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# The Impact of SafeCare Parent-Child Interaction Module on Father-Child Interactions: An examination of an observational measure

Alexandria Patterson

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## ABSTRACT

The Impact of SafeCare Parent-Child Interaction Module on Father-Child Interactions: An examination of an observational measure

By

Alexandria Lynn Patterson

April 18, 2017

Child maltreatment is classified as the abuse (physical, emotional, and sexual) or neglect of a minor (Center for Disease and Control [CDC], 2015). The number of child maltreatment victims has fluctuated over the past five years, with recent reports indicating an estimate of 683,000 victims in 2015, an increase of 3.8% since 2011 (US Department of Health and Human Services, 2017). Low-quality parent-child interactions throughout childhood has been identified as having a significant negative impact on a child's developmental outcomes thus children who have high-quality interactions with their caregivers are less likely to be victims of child maltreatment (Landry, Smith, Swank, & Guttentag, 2008). Few studies focus solely on fathers and their interactions with their children, especially in populations at higher risk for perpetuating child maltreatment despite fathers being recognized as having an important role in their child's social and behavioral development (Scourfield, 2014). SafeCare, an evidence-based program tested mostly with mothers, addresses target skills across child activities and behavior management, has shown to be effective in reducing physical abuse and neglect in children aged 0-5 (Chaffin et al., 2013). This study is a secondary data analysis from an NIH-funded project conducted between 2013 and 2016 (see Self-Brown et al., 2015). As a means of preventing child maltreatment, we focus on improving the quality of interactions children have with their fathers by targeting specific teachable skills. This study focused specifically on the analysis of an observational measure of father-child interaction to examine whether the Parent-Child Interaction skills of father-child dyads in the intervention group fathers improve after participation in SafeCare compared to the control group fathers. This hypothesis was not supported, likely due to limited power, given the poor participation of study participants in this observational measure.

Key words: Child maltreatment, father involvement, observational data

The Impact of SafeCare Parent-Child Interaction Module on Father-Child Interactions: An  
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by

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A thesis submitted to the graduate faculty  
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APPROVAL PAGE

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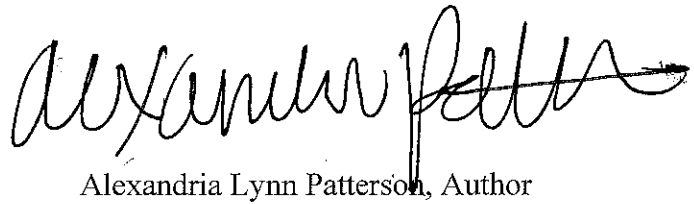
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A handwritten signature in black ink, reading "Alexandria Lynn Patterson". The signature is written in a cursive style with a long horizontal flourish at the end.

Alexandria Lynn Patterson, Author



## 1. Introduction & Literature Review

Child maltreatment is defined as the physical or sexual abuse and/or neglect of a minor (Center for Disease and Control [CDC], 2015). Child maltreatment can have a lasting physiological and psychological impression that continue over the life course with implications of the acts being perpetuated to their children (Kim, Wildeman, Jonson-Reid & Drake, 2017). Their research indicates adverse outcomes associated with child maltreatment include diminished neurological capacity due to an overactive sympathetic nervous system, poor general physical health, increased risky behaviors, increased risk of violent and criminal behavior, and impaired intellectual and cognitive development. Danese et al. (2009) highlights the increasing evidence of adults who had low SES during childhood are at an increased risk for age-related diseases such as cardiovascular disease. Retrospective investigations revealed child maltreatment was a predictor of adult depression and an increased risk of inflammation and metabolic risk markers in adult life (Danese et al., 2009). Child maltreatment can also have short-term consequences such as early delayed development which is associated with lower school readiness and poor school performance in children (Kim et al., 2017).

Fathers may be indirectly or directly associated with child maltreatment (Dubowitz, 2006). Per the US Department of Health & Human Services (2017) in 2015, 45% of substantiated cases cited males as perpetrators across the U.S. Additionally, 17.9% of offenders were aged 18–24 years and 41.5% were aged 25–34 years (US Department of Health & Human Services, 2017).

