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Initial Findings from a Feasibility Trial Examining the SafeCare Dad to Kids Program with Marginalized Fathers

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Abstract

Few studies have explored the direct impact of behavioral parent training programs on child maltreatment behaviors among marginalized, at-risk fathers. This feasibility study examined SafeCare® Dad to Kids (Dad2K), an augmented version of the evidence-based child maltreatment prevention program SafeCare, to determine the acceptability and initial efficacy of the program for improving father parenting skills and reducing maltreatment risk. Ninety-nine fathers were enrolled in the study and randomized to the SafeCare Dad2K Intervention ($n=51$) or comparison ($n=48$). Intervention fathers participated in 6 home visiting sessions and comparison fathers received parenting materials via mail. All fathers participating in the study completed a baseline and 8-week assessment (post-intervention) of maltreatment behaviors. In addition, intervention fathers completed feasibility and parenting skill measures. A significant main effect emerged indicating decreases for both groups in psychologically aggressive behaviors. No significant group by time findings emerged for child maltreatment behaviors. Father intervention completers endorsed high satisfaction ratings for the program and demonstrated significant improvements in targeted father-child interaction skills. Based on the high rates of acceptability and initial improvement in positive parenting skills, findings demonstrate the feasibility for involving at-risk fathers in behavioral parent training programs targeting child maltreatment prevention.

Keywords

Child Maltreatment prevention; evidence-based parenting program; SafeCare; fathers

Introduction

Child Maltreatment: A Public Health Problem

Approximately 4.1 million children were the subject of at least one investigation by Child Protective Services in 2015, resulting in an estimated 700,000 substantiated cases of child maltreatment in the United States (National Child Abuse and Neglect Data System [NCANDS], 2017). Neglect was the most frequently reported form of substantiated maltreatment, followed by physical abuse. Those children most at risk for these forms of maltreatment are young children under 5 years of age and those living in poverty. Racial disparities exist among children substantiated for child maltreatment, with data indicating an overrepresentation of Black children as compared to White children, likely due to the disproportionate and disparate needs of racial minorities living in poverty (Sedlak, McPherson, & Das, 2010).

In considering the best public health approaches to the prevention of child maltreatment, a significant focus has been on educating and training parents, the most common perpetrators of child neglect and physical abuse (Commission to Eliminate Child Abuse and Neglect Fatalities [CECANF], 2016). Mothers perpetrate maltreatment more often than fathers; however, male caregivers¹ are involved in approximately 45% of substantiated cases (NCANDS, 2017) and are overrepresented as perpetrators relative to the time spent caregiving for young children (Guterman & Lee, 2005). Importantly, in comparison to mothers, research suggests that fathers tend to endorse corporal punishment, a significant risk factor of physical abuse, as an appropriate disciplinary technique (Child Trends, 2013). Fathers are also more likely to engage in severe forms of maltreatment that result in injuries and fatalities (Ayer, Woldetsadik, Malsberger, Burgette, & Kohl, 2016, Lee, Kim, Taylor, & Perron, 2011). Unfortunately, the majority of child maltreatment prevention programs do not directly include fathers, nor do they incorporate them as supplementary caretakers. Instead, these programs primarily target mothers. The current study addresses a noted gap in the existing parenting literature (Lee, Bellamy, & Guterman, 2009; Pleck, 2012) by examining the feasibility and efficacy of a father intervention program, SafeCare Dad2K.

Father Impact on Children and Families: The Potential Role of Parenting Intervention

Because of the lack of empirical evidence on which to base the development of father interventions (Lee et al., 2009), it is important to rely on the existing research documenting risk factors that increase the likelihood of fathers perpetrating maltreatment. These factors often include interrelated life challenges (Holcomb et al., 2015) such as criminal history, limited education, low household income, un- or under-employment, and young age at the time of the first child's birth (CECANF, 2016, Clement, Berube, & Chamberland, 2016; Lansford et al., 2015; NCANDS, 2017;). Substance abuse and depression have also been shown to increase risk (Kelley, Lawrence, Milletich, Hollis, & Henson, 2015; Lee, Taylor, & Bellamy, 2012; Stover, Easton, & McMahon, 2013). Furthermore, family history is an important factor to consider, as men who perpetrate maltreatment may have experienced

¹Including biological fathers, foster or adoptive father, stepfathers, male caregivers, and other father figures.

traumatic childhoods themselves and/or had absent fathers (Ben-David, Jonson-Reid, Drake, & Kohl, 2015; Thornberry & Henry, 2013; Thornberry, Knight, & Lovegrove, 2012). Recent research also indicates that unintended pregnancy is one of the earliest, identifiable risk factors for father-perpetrated child maltreatment (Guterman, 2015). Overall, findings suggest that there are more similarities than differences between mother and father perpetrators, with a few important differences suggesting that female primary caregivers may require greater assistance with drug use, financial issues, and child mental health problems as compared to male primary caregivers. (Ayer et al., 2016).

Greater direct inclusion of fathers in child maltreatment prevention programs can benefit families and children. Father participation may reduce perpetration risk, which is an especially important mechanism for reducing death among young children, harsh discipline, and corporal punishment, all of which are more commonly perpetrated by fathers than mothers (CECANF, 2016; Lee, Taylor, & Bellamy, 2013; Osborne, Dillon, Craver, & Hovey, 2016). Accordingly, programs that target alternative forms of discipline may be effective in addressing these detrimental risks for young children. Programs targeting fathers can also increase positive father involvement in the lives of children. The literature is replete with studies indicating that positive father involvement improves a child's chances of academic success (Fatherhood Institute, 2013; Jones & Mosher, 2013; Threlfall, Seay, & Kohl, 2013), reduces delinquency and substance use (Fatherhood Institute, 2013; Jones & Mosher, 2013; Lamb & Lewis, 2013), and enhances a child's physical health, mental health, social skill level, and emotional development (Fortson, Klevens, Merrick, Gilbert & Alexander, 2016; Kohl & Seay, 2015; Lamb & Lewis, 2013; Panter-Brick et al., 2014). Father involvement is also often a direct benefit to mothers, not only in reducing childcare burden and maternal stress (Gee & Rhodes, 2003; Kalil, Ziol-Guest, & Coley, 2005), but also in reducing risk for postpartum depression (Fagan & Lee, 2010). Importantly, the involvement of a male caretaker in child welfare-involved families is an indicator of reduced likelihood that children are placed into out-of-home care (Bellamy, 2009). Thus, having programs that encourage positive father involvement has important implications for child trajectories, as well as potential positive impacts on the costs to service systems.

