	1167	.820
	Father highest grade completed	1.21	1167	.273
	Number of social network members (log transformed)	0.40	1167	.526
	Target child's sex is female	0.07	1167	.798
	Wave	0.97	2167	.381
	Treatment condition	1.51	1167	.221
	Wave × treatment condition	0.95	2167	.389
Behavior Assessment System for Children (BASC)_attention				
	Father's age (log transformed)	0.39	1167	.531
	Number of adults in HH	1.14	1167	.288
	Father highest grade completed	1.62	1167	.205
	Number of social network members (log transformed)	0.02	1167	.888

Table 3 (continued)

Outcome	Covariate/effect	F	df	p
	Target child's sex is female	0.77	1167	.382
	Wave	0.14	2167	.866
	Treatment condition	0.88	1167	.350
	Wave × treatment condition	0.17	2167	.846
Behavior Assessment System for Children (BASC)_depression				
	Father's age (log transformed)	0.04	1167	.849
	Number of adults in HH	0.03	1167	.865
	Father highest grade completed	1.14	1167	.287
	Number of social network members (log transformed)	0.04	1167	.845
	Target child's sex is female	0.02	1167	.885
	Wave	0.61	2167	.542
	Treatment condition	0.02	1167	.902
	Wave × treatment condition	0.14	2167	.871
Behavior Assessment System for Children (BASC)_hyperactivity				
	Father's age (log transformed)	0.46	1167	.499
	Number of adults in HH	0.03	1167	.870
	Father highest grade completed	1.58	1167	.211
	Number of social network members (log transformed)	1.01	1167	.317
	Target child's sex is female	0.35	1167	.554
	Wave	0.42	2167	.657
	Treatment condition	0.00	1167	.973
	Wave × treatment condition	0.01	2167	.986

their child's mother) can impinge upon AA non-resident fathers' family relationships and fatherhood intervention engagement [48, 49]. Lemmons and Johnson [49] explore the intersections of race, economics, and social policy as influencers on AA fatherhood. For example, structural racism has influenced employment opportunities and the current economic environment for AA men, forcing many to prioritize seeking and maintaining employment over preventive fatherhood interventions. Low socioeconomic status as reflected by the low-income and unemployed fathers in the current study can hinder fatherhood intervention engagement [46]. Although we provided monetary incentives in the amount of \$50 at each data collection time point, the complexity of fathers' lives may have outweighed the merits of our monetary incentive.

Future researchers focused on fatherhood interventions could consider alternative more flexible delivery modalities to overcome participation barriers or focus on a different subset of AA non-resident fathers. For example, virtual programming via Zoom, delivering

intervention content through smartphone technology, collecting follow-up data virtually, and reminding fathers about upcoming sessions and completion of practice assignments could be implemented so as to not interfere with employment and other competing responsibilities [46].

Parent training research has been successful in connecting with maternal participants via child-focused venues that include schools and day care centers. However, organizational, community, or congregational spaces where AA men come together are limited. The barbershop has been proposed as a recruitment venue, but since it is a place of business, it may not be a practical or feasible location for intervention delivery across a diverse group of fathers. In fact, barber shops tend to attract younger fathers, and venues such as restaurants and hardware stores are more feasible for recruiting older fathers [50]. In our engagement approach, we attempted to recruit fathers across a broad array of community locations and employed recognized recruitment and retention strategies [19]. We also

rotated our group locations between two areas of the city heavily populated by African Americans (westside and southside of the city), provided meals and transportation costs, and incentivized data collection at \$50 per interview. Upon further reflection, it is possible that fathers without social connections to one intervention site and to each other may have been reticent to attend a preventive fatherhood intervention. Health care settings such as Project Brotherhood in Chicago that serve AA men have realized success in establishing trusting relationships that facilitate research participation [51]. In general, AA men may have more distal social connections to potential intervention sites and therefore, require culturally congruent information delivered by trusted providers [51].

Recruitment of fathers while they are expecting through prenatal providers offers some promise for recruitment by focusing on the prenatal triad, which includes mothers, the unborn child, and the father [52]. There could be some limitations with regard to targeting expectant fathers because men with older children could potentially be excluded. Such an approach would require focusing on a different subset of fathers such as fathers who are expectant could capitalize on the initial excitement and engagement of most fathers during pregnancy and early parenthood [53]. This option has the added benefit of engaging mothers who could also benefit from learning about the importance of father involvement to the long-term well-being of their children. For some couples with multiple competing demands, and difficult relationships, preventive intervention participation may also benefit from social support to aid in their transition to parenthood [9].

There were fathers who enrolled in the study who never attended a single group meeting. This phenomenon—pretreatment attrition [46]—is difficult to interpret. More research is needed on fathers' paternal beliefs and attitudes [54] and motivation to participate in fatherhood interventions that could inform attendance and study retention. Strategies that engage fathers during recruitment to understand how the intervention aligns with their needs and identifies their expectations for content, process, and expected benefits could be helpful. It could also be useful to problem-solve potential obstacles prior to and throughout the study to proactively address attendance and attrition [46].

Motivational interviewing (MI) is a strategy that could facilitate early engagement and potentially sustain engagement for parents enrolled in parent training

throughout the duration of the intervention [55]. Motivational interviewing works by supporting intrinsic motivation to change and increasing awareness of internal resources that can facilitate change [56]. MI is a client-focused non-confrontational approach that explores uncertainty about making change and yet is respectful of individuals' independence; it works particularly well for high-risk individuals [57]. Preliminary findings from prior research conducted on MI in parenting interventions revealed that MI has successfully increased engagement with low-income diverse populations [58].

Finally, qualitative research that engages directly with non-resident fathers [11] can provide much-needed insight into the specific challenges that impede engagement and retention, as well as solutions for overcoming participation barriers. Considerable evidence supports the value of hearing the voices of fathers themselves, which can highlight their strengths as well as their shortcomings [59] and identify strategies to overcome lack of intervention engagement and promote research retention [60].

Limitations

Limitations worth noting in this study include the following. In light of low attendance in the allocated study groups, we were unable to determine whether BBTF is an effective intervention for supporting positive father and child outcomes. Further without additional insight from the fathers themselves, we do not know whether fathers made a conscious decision to sign up for the study and not attend or whether extenuating circumstances precluded their attendance. There were unique challenges in recruiting fathers into the study. Unlike recruitment for other groups of parents who frequently mainstream venues such as schools and daycare, we are limited by incomplete awareness of established locations for recruiting non-resident fathers. We are limited in our ability to analyze cross-informant (maternal and paternal data) because of low maternal participation rates. Finally low retention rates made longitudinal analysis an additional limitation to the study.

Conclusion

The importance of fatherhood intervention research and the advances made in developing and implementing

culturally and contextually relevant fatherhood programs is well established. Even so, more research is needed to inform research methods, recruitment, and retention strategies. Based on lessons learned through the current study, we recommend that research investigators continue collaborating with AA non-resident fathers as knowledgeable allies in this work. Tailored engagement strategies, designed explicitly for this population, are needed in order to keep pace with the circumstances that impugn research participation. The field of fatherhood intervention research would be strengthened by ongoing examination of engagement from study conceptualization to actualization. Finally, agreements about standardizing data collection and reporting on research engagement in this population would allow for greater visualization of findings across research studies.

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