The literature focused on programs that prevent or reduce father-child maltreatment perpetration is small. Few studies are documenting the positive outcomes for children when a father is positively involved in their lives (Scourfield, 2014). It is important to have studies that

highlight father-child interactions to learn more about this parent-child dyad dynamic.

Ramchandani and colleagues (2013) suggest fathers and mothers engage in dissimilar parent-child interactions at an early age, with most father interaction being play centered which is physically stimulating and unpredictable. Further, fathers often have stricter expectations for their child (Dubowitz, 2006) than the child's mother. Positive father involvement can be a predictor of improved cognitive outcomes for the child later in life. For instance, fathers' play or caregiving (direct engagement) has been predictive of reduced behavioral problems in boys, emotional difficulties in girls, and reduced levels of delinquency in families of low SES (Ramchandani et al., 2013).

This research focuses on a behavioral theory-based intervention program, SafeCare®, which has substantial evidence for preventing and reducing child maltreatment perpetration and improving the parent-child relationship among at-risk mothers. For example, in a cluster experiment designed for families in the Child Protective Services (CPS), mothers who received SafeCare were less likely to have a re-report within the first year after completing SafeCare. Evidence from this trial experiment suggest that 64-104 re-referrals to CPS would be eliminated per 1000 cases if SafeCare was adopted in a home-based service system (Chaffin, Hecht, Bard, Silovsky, & Howard, 2012). The findings support the use of SafeCare in a child protective service setting (Chaffin et al., 2012). Silovsky and colleagues (2011) found high-risk rural families who were assigned to SafeCare compared to Services as Usual (SAU) for a home-visitation program reported being more satisfied with their service and an enhanced ability to address health and hazard concerns and prevent child misbehavior compared to the SAU sample. In another study, which was focused on the examination of SafeCare in a prevention setting, found that parents randomized to SafeCare Parent-Child Interaction module as compared to a

wait list condition had an increase maternal responsivity and reduced depression and stress (Carta et al., 2013). Supplementary, changes in parenting depression and stress was an indicator of positive child behaviors (Carta et al., 2013). Thus, recent studies show the effectiveness of SafeCare reducing child maltreatment, as well as improving parent-child outcomes for at-risk mothers and their young children.

Importantly, SafeCare targets the two most common types of maltreatment, child neglect and physical abuse, for the most at-risk child age group (ages 0-5 years). Three-quarters (75.3%) of victims were neglected and 17.2 % were physically abused (US Department of Health and Human Services, 2017). The maltreatment victimization rate for children between the ages of 0-5 year's old accounts for 43% of all cases (US Department of Health and Human Services, 2017). African American children had the highest rates of victimization (US Department of Health and Human Services, 2017). SafeCare is administered by home visitors who train parents in three modules, including parent-infant interactions or parent-child interactions, home safety, and health. Parents learn targeted skills in each of these three modules that reduce proximal risk factors for child physical abuse and neglect. The skills are taught by a trained SafeCare provider who uses assessments, and an explain, model, practice, and feedback process to teach the parent to mastery (Lutzker & Chaffin, 2012).

To date, however, SafeCare has not been tested extensively with fathers. The lack of studies examining evidence-based programs with fathers (Meuwissen & Carlson, 2015), leaves gaps in understanding of how fathers learn and improve parenting skills, practices, and attitudes. Additionally, there is little understanding of how to measure father outcomes pertaining to these outcomes as well as father-child interaction (Dubowitz, 2006; Guterman & Lee, 2005).

### **1.1 Parenting Intervention Research from a Historical Perspective**

Research regarding parenting programs has almost exclusively focused on mother responses to treatment. Historically, mothers were thought of as the primary socialization influence of a child and thus father involvement was not prioritized (Davison et al., 2016). However, the participation of fathers in parenting has shifted over the last 40 years, and fathers have been recognized as playing an important role in their child's social and behavior development (Davison et al., 2016). A 2013 national report identified that 70% of US fathers' co-residing with children aged five years old or younger reported they fed or ate a meal with their child every day over the previous four weeks (Jones & Mosher, 2013). Fathers being engaged in caregiving activities suggest a need for more father engagement in parenting interventions. A meta-analysis of parent programs showed that when fathers were involved in the study with mothers, there was a report of more positive changes in child outcomes and parenting practices than studies that only included mothers (Lundahl et al., 2008).