Parent programs aimed at preventing or reducing child maltreatment have grown over the last several decades, with findings from a recent meta-analysis demonstrating the importance of the intervention's focus on "training" versus "support" (Euser, Alink, Stoltenborgh, Bakersman-Kraneburg, & van Ijzendoorn, 2015), especially with the highest risk families (those where maltreatment has occurred). However, data for how well parenting training and/or support programs work with fathers is limited at best (Lee et al., 2013; Osborne et al., 2016; Scourfield, 2014;). Smith, Duggan, Bair-Merritt, & Cox (2012) identified only 2 out of 16 interventions that reported father-specific data in a systematic review of programs targeting abuse and neglect risk.

There is emerging research that explicitly examines father outcomes from parent "training" programs, originally designed to serve the needs of parents with children experiencing externalizing problems. These programs are behaviorally based, and offer parents: 1) instruction on targeted skills, 2) behavioral modeling of targeted skills by provider, 3) parent skill practice through role plays and live practice with the child, and 4) homework

assignments for the parent to assist in generalization of the targeted skills (Shaffer, Kotchick, Dorsey, & Forehand, 2001). Fathers who participate in these programs demonstrate greater use of praise and less negative talk toward their children following the intervention (Fabiano et al., 2012; Isaacs, Webb, Jerome, & Fabiano, 2015), as well as positive improvements in father-child involvement (Homem, Gasper, Seabra-Santos, Canavarro, & Azevedo, 2014; Stahlschmidt, Threlfall, Seay, Lewis, & Kohl, 2013, Threlfall & Kohl, 2015), child behavior management (Fletcher, Freeman, & Matthey, 2011), and child behavioral outcomes (Ayer, Kohl, Malsberger, & Burgette, 2016; Fabiano et al., 2012; Homem et al., 2014; Isaacs et al., 2015). However, limited research has examined the impact of parent behavioral training programs for the outcome of child maltreatment risk among fathers.

SafeCare: A Behavioral Parent Training Program Targeting Child Maltreatment

Risk—SafeCare is a behavioral parent training program delivered through home visiting that targets parental risk factors for child physical abuse and neglect (Lutzker & Bigelow, 2002). Unlike other parent behavioral programs, SafeCare was designed explicitly to be implemented with families at risk for maltreatment versus families with children exhibiting externalizing behavioral problems. The program is designed for at-risk parents of children ages 0–5 years. The program teaches a variety of skills focused on positive parenting, home safety, and child health. Studies examining SafeCare have revealed statistically significant reductions in child abuse perpetration and recidivism (Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012; Gershater-Molko, Lutzker, & Wesch, 2002), as well as improved parenting skills among participants (Carta, Lefever, Bigelow, Borkowski, & Warren, 2013). While there have been no randomized research trials to date examining SafeCare with fathers, two pilot studies indicate that fathers exhibit positive improvement in target parenting skills in response to the SafeCare Parent-Child Interaction module (Bigelow & Lutzker, 1998; Self-Brown et al., 2015).

The SafeCare Parent-Child Interaction module, independent of the full SafeCare model, has been shown to be effective with prevention for at-risk maternal populations (Carta et al., 2013). Based on piloting research conducted by Self-Brown and colleagues (2015) this module is thought to be most consistent with the father role in the family as the content focuses on building a strong parent-child relationship and managing behavior in daily activities, including during physical play (Lamb, 1981) and recreational activities (Child Trends, 2002). Delivery of SafeCare is in the home environment versus the clinic-based approach of other behavioral parent training programs allows for more flexible scheduling and reductions in other commonly noted logistical barriers to intervention.

Self-Brown and colleagues (2015) designed an augmented pilot version of SafeCare for fathers entitled “The Dad to Kids Program,” or Dad2K. Dad2K is an augmented version of the SafeCare Parent-Child Interaction module, a SafeCare module that has shown to be independently effective for reducing risk and improving parenting in prevention populations (Carta et al., 2013). The lack of empirical evidence on which to base the design and testing of intervention strategies that target fathers hampers effective prevention and intervention (Lee et al., 2009). In considering various approaches to the augmentation of SafeCare to better align the program with father engagement, a computer-mediated approach to service delivery, as described by Coyle and colleagues (2007) and tested by Self-Brown and

colleagues (in press) was adopted. The goals of this augmentation were to create a very engaging approach to session delivery for male caregivers that did not rely exclusively on the verbal interaction between the provider and client, and to assist SafeCare Dad2K providers with fidelity and adherence to the intervention protocol. Accordingly, in each home visiting session the father engages with 1) interactive technology via a tablet computer that delivers multimodal learning and modeling of SafeCare target skills through dynamic software-based activities, and 2) a supportive SafeCare provider who engages the father in live practice of newly learned skills with the child and provision of corrective feedback with the goal of advancing father skills to prevent challenging child behavior and enhance positive interaction with their child during daily routines. Additionally, a co-parenting component guided by the “Talking with Mom” workbook created by the National Fatherhood Initiative (Brown, 2011) was added to session 4. These augmentations were vetted with fathers from the target population for the feasibility trial and are further explained in Self-Brown et al., 2015.