A valid measure for parenting studies is critical for assessing the implications for program outcomes pertaining to child and family well-being. Research on parenting interventions primarily focuses on outcomes measured by maternal self-report of attitudes and behaviors of parenting (Morsbach & Prinz, 2006). Studies that provide an additional method of data collection like records and behavioral observation have typically resulted in finding that these outcomes are not consistent with self-report data, confirming the risk for measurement error and bias (Morsbach & Prinz, 2006).

Reliance on self-report data may lead to unreliable findings in research due to a couple of significant issues. First, parent participants in research are often asked to report an estimation of the number of times a behavior occurred over an extended amount of time (e.g. the last 30 days). This can lead to recall bias, not giving an accurate depiction of true frequency. Second, survey

questions are often ambiguous or unclear. For instance, a question such as “What have you and your child done together today?” The respondent would understand the literal meaning but the pragmatic meaning requires the respondent to make conclusions as to what kinds of activities the researcher is interested in hearing about. Misinterpretations of pragmatic meanings can lead to measurement error. Third, sensitive items on self-report measures could result in parents not reporting or underreporting. Social desirability, intrusiveness, and risk of disclosure to third parties contribute to why parents may choose not to report on certain behaviors that are occurring within the home (Morsbach &Prinz, 2006).

In addition to the challenges noted with measurement in parenting intervention more broadly, since there is a substantial gap in the literature regarding fathers, it is unclear if the validity of measures used in prior parenting studies that have focused primarily on mothers, will apply to fathers. Adamson & Buechler (2007) called for the need to refine reliability and validity and examine if there is equivalence between constructs for mothers and fathers. To promote child development through positive relationships of child and fathers, there is a need for strong, reliable and valid, observational measures that supports child development and parenting strengths of fathers (Anderson, Roggman, Innocenti, & Cook, 2013).

## **1.2 Purposes of the current research study**

This research hopes to add evidence to the gap in the father-child observational literature. This research stems from a randomized trial testing one SafeCare module aimed to provide additional evidence for how a proven parenting intervention with at-risk mothers will perform with at-risk fathers. The specific focus of this research focuses on father-child interactions. Specifically, we want to understand how responsive father behaviors are to an observational measure focused on parent-child interaction skills. We hypothesized that father-child dyads who

participated in the SafeCare Parent-Child Interaction module would demonstrate improved skills on this measure as compared to fathers who were assigned to the control condition (received parenting materials in the mail). We looked specifically at all ten parent target skill behaviors measured by the observational measure that are the hallmark skills of positive parent-child interaction and the prevention of challenging child behavior (Lutzker & Bigelow, 2002). We hypothesized that fathers who completed the SafeCare Parent-Child Interaction module would use significantly more of the ten targeted skills than fathers who participated in the control condition.

In addition to the ten skills targeted by the SafeCare Parent-Child Interaction module, we examined specifically items pertaining to father praise of their children. Praise is a particularly relevant behavior that is key to behavioral parent programs (Leijten et al., 2016), and we were interested in how a program might impact this outcome with fathers, and if child gender is a predictor of praise for father participants. Specifically, praise is utilized in parenting interventions as a method of positive reinforcement for managing disruptive behaviors (Filcheck, McNeil, and Herschell, 2001). It is assumed when parents approve of their child's behaviors through praise, it increases the likelihood the behavior will reoccur (Leijten, Thomaes, Castro, Dishion, Matthys, 2016). A recent study by Leijten et al. (2016) revealed parents use of labeled praise for children 4-8 years old, increased child compliance and reduced disruptive behavior over a two-week period. To date, the majority of research examining the target skill of praise in parenting research has focused on mothers. Thus, we were interested in examining how fathers might learn and improve on the specific skill in response to the SafeCare Parent-Child Interaction module. We hypothesized that fathers who participated in SafeCare as compared to the control condition would increase the use of Praise in the interactions with their young children.

## **2. Methods & Procedures**

This thesis is a secondary data analyses from an NIH-funded project conducted between 2013 and 2016. The methods described below have been described in other manuscripts (see Self-Brown et al., 2017 under review).

### **2.1 Study Context**

The data described originated from a randomized controlled trial examining the feasibility and efficacy of an evidence-based child maltreatment prevention program, SafeCare, adapted for fathers and entitled SafeCare Dad to Kids (Dad2K). The study examined the Dad2K program, which includes the Parent-Child Interaction module of SafeCare with adaptations for fathers, including six home visiting sessions that aim to increase positive parent- child interactions. The purpose of the study was to compare child maltreatment risk outcomes and other relevant parenting outcomes between participants randomly assigned to SafeCare ( $n = 51$ ) and fathers assigned to a control condition, who received parenting materials in the mail ( $n = 48$ ).

### **2.2 Participants**

A total of 99 men enrolled in the Dad 2K study. After being recruited, a study coordinator administered a follow-up communication to fully explain the project, and ensured 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 (lived with the child or had regular visitation with the child) at the time of the baseline assessment, English-speaking, and met two or more potential risk factors (i.e., minority classification, low education level, low household income, un-married relationship status). Various recruitment methods were used for this study which included the following: 1) recruited from a pediatric hospital setting that primarily serves families living below the poverty level (primary care clinic and emergency room clinic) (59%),

2) referred by a father participant in the study (13%), 3) recruited in a community settings for at-risk families (Teen Dads Program, Early Head Start Program) (14%), and 4) recruited by outreach in high volume areas in impoverished communities and neighborhoods (14%).

For the project aims for this thesis, a total of 22 fathers (22% of father participants) were eligible for inclusion in analyses due to the following additional criteria: completed a parent-child interaction video at baseline and second assessment time-point (approximately 7 weeks after baseline assessment), which will be referred as follow-up. Participants were 90.9% Black, 4.5% Caucasian, and 4.5% reported refuse to answer. None of those sampled identified as Latino. The mean age was 30.64 years ( $SD=7.37$ ). Most participants had completed some education past high school diploma/GED (54.5%), while 31.8% had a high school diploma/GED. In terms of household income, 71.4% reported their annual income to be less than \$25,000. In terms of working status, 50.1 % of fathers reported currently working, while 40.9 % were unemployed. Regarding relationship status, 27.3% of fathers reported being unmarried but living with a partner, while 31.8% identified as single, 9.1% divorced and 31.8% as married.

### **2.3 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 father parent behavior skills. 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 (a small laptop), and recorded a brief video of the father interacting with his child. Fathers were randomly assigned to either the intervention or control group following the assessment. Within



one business day, the father was notified of his group assignment. Procedures differed per group assignment. Fathers participated in the project for an average of 188.81 days ( $SD= 71.65$ ). This paper provides results from baseline and second assessment, which was 6-8 weeks' post-baseline, referred to as follow-up. A third assessment, which was approximately three months' post-baseline, was completed by father participants but due to a low number of father participants completing observational data during the third assessment, no third assessment data was used for this study. Accordingly, the study period varied based on how quickly the father proceeded through the intervention. Fathers were incentivized \$50 per assessment.

*Control group procedures.* Forty-six fathers were assigned to the control group but for the purposes of this thesis, only eight fathers were used in the analyses. These fathers received parenting materials mailed at three times during 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.

*Intervention group procedures.* Fifty-one fathers were assigned to the treatment group, but for the purposes of this thesis, only 14 were analyzed. Intervention fathers had the opportunity to complete SafeCare Dad2K (described below) between the baseline session and the follow-up assessment. Fathers were paid \$10 per session. Dad2K is the manualized Parent-Child Interaction module of SafeCare (Lutzker & Bigelow, 2002) that includes six home visiting sessions focused on positive parenting. Adaptations were made from the SafeCare module to appeal to fathers, which will be described in "Dad2k Augmentations". 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 per 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, which means they are demonstrating at least 8 out of the 10 target skills taught in the Parent-Child Interaction module. 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.

*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 session. 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 offers 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. An African-American 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 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 workbook “Talking with Mom” workbook created by the National Fatherhood Initiative (Brown, 2011), The father from topics including “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.