The purpose of the current study is to examine the feasibility and impact of SafeCare, a behavioral parent training program, on father parenting skills and maltreating behaviors in a randomized trial. Consistent with the appropriate areas of focus for a feasibility study as described by Bowen et al. (2009), the purpose of a feasibility study is to focus on the acceptability of the intervention, namely, whether the intended recipients respond to the intervention, as well as initial efficacy testing, examining immediate outcomes, with limited statistical power.

Hypotheses

The purpose of the current study is to examine the overall feasibility of Dad2K for fathers, with a focus on the acceptability and efficacy of the intervention by conducting a randomized trial with fathers at-risk. We hypothesized that fathers who participate in Dad2K would report high levels of satisfaction with the program and would exhibit positive changes in the target parenting skills. Additionally, we hypothesized that the Dad2K participants would have a lower frequency of child maltreating behaviors than fathers in the comparison group, post-intervention.

Methods

Participants

During the recruitment period, a total of 299 men expressed interest in participating in the study by providing their names and either a phone number or email address. A study coordinator administered a follow-up communication to fully explain the project, as well as ensure participant eligibility. Inclusion criteria were as follows: male, age 18 or over, father/custodian/caretaker of a child between the ages of 2 and 5 years old, be English-speaking, and meet two or more risk factors (i.e., low education level, low household income, unmarried relationship status, young age at time of first child’s birth). This calculation of risk has been used in other SafeCare research studies focusing on families at-risk versus child welfare involved families (Guastaferrero et al., 2012; Guastaferrero et al., 2017). For fathers

who had multiple children in the 2 to 5 year age range, they were asked to select the oldest child as the target child for this research project.

In total, 99 males enrolled in the study (200 were lost to contact following the initial recruitment attempt). The majority of participants (59%) were recruited from a pediatric hospital setting that primarily serves families living below the poverty level (primary care clinic and emergency room clinic); 14% were recruited from community partner settings that serve high risk families (e.g., Teen Dads Program, Early Head Start Program, and community events targeting high-risk families); 13% of fathers recruited were referrals of other study participants; and 14% were recruited from “other methods” including street outreach in high volume areas (business areas) in impoverished communities and neighborhoods. The recruitment areas targeted across all the recruitment sites were 5 zip codes of a large, southern city that have a low median income as compared to other areas in the state. The recruitment period was from September 2013 to March 2016.

Participants were 93% Black, 3% Caucasian, 2% Native American, and 2% reported as other. The majority of those sampled did not identify as Latino (95%). The mean age was 30.05 years ($SD=7.75$). The majority of participants’ highest level of education was a high school diploma/GED (59%), while 41% had completed some education past a high school diploma/GED. In terms of household income, 71% of fathers reported an annual income of less than \$25,000 a year. Half of the fathers reported having some type of employment, while the other half were unemployed. Regarding relationship status, 40% of fathers reported being unmarried but living with a partner, while 29% identified as single and 22% as married. The mean age of the focal children in the study was 3.3 years ($SD=1.2$). Approximately two-thirds of the children were boys ($n=64$); the remaining one-third were girls ($n=32$). See Table 1 for more details regarding demographic information. Retention for the study was as follows: 69% of fathers completed baseline and follow-up assessment (61% of intervention, 77% of comparison; see Figure 1); 53% of the fathers assigned to the intervention group completed all six sessions.

Procedures

A randomized experimental design with a pre-test and post-test was used to evaluate the efficacy of the Dad2K parenting intervention on the outcome of child maltreatment behaviors. The Georgia State University Institutional Review Board approved this study. The study coordinator scheduled eligible fathers who agreed to the study parameters for a baseline home visit that included the father, his child, and an assessor. At this initial visit, the assessor reviewed the study protocol, secured a signed consent form, administered the survey on a netbook, and recorded a brief video of the father interacting with his child. Fathers were randomly assigned to either the intervention or comparison group following the assessment. Within one business day, the father was notified of his group assignment. Procedures differed according to group assignment. Fathers participated in the project for an average of 188.81 days ($SD= 71.65$). The study period began at the time of the baseline assessment and concluded with the third assessment (Time 3) conducted during the full study. This paper provides results from the baseline assessment and Time 2 assessment, which was ideally scheduled 8 weeks post-baseline assessment. Accordingly, the study

period varied based on how quickly the father proceeded through the intervention. Fathers were incentivized \$50 per assessment.

Comparison group procedures—Forty-eight fathers were assigned to the comparison group. These fathers received parenting materials mailed at three times during the course of the study. Materials included handouts on safe sleep practices, bedtime routines, communication techniques, community resources, helpful services for fathers, and a handbook on parenting tips. Materials were sent to the home address of the fathers. At the second assessment, research assistants asked the fathers if they had received the parenting materials, of which 77% of fathers reported receiving the mailings.

Intervention group procedures—Fifty-one fathers were assigned to the intervention group. Intervention fathers had the opportunity to complete SafeCare Dad2K (described below) between the baseline session and the Time 2 assessment. Fathers were paid \$10 per session, which was deemed appropriate as an effective retention strategy given the high-risk and vulnerable nature of the target population (Kim, Hickman, Gali, Orozco, & Prochaska, 2013).

SafeCare Dad2K: Dad2K is the manualized Parent-Child Interaction module of SafeCare (Lutzker & Bigelow, 2002) that includes six home visiting sessions focused on positive parenting. Per protocol, session 1 is a baseline assessment session during which fathers are introduced to the program, as well as assessed for challenges the father faces with parenting in daily routines and how the father currently interacts with his child. The Dad2K provider scores the father according to his use of the ten Planned Activities Training skills taught in the program. Sessions 2 through 5 focus on training the father in the ten Planned Activities Training skills (Prepare in Advance, Explain the Activity, Explain Rules and Consequences, Talk About What You and Your Child are Doing, Use Good Physical Interaction Skills, Give Choices, Praise Desired Behaviors, Ignore Minor Misbehavior, Provide Consequences, Wrap Up and Give Feedback) (Lutzker & Bigelow, 2002; Self-Brown et al., 2014). The primary objective of these sessions is to give the father hands-on practice implementing the Planned Activities Training skills during varying routines and activities. Fathers practice the skills until they achieve mastery. Dad2K providers offer positive and constructive feedback during the session, as well as homework, to enhance skill uptake. Session 6 focuses on program wrap-up and re-assessment. The goal is to determine the father's progress in the target Planned Activities Training skills. The father's level of skill mastery is assessed by observing three interactions between the father and his child during the same routines assessed in the baseline session. The preference for all Dad2K sessions was for the child to be present and involved. According to study records, children were present in approximately 80% of the Dad2K sessions completed for this study. The other 20% of fathers had limited access to their children during the course of the study. Additionally, maternal caretakers were allowed to be invited into the Dad2K sessions by the father participant. In all, approximately 34% of maternal caretakers participated in at least one SafeCare Dad2K session.