## **2.4 Measures**

*Demographics.* Basic demographic information collected and used for this research include: race, age, highest level of education, income, employment status, and marital status. Gender of child was recorded by rater after video observation.

*cPAT Checklist.* The Child Planned Activities Training Checklist (cPAT Checklist) is a clinical assessment measure utilized in SafeCare and the Dad2K study for the Parent-Child Interaction module to assess ten different parent behaviors through direct observation during

routine activities (e.g., play, meal time) (Lutzker & Bigelow, 2002). Parents are rated for the presence or absence of each behavior. The eleven behaviors assessed included: 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 (Labeled), Praised Desired Behaviors (Unlabeled), Ignore Minor Misbehavior, Provide Consequences, Wrap Up and Give Feedback. 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).

*Coding.* Parent-child interaction videos were captured during the baseline and follow-up assessments when possible. Assessors aimed to record for 10 minutes but due to child behavior, videos were sometimes cut short. Recorded videos ranged from 5 to 15 minutes in length. Two raters completed the ratings for each video captured. Coders were blind to which fathers were in the treatment versus control group in addition to which time point they were coding for (i.e., baseline or follow-up). Videos were assigned a video identification number which was unrelated to fathers' study participant number.

Videos were uploaded to a secure network site, SharePoint, where coders could view and download videos. Videos were coded in chronological order from the date of upload. Raters scored videos using a check/minus system. This is a slight deviation from the standard scoring of check plus/check/minus system. The decision was made after 20 videos were scored among a group of trained scorers and poor inter-rater reliability emerged for the decision on whether a

behavior should be a check (behavior exhibited) or check-plus (behavior exhibited with excellent skills). A decision was made that for the purposes of this research, the check versus check-plus was subjective and it was more important to understand simply whether a behavior was exhibited or not versus with what skill level it was exhibited. Videos that were originally scored using check-plus were watched again and rescored with the new criteria. For all behaviors listed on the cPAT checklist, if participants met one of the criteria for behavior, a check was given. If the rater did not observe the behavior during the video, it was coded as a minus. A score of N/A could have been given for the following reasons: 1) Activity was already in progress when the recording began (Prepare in advance) 2) No misbehavior occurred (Ignore minor misbehavior) 3) If the video ends before the activity, and there is no clear agreed-upon time where the father could have provided a consequence (Provide consequences) and 4) If the video ends before the activity is over (Wrap-up).

A second deviation from standard scoring was splitting Praise Desired Behaviors into two categories: Praise Desired Behaviors (labeled) and Praise Desired Behaviors (unlabeled). These were defined in the following ways: 1.) Praise had to pertain to the activity the father participant and child were in engaged in 2.) Father participant had to use two or more labeled praises (and unlabeled praise) during the activity to receive a score of a check. This decision was made because we wanted to capture potential differences in father praise behavior, given this skill has not been researched in prior studies.

Raters took notes for each parent behavior citing what criteria was met to receive the score given. For example, if father told his child “good job,” raters wrote the phrase in the notes corresponding to unlabeled praise. If there was disagreement among the two raters on the score given for a parent behavior, coders explicitly cited when in the video the behavior was observed.

If raters were unclear how a behavior should be coded and could not reach a consensus, a SafeCare trainer and expert in the cPAT measure was consulted to determine the proper score that should be given. Thus, for any discrepancy in initial reliability, a final scored agreed upon score was determined. Consultation with a SafeCare trainer took place for 6 out of 103 (5.8%) interaction videos.

Additionally, raters identified each video as interactive or non-interactive play and made a note of cell phone use during the activity referencing if cell phone use was for the child's activity or personal use. Three out of one hundred and three videos (2.9%) were excluded based on audio and picture quality (i.e., volume too low or image too dark to code).

## **2.5 Statistical Approach**

*Preliminary analyses.* All data presented was analyzed using SPSS (Version 22, IBM, 2012). Chi-square tests were performed for father demographics to see if there were any differences between fathers who completed baseline data and two versus fathers who did not complete both baseline and follow-up c. Bivariate correlations were conducted for between group analyses on demographic characteristics. Correlations were used to assess additional control variables.