Dad2K Augmentations: As described in Self-Brown et al. (2015) two augmentations were developed for Dad2K. The first augmentation was the addition of a video-based software program delivered on tablet technology used in each home visit. The software was designed by Ondersma and colleagues (Ondersma, Chase, Svikis, & Schuster, 2005) and was adapted for Dad2K by Self-Brown. The Dad2K software uses a sports-theme approach and offers motivational content, engaging dialogues, and directed assessment questions with tailored feedback based on Motivational Interviewing Principles (Miller & Rollnick, 1991). The software also provides Dad2K content mainly through connected videos that offer psychoeducation and video modeling of the Planned Activities Training skills at each session. The Dad2K software is narrated by a Microsoft Agent character who provides instructions for the interactive activities. A male actor serves as a Dad2K “coach” in a set of pre-recorded videos that provide information on the skills to be learned during the program. Other male and child actors model the SafeCare target skills during in video-recorded daily routine interactions.

The second augmentation was the addition of a co-parenting information session in Session 4. In preparation for the session 4 co-parenting focus, Dad2K providers work with the father at session 3 to determine the co-parenting topic, as well as whether it was appropriate to invite and include the co-parent to the next session. Co-parenting topics were guided by the “Talking with Mom” workbook created by the National Fatherhood Initiative (Brown, 2011). Topics include “Mutual Purpose/Mutual Respect,” “Building Mom’s Emotional Bank Account,” and “Think Win-Win.” In addition to those topics, the Dad2K provider trained the father (and co-parent when included) in the Dad2K problem solving worksheet with a focus on problems arising in the co-parenting relationship. Fathers learned a step-by-step process to brainstorm solutions to relationship stumbling blocks, such as agreeing on bedtimes, sharing responsibilities, or differences in parenting styles.

SafeCare Dad2K Providers: There were seven Dad2K providers for the intervention condition. All providers have a master’s degree in a human services field. Training and fidelity monitoring for the intervention providers were conducted in accordance with the implementation requirements of the National SafeCare Training and Research Center (www.nstrc.org). All providers completed a 2-day workshop, a certification process with intense fidelity monitoring, and monthly fidelity monitoring post-certification until providers have achieved fidelity for a 2-year period. Providers of Dad2K were 7 trained SafeCare providers, 5 females with 2 years+ experience in delivering SafeCare with fidelity, and 2 males who were trained for purposes of this study and who were assessed for fidelity throughout the study period. Average fidelity ratings for providers were 94%, with the 85% criterion being a passing score for session fidelity.

Study Measures

Acceptability Measure

Parent-Child Interaction (PCI) Satisfaction Survey: The PCI Satisfaction Survey (Lutzker & Bigelow, 2002) is a short rating scale that assesses the parent’s satisfaction with Dad2K content, the usefulness of training strategies and target skills, technology used during training, and a general rating of the family coach. Items are rated on a 5-point scale, with

two items reverse-coded in analysis. The survey is administered at the final Dad2K session. The survey was submitted via the tablet online so that the father could complete it without fear of the home visitor viewing his responses. The satisfaction survey showed adequate internal consistency ($\alpha=0.79$).

Efficacy Trial Measures

Demographic Information Form: Constructed for this study, this form collects basic demographic information on all participants.

Parenting Skills: The Child Planned Activities Training Checklist (cPAT Checklist) was used as a measure for parenting skills with the intervention group. The cPAT Checklist (Lutzker & Bigelow, 2002) is a clinical assessment measure utilized in the Dad2K Parent-Child Interaction module to assess ten different parent behaviors through direct observation during routine activities (e.g., play, meal time). Parents are rated for the presence or absence of each behavior. Behaviors assessed include planning in advance, explaining rules and consequences, giving choices, talking about what the parent is doing, using good interaction skills, ignoring minor misbehavior, giving feedback, and providing rewards and consequences. A total score is yielded based on the percentage of behaviors observed (e.g., presence of four behaviors yields a total score of 40%). This measure has been previously validated by child development specialists, including teachers, child-care directors, clinicians, and researchers (Lutzker, Megson, Webb, & Dachman, 1985). It also has been used in prior outcome studies, including single-case studies and quasi-experimental studies that have demonstrated parent behavior change (e.g., Gershater-Molko et al., 2002). Dad2K Providers use the cPAT Checklist to assess parents during routine activities at session 1 and session 6 of Dad2K to assess skill mastery. Cronbach's alpha for the PAT checklist was 0.84 in this study, indicating high internal consistency.

Child Maltreatment Behaviors: Frequency of child maltreatment behaviors were measured by the Parent-Child Conflict Tactics Scale (CTS-PC). The CTS-PC (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) is a validated parent-report measure with 22 items assessing the extent to which various appropriate, harsh, and/or abusive disciplinary techniques are used over the last year. It also includes a 5-item scale measuring neglectful behaviors. The CTS-PC is a frequently used outcome measure of child maltreatment behaviors in child maltreatment prevention research (e.g., Bugental et al., 2002; Duggan et al., 2004).

Four subscales were computed for this study, the Total Corporal Punishment, Neglectful Behavior, Psychological Aggression, and Non-Violent Discipline. *Total Corporal Punishment* measures frequency of corporal punishment during the previous year. This supplemental scale consists of six items including "Spanked him/her on the bottom with your bare hand." Cronbach's alpha for this scale was 0.53. The five-item *Neglectful Behavior* subscale measures the parent's failure to engage in certain behaviors necessary to meet a child's developmental needs. The parent is asked about the frequency of neglectful behaviors during the past year using questions such as, "How many times did you have to leave your child home alone even when you thought some adult should be with him/her?"

Two items were not included in calculation of Cronbach's alpha due to having zero variance. Using the remaining three items, Cronbach's alpha was 0.70. The *Psychological Aggression* subscale, which measures annual frequency of verbal and symbolic acts by the parent intended to cause psychological pain or fear on the part of the child, includes five items such as "Shouted, yelled or screamed at him/her." Cronbach's alpha for this subscale was 0.59. The *Non-Violent Discipline* subscale asks parents the number of times in the past year that they have disciplined their child using non-violent methods. It consists of four items including, "Explained why something was wrong," and, "Put him/her in timeout." Cronbach's alpha was .66 for this subscale.

Internal consistency for the subscales of the CTS-PC was relatively low. However, these results are consistent with those found in the original validation of the measure (Straus et al., 1998) and in other research using this measure (e.g., Snarr, Slep, & Grande, 2009; Xing & Wang, 2017). As noted by Straus and colleagues (1998), because this measure examines rare events, the distribution of the values is skewed, which affects alpha.

Results

All statistical tests were conducted using SPSS version 21 (IBM, 2012). A total of three participants were excluded from all analyses: two were excluded due to discovering their ineligibility after they completed the baseline assessment and a third participant was excluded because his responses were consistently outliers across items and research assessors reported that his home visit behavior was erratic.

Differences in baseline demographic variables were not assessed because participants were randomly assigned to treatment groups. Current CONSORT guidelines note that testing for baseline differences is unnecessary because characteristics are randomly distributed between groups through the process of random assignment, and any control variables should be decided a priori due to theory and prior research (Moher et al., 2010). The comparison group was observed at baseline for the following variables: race, ethnicity, age, education, annual income, marital status, and working status (see Table 1 for participant demographic information overall and by group).

Change in the intervention group's cPAT scores from session one to session six was tested using paired *t*-tests. Results of the intervention satisfaction surveys are presented descriptively. The two-way repeated measures ANOVA analyses presented for the CTS-PC subscales excluded all intervention group participants who did not complete Dad2K ($n = 23$). However, both a per-protocol analysis and an intent-to-treat analysis were conducted for each subscale. Table 2 presents results of both types of analyses.

The data for all CTS-PC subscales were zero-inflated. Rather than dichotomize the outcome variable as has been done in prior research (e.g., Lee et al., 2012), we chose to keep the more detailed information on frequency of behaviors and exclude participants who reported zero incidents at the baseline assessment from the analysis. We examined the data to look for participants who reported zero at baseline and increased at the second time point. For each subscale there were only between 2–5% of participants who had increased from 0. Thus, we

proceeded with the analyses using only participants with a baseline frequency greater than zero. Although this resulted in a reduced analytic sample, especially for the Neglectful Behaviors subscale, it allowed us to assess program effects for the highest risk group (i.e., those reporting negative parenting behaviors), which is the target population for the program.

Acceptability

Intervention Satisfaction Ratings—Responses were rated on a five-point Likert scale from “strongly agree” to “strongly disagree.” Almost all (93%) of the fathers who completed the intervention also completed the satisfaction survey. Statements in the satisfaction survey could be divided into those related to the program, to the home visitor, and to the technology. See Table 3 for a list of the items and results.

Program-Related Items: Overall, the program was rated highly. Seven items comprised this portion of the survey. All of the respondents agreed or strongly agreed that the “training would be useful to other dads” and that “practicing during the sessions was useful.” Items with the lowest percentage of respondents agreeing or strongly agreeing included “I have more ideas about activities I would like to do with my child,” “Routine activities...have become easier,” and “The written materials were useful.” However, it is of note that these items were still rated highly by 88% of participants.

Home Visitor-Related Items: Ratings about the home visitor were highest among the three categories assessed for satisfaction. All of the respondents gave the most favorable ratings on all four items in this category.

Technology-Related Items: Three items were included in the survey related to technology. All participants agreed or strongly agreed that the “computer [they] used for Dad2K was easy to work with,” and almost all (96%) agreed or strongly agreed that they “learned new and useful information or skills from the computer portion of Dad2K.” The lowest percentage (80%) of fathers agreed or strongly agreed that they “liked doing part of [their] Dad2K session on the computer.” This was the least favorable rating of all items on the survey.

Efficacy Trial

Parent-Child Interaction—Change in parent child interaction was assessed by examining mean cPAT scores for the intervention group. Due to missing data for three participants, only 24 of the 27 participants who completed all six intervention sessions were included in the analysis of cPAT scores. Paired *t*-tests were conducted to determine if the difference between session one and session six scores was statistically significant. Ratings were completed for sessions one and six, where fathers completed two daily activities and one play activity. If the child was not available for the session, the score for the vignettes was used. Vignettes were only used in a total of three Dad2K sessions (1% of all PAT checklists completed throughout the study) for two different fathers. The data collected using vignettes were not included in the analysis. The cPAT scores for the three activities were averaged to comprise the score for session one and session six. The overall mean score for session one was 44.3

($SD=13.71$), which increased to 90.95 ($SD=10.62$) at session six. Results from the paired t -tests showed that this change was statistically significant ($t(21)=-10.78$, $p<.001$).

Child Maltreatment Behaviors—Approximately one-third (33%) of fathers endorsed all zeros on the Total Corporal Punishment subscale at baseline; 82% of fathers endorsed all zeros on the Neglectful Behavior subscale; 19% reported zeros on the Psychological Aggression subscale; and 6% reported all zeros on the Non-Violent Discipline subscale.