*Hypothesis testing.* A linear regression model was tested to assess the difference between groups assessing 6-week follow-up cPAT scores, using cPAT baseline scores and treatment group as predictors. A second linear regression was conducted with the addition of father's education and gender of the child as predictors. Based on theory, it was expected that men with higher levels of education would grasp parenting concepts more successfully than men with lower levels of education, and thus, men with higher levels of education would have a higher cPAT score 2. Further, we wanted to explore whether father interactions might differ with

children according to gender (i.e., fathers may be more affectionate with girls than with boys). Additionally, a logistic regression model for praise was preformed, using treatment group, baseline score of praise, and gender of child as a predictor variables to see if we would have statistical support that receiving the treatment (SafeCare) or the child's gender, played a role in father participants praising their child during the interaction videos.

### 3. Results

Figure 1 shows a study flow diagram of participants who were randomized into the study, including the number of fathers who completed a child interaction video at baseline and follow-up. A total of 22 fathers (14 treatment, 8 control) were used in the analysis. Of the 99 participants in the Dad2K study, only 22 had observational interaction data for baseline and follow-up. The amount of missing data was high (78%). Fathers who did not have both time points were excluded from the analysis. Major reasons provided for nonparticipation of interaction video was insufficient time and absence of child.

*Preliminary analyses.* Chi square tests were completed to test group differences between those who completed both baseline and follow-up interaction videos versus those who did not. Dummy variables were created for demographics for continuous variables. Results are given in Table 1. No statistical group differences were found. Additional demographic characteristics were included to assess potential confounder variables on participants' follow-up cPAT score. Correlations between demographic and potential mediator variables are presented in Table 2. There was only one statistical significant correlation with the outcome variable, father's employment status,  $r(6) = -0.826, p=0.012$ , indicating that for control group participants, those who were employed were significantly more likely to have a higher score 2 (follow-up) compared to fathers who were not employed. There was no statistically significant correlation

between intervention group demographics and the outcome variable. Additionally, we examined the percentage of fathers who utilized a cell phone during the video as part of their activity with their child.

Figure 1

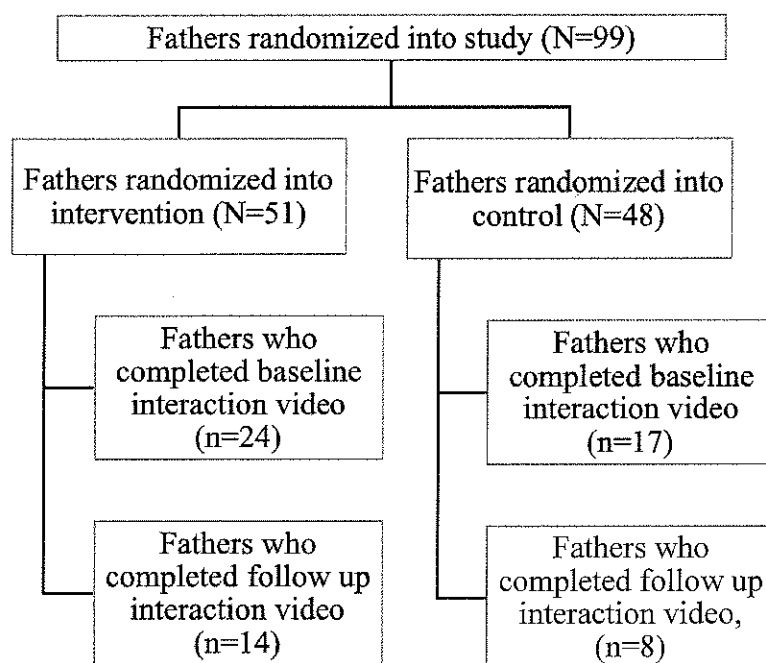
*Dad 2K Study Flow Diagram*



Table 1

*Demographic differences between study sample and remaining Dad 2K Study participants*