Total Corporal Punishment: No differences between intervention and comparison groups were found at baseline, $t(94)=-.197$, $p=.84$ or at the second assessment, $t(41.39)=1.62$, $p=0.11$. We examined the impact of the intervention on mean total corporal punishment from baseline to the second assessment (approximately six to seven weeks post-baseline). Twenty-four participants from the comparison group and 19 from the intervention group were included in this analysis. Descriptively, the mean of the comparison group slightly increased from 12.43 ($SD=12.59$) at baseline to 13.21 ($SD=20.86$) at the second assessment. Conversely, the intervention group showed a slight decrease in frequency of these behaviors from 7.95 ($SD=6.86$) to 6.05 ($SD=4.45$) between the baseline and second assessment (See Figure 2). Results of a two-way repeated measures ANOVA indicated no statistically significant difference between the two groups with regard to change in mean total corporal punishment score from baseline to second assessment $F(1, 41)=.59$, $p=.45$.

Neglectful Behaviors: Two participants were excluded from the neglect analyses because scores were two standard deviations above the mean; thus, they were identified as outliers. After removing their data, issues with skewness and kurtosis in the baseline data were resolved based on a standard of 3 for skewness and 10 for kurtosis. Skewness changed from 3.36 to 1.07, and kurtosis changed from 11.34 to 1.74. As with the total corporal punishment scale, there were no differences between the intervention and comparison groups at baseline on the neglect subscale of the CTS-PC, $t(91)=.44$, $p=.66$. However, in looking at all fathers except outliers, there were statistically significant differences between groups at the second assessment, $t(37.87)$, $p=0.04$. Data from only ten fathers were analyzed in the ANOVA due to the high number of participants who scored a zero at baseline ($n=60$) on this subscale. Descriptive examination of the means at baseline and the second assessment showed a stark decrease for the intervention group, 3.00 ($SD=1.15$), to 0.5 ($SD=0.58$), and little change in the comparison group, 3.29 ($SD=2.56$), to 3.33 ($SD=3.01$), respectively. However, ANOVA results did not indicate that the intervention had a statistically significant impact in the change in neglect score over time, $F(1, 8)=1.8$, $p=.22$ (See Figure 3).

Psychological Aggression: There were no group differences between the intervention and comparison groups on the psychological aggression subscale of the CTS-PC at baseline $t(94)=.61$, $p=.54$ or at the second assessment marginally significant finding emerged, $t(56)=1.87$, $p=0.07$. The ANOVA analysis for this subscale included 28 comparison participants and 23 intervention participants. Both groups decreased on this subscale from baseline to the second assessment, with a change from 20.78 ($SD=20.77$) to 18.39 ($SD=18.89$) and 14.13 ($SD=12.04$) to 8.7 ($SD=9.41$) for the comparison and intervention groups, respectively. ANOVA tests (see Figure 4) showed significant main effects for this

subscale, $F(1, 49)=6.82$, $p=.01$, but no statistically significant effects for time and intervention group, $F(1, 49)=.1$, $p=.75$.

Non-Violent Discipline: Participants in the intervention and comparison groups showed no differences at baseline on the non-violent discipline scale, $t(94)=1.27$, $p=.21$, nor at the second assessment, $t(66)=0.26$, $p=0.79$. No statistically significant differences between treatment groups were observed for this subscale, $F(1,57)=2.84$, $p=.10$ (see Figure 5), but intervention group participants showed a slight increase in mean non-violent discipline from baseline, 23.48 ($SD=16.77$) to the second assessment, 26.52 ($SD=20.11$). Conversely, the comparison group showed a slight decrease from baseline, 34.23 ($SD=25.82$) to the second assessment, 27.38 ($SD=27.4$).

Discussion

To date, little is understood about how to recruit or engage fathers into child maltreatment prevention programming, or whether fathers will benefit from participating. Mounting research documents the effectiveness of several parent training programs, one of which is SafeCare, in reducing the re-occurrence of maltreatment and/or for preventing abuse risk (such as corporal punishment) in families where it has not previously occurred (Chaffin et al., 2012; Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011; Lutzker & Rice, 1987; Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009; Scholer, Hudnut-Beumier & Dietrich, 2010). However, the majority of these studies focus almost exclusively on at-risk mothers, with a paucity of research focused on fathers. The current study is a feasibility trial focused on the acceptability and initial efficacy of Dad2K on father parenting skills and child maltreatment behaviors. Study hypotheses were partially supported.

In terms of feasibility, satisfaction data suggest high levels of acceptability for the intervention among participants and positive effects on intervention fathers' parenting skills. According to the SafeCare provider assessments, fathers who completed SafeCare Dad2K showed marked improvement in their use of positive parenting skills with their child: approximately 4 skills, on average, at session 1 to nearly 9 out of 10 skills, on average, at session 6. These findings suggest that fathers are amenable to behavior change in response to the intervention, especially in the area of positive parenting behaviors with their child in routine and play activities. One additional, interesting point from the collected information is the fact that the intervention completion rates were 49%, which is commensurate with findings from prior research with mothers (Damashek, Doughty, Ware, & Silovsky, 2011). Overall, these are promising preliminary findings to support the relevance and skill uptake benefits for at-risk father who engage in and complete the program.

In terms of child maltreatment behavior, hypotheses were not supported and no significant findings emerged for the group by time analyses. Hypotheses were based on the findings by Carta and colleagues (2013) which demonstrated positive changes in parent stress and parent-child interaction in mothers at-risk who participated in the SafeCare Parent-Child Interaction Module. As this is one of the first randomized trials examining an evidence-based, behavioral parenting program targeting child maltreatment prevention for fathers, many questions remain about how to most effectively serve this population. For instance,

would at-risk fathers have greater benefit from the full SafeCare program versus one module? Furthermore, would there be greater benefit from participating in a joint parenting program (for the maternal and paternal caretakers), as opposed to one more explicitly designed to only serve fathers?

Importantly, unexpected measurement issues also emerged relevant to child maltreatment behaviors. Specifically, even though we recruited a population of fathers meeting criteria for several previously-identified child maltreatment risk factors (CECANF, 2016; Clement et al., 2016; Lansford et al., 2015; NCANDS, 2017), many fathers reported no child maltreatment behaviors on the standardized measure. There are several possible explanations for this including social desirability, distrust of the research process that leads to underreporting, or actual low base rates of maltreatment behavior given this was a voluntary sample. Because so little intervention research has been conducted with at-risk fathers to-date, much remains to be learned about the most effective assessment measures to utilize. While there are a few published studies utilizing the CTS-PC (Straus et al., 1998) with fathers, these studies are assessment-based versus intervention-based. Interestingly, one of the assessment studies found that mothers report greater risk for engaging in corporal punishment than fathers with young children (Straus et al., 1998), which authors attributed to the greater amounts of time that mothers spend with young children, versus fathers. Thus, more work is warranted to help best identify responsive assessment measures for fatherhood research.

Interestingly, there was a significant main effect indicating a decrease for psychological aggression among both the comparison and intervention groups. That is, fathers who participated in Dad2K and fathers who received evidence-based parenting materials via mail reported decreases in psychological aggression towards their child. Psychological aggression is an important risk factor for abuse and poor outcomes among children (Belsky & De Haan, 2011) and researchers have called for greater attention in research and practice to this parental behavior (Polcari, Rabi, Bolger, & Teicher, 2014). The measure utilized to examine this outcome included items such as threatening physical violence, cursing at child, and threatening to throw out of home (Straus et al., 1998). Given that children aged during the course of this study, one would anticipate that nonviolent discipline may naturally increase. Thus, this is an unexpected finding that warrants further research. If marginalized fathers can make changes in their parenting behavior based solely on parenting materials they have access to read, there is substantial opportunity to disseminate such information through technology-based applications or web pages that reach such men. This meets NIH's goal that the social responsibility of science is to minimize additional burdens of science.

No significant time findings emerged, but it is of note that the visual depictions of the graphed outcomes for each subscale suggest a positive trend: the slopes of the child maltreatment behaviors are in the anticipated direction for the intervention group on all four outcomes. This trend is most noticeable for child neglect. While it is imperative to note that the subscale analyses included very few participants, focused on those who did report child neglect behaviors at baseline, the graph indicates that there were substantial declines over time for the SafeCare Dad2K group compared to the comparison group. This is important because child neglect is the most commonly substantiated form of child maltreatment and young children are at greatest risk (NCANDS, 2017). If a brief, 6-session intervention can

substantially reduce father child neglect perpetration behaviors, this could have a significant impact on public health.

For the non-violent discipline and total corporal punishment subscales, visual depiction also suggested some interesting trends. With non-violent discipline, the outcome slope increases for Dad2K participants and decreases for the comparison group. However, the fact that there were no significant findings for this outcome is not all that surprising given that parents who use little to high physical punishment often report using high non-violence discipline (Kim, et al; 2014; Lee et al., 2011). Further study of this outcome is warranted, especially with programs such as SafeCare that focus on teaching nonviolent behaviorally based discipline approaches. For corporal punishment, the slope decreases for the Dad2K completers and increases for the comparison group participants. Given that corporal punishment is 1) a clear indicator of child abuse (Gershoff & Grogan-Kaylor, 2016), 2) a very difficult behavior to change among parents (Holland & Holden, 2016), and 3) endorsed at high rates in this study (65.6% of fathers endorsed engaging in at least one type of corporal punishment during the study), future intervention research that is appropriately powered to detect effects on father use of this discipline method is sorely needed. With a more appropriately powered study, perhaps significant effects could be detected among intervention completers related to greater use of non-violent discipline and decreased use of corporal punishment, both parenting outcomes that are commensurate with targeted skills in the SafeCare Parent-Child Interaction module.

Limitations of Current Study

While the overall contribution of this paper is important due to the lack of existing research on this topic, several important weaknesses are noted. First, there is risk of selection bias given that only 33% of the fathers referred for the study agreed to a consent and initial assessment appointment. The participants targeted for this project were transient and often did not have reliable contact information, impacting the ability to recruit. Thus, the men who ultimately agreed to participate in the study may have been a bit more stable than the full sample approached. Further, this study was conducted with a convenience sample with a very restricted demographic population; thus, the generalizability of the findings are limited.

Measurement issues emerged for the primary outcome of the efficacy trial, child maltreatment behaviors, with a significant floor effect impacting the ability to examine and detect significance on child maltreatment perpetration. Accordingly, the analytic approach focused on fathers who reported some maltreatment risk at baseline. Clearly, there is more work needed to determine best practices in the measurement of fathers in parenting research. Psychometric studies of test-instrument development and validation is an important next phase of feasibility research with fathers. Additionally, all data reported in this study were either self-reported or provider-reported, both which are subject to bias. No data were collected from the female caregivers of the target children, which is an imperative next step in this line of research. Lastly, it is difficult to determine how differential drop out among the treatment and comparison condition impacted results and how influential the participant payment for attending Dad2K sessions was on engagement in the program.

Conclusions and Future Directions

The data presented in this paper are a first step in examining the impact of the SafeCare Dad2K intervention on father outcomes. The randomized trial recently completed data collection, with a third assessment timepoint (at 5-months post baseline). Additional measures remain to be explored across the three time points, including video-based observations of father-child interaction and child outcomes. Various risk confounders will also be further explored that may impact the overall outcomes in this study, including demographics, father depression, reported substance abuse history, and father living status in the life of the child (residential versus non-residential). Further, all respondents for the CTS-PC measure (not just those who reported some risk at baseline) will be included in future analyses.

In summary, this study demonstrated feasibility for the SafeCare Dad2K program in two key areas described by Bowen et al. (2009), acceptability and limited efficacy. Notably, the marginalized fathers with extreme psychosocial stressors who completed the program indicated high levels of satisfaction with the program. The completion rates achieved by study participants, which are commensurate with rates found among maternal participants in prior SafeCare studies (i.e. Damashek et al., 2011) suggest that fathers are amenable to participating in interventions that can positively impact the lives of their children. Additionally, intervention fathers demonstrated improvements in parenting skills over the course of the intervention. These skills improve the positive interaction between fathers and their children, and improve positive child behavior; thus, these findings alone suggest a positive change in the intervention fathers' family trajectories.

Further, this study offers support of the adaptation/augmentations of Dad2K and the feasibility of a technology-mediated approach to the delivery of an evidence-based practice, SafeCare, which can have benefits at both the provider and parent level. For the provider, this approach can reduce the burden and time to deliver the intervention (Self-Brown et al., in press), and for the parent it offers multi-modal learning opportunities that potentially enhance engagement and skill uptake. This is the first known study to examine a technology-mediated approach to intervention delivery focused on parent outcomes. Although the initial efficacy of the intervention on child maltreatment behaviors was not supported, this study is a first step in recruiting and examining the inclusion of fathers as principal intervention participants. Future work is warranted to further understand how to cultivate healthy father-child interactions, which ultimately improves child wellbeing, overall development, and behavioral outcomes.

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Figure 1.
Flow diagram of participants in the Dad2K study.

Figure 2. Change in mean CTS-PC: Total Corporal Punishment subscale score from baseline to second assessment. No statistically significant interaction effects were found ($F[1, 41]=.59$, $p=.448$).

Figure 3. Change in mean CTS-PC: Neglectful Behavior subscale score from baseline to second assessment. No statistically significant interaction effects were found ($F[1, 8]=1.8, p=.22$).

Figure 4.

Change in mean CTS-PC: Psychological Aggression subscale score from baseline to second assessment. No statistically significant interaction effects were found ($F[1, 49]=.1, p=.75$). However, statistically significant main effects were detected ($F[1, 49]=6.82, p=.01$).

Figure 5. Change in mean CTS-PC: Non-Violent Discipline subscale score from baseline to second assessment. No statistically significant interaction effects were found ($F[1,57]=2.84$, $p=.1$).

Table 1**Participant Demographics**

Variable	Total Sample (<i>n</i>=96)^a	Control (<i>n</i>=46)	Intervention (<i>n</i>=50)
Race, <i>n</i> (%)			
Black	88 (91.7)	43 (93.5)	45 (90)
White	3 (3.1)	2 (4.3)	1 (2)
Native American	2 (2.1)	1 (2.2)	1 (2)
Other	2 (2.1)	0	2 (4)
Ethnicity, <i>n</i> (%)			
Latino	5 (5.2)	2 (4.3)	3 (6)
Not Latino	91 (94.8)	44 (95.7)	47 (94)
Father age, mean (standard deviation)	30.05 (7.75)	30.73 (7.28)	29.42 (8.18)
Child age, mean (standard deviation) ^b	3.33 (1.18)	3.41 (1.09)	3.26 (1.26)
Education, <i>n</i> (%)			
Up to high school diploma	57 (59.4)	26 (56.5)	31 (62)
Beyond high school diploma	39 (40.6)	20 (43.5)	19 (38)
Annual Income, <i>n</i> (%)			
Less than \$25,000	70 (72.9)	30 (65.2)	40 (80)
\$25,000 or more	26 (27.1)	16 (34.8)	10 (20)
Marital Status, <i>n</i> (%)			
Single (not living with a partner)	28 (29.2)	11 (23.9)	17 (34)
Married	21 (21.9)	11 (23.9)	10 (20)
Divorced	6 (6.3)	5 (10.9)	1 (2)
Living with a partner (not married)	38 (39.6)	18 (39.1)	20 (40)
Separated	3 (3.1)	1 (2.2)	2 (4)
Working Status, <i>n</i> (%)			
Yes	48 (50)	27 (58.7)	21 (42)
No	48 (50)	19 (41.3)	29 (58)

^aTwo participants were excluded due to not meeting inclusion criteria and one was excluded because his responses were consistent outliers

^bTwo additional participants were excluded from this calculation because these fathers reported a child age greater than five years, indicating they were not reporting on the age of the target child

Table 2
Repeated Measures ANOVA Examining Time by Treatment Effects on Parenting Behaviors

CTS-PC Subscale	Intent-to-Treat Analysis			Per-Protocol Analysis		
	<i>df</i>	<i>F</i> statistic	<i>p</i> -value	<i>df</i>	<i>F</i> statistic	<i>p</i> -value
Total Corporal Punishment	1, 44	1.45	0.24	1, 41	0.59	0.45
Neglectful Behaviors	1, 8	1.8	0.22	1, 8	1.8	0.22
Psychological Aggression	1, 52	0.15	0.7	1, 49	0.1	0.75
Non-Violent Discipline	1, 61	2.1	0.14	1, 57	2.84	0.10

Note. CTS-PC: Conflict Tactics Scale-Parent Child Version

Table 3

Dad2K Satisfaction Survey (n=25)

Satisfaction Survey Item	Percent Strongly Agree or Agree
<i>Program-Related Items</i>	
Interacting with my child has become easier.	96%
I have more ideas about activities I would like to do with my child.	88%
Routine activities like feeding my child and bathing him or her have become easier.	88%
I believe that this training would be useful to other dads.	100%
I do not feel the training gave me new or useful information or skills.	0%
Practicing during the sessions was useful.	100%
The written materials were useful.	88%
<i>Home Visitor-Related Items</i>	
The home visitor was on time to appointments	100%
The home visitor was warm and friendly.	100%
The home visitor was negative and critical.	0%
The home visitor was good at explaining the material.	100%
<i>Computer-Related Items</i>	
The computer that I used for Dad2K was easy to work with.	100%
I learned new and useful information or skills from the computer portion of Dad2K.	96%
I liked doing part of my Dad2K session on the computer.	80%