Demographic	Chi Square	df	p-value
Race	1.831	3	0.608
Marital Status	4.983	4	0.289
29 years or younger vs. 30 or older	0.057	1	0.811
High School diploma or below vs. Above a high school diploma	1.677	1	0.195
Household income \$24,999 or less vs. greater than \$25,000	0.117	1	0.732
Employed vs. Unemployed	0.249	1	0.618
Female Child	2.182	1	0.140

Note.  $p < 0.05$

Table 2

*Pearson's Correlations between Demographic Variables and Follow up Score*

Characteristic	SafeCare	Control
29 years or younger vs. 30 or older	0.08	-0.41
Marital Status	0.17	-0.06
High School diploma or below vs. Above a high school diploma	-0.05	0.24
Employed vs. Unemployed	<0.00	-0.83*
Household income \$24,999 or less vs. greater than \$25,000	-0.11	0.18

Note.  $p < 0.05$

*Hypothesis testing.* Linear regressions were conducted to examine whether participant's follow-up cPAT score was associated with treatment group. Since, we are assessing group

changes in outcome variables between baseline and follow-up, score 1 was used as a control variable and treatment group was included in the model as well. As expected, score 1 was a statistically significant predictor ( $\beta= 0.701$ ,  $SE= 0.285$ ,  $p=0.024$ , large effect size). Our model included Score 1 as a control variable since we expect baseline scores to be associated with their follow-up score. Treatment group was not statistically significant ( $\beta= 8.457$ ,  $SE= 9.195$ ,  $p=0.369$ , small effect size). The full regression model included the score 1, treatment group, gender of child, binary education, and binary annual income as predictors. Results from regression analyses are presented in Table 3 and 4. Treatment Group was not statistically significant ( $\beta=16.913$ ,  $SE=10.345$ ,  $p\text{-value}=0.369$ ). Consequently, whether fathers were in the treatment or control group, had no bearing on an influx of score from pre-to post. Baseline cPAT score ( $\beta=0.644$ ,  $SE= 0.301$ ,  $p\text{-value}=0.036$ ) was also the only statistically significant predictor for the adjusted model. Treatment group ( $\beta=16.913$ ,  $SE=10.345$ ,  $p=0.369$ ), gender of child ( $\beta=-16.012$ ,  $SE= 11.531$ ,  $p=0.638$ ), education ( $\beta=-7.988$ ,  $SE=9.459$ ,  $p=0.761$ ), and annual income ( $\beta= 20.289$ ,  $SE=13.902$ ,  $p\text{-vale}=1.459$ ) were not statistically significant; hence, the variables did not have any effect on predicting the posttest score. We fail to reject our null hypothesis, indicating there is not enough evidence to suggest fathers who received SafeCare, performed better than fathers in the control group.

Table 3

*SafeCare and Control participants' follow-up cPAT score*

	Unstandardized $\beta$	SE	p-value	95% Confidence Interval
Baseline Score	0.70	0.29	0.02*	(0.11, 1.30)
SafeCare	8.46	9.20	0.37	(-10.79, 27.70)

Note: Dependent variable: Follow-up cPAT score; \* $p<0.05$

Table 4

*Did intervention participants score higher on the follow-up cPAT checklist?*

	Unstandardized $\beta$	SE	p-value	95% Confidence Interval
Baseline Score	0.64	0.30	0.04*	(0.05, 1.32)
SafeCare	16.91	10.35	0.37	(-11.72, 31.94)
Female Child	-16.01	11.53	0.64	(-29.85, 18.81)
High School diploma or below vs. Above a high school diploma	-7.99	9.46	0.76	(-17.03, 22.89)
Household income \$24,999 or less vs. greater than \$25,000	20.29	13.90	1.46	(-9.18, 49.76)

Note: Dependent variable: Follow-up cPAT score; \* $p < 0.05$

*Logistic Regression.* A logistic regression was performed to see if treatment group status had a relationship with the score received for Unlabeled and Labeled praise outcome variables. The model for labeled and unlabeled praise included the score received at baseline, treatment group, and gender of child. There was not enough statistical evidence to support being in the treatment group had any advantage over being in the control group in reference to the score fathers received for praised labeled and praised unlabeled behavior. Results are presented in Table 5 and 6.

Table 5

*Did use of labeled praise differ based on treatment group?*

	$\beta$	SE	Odds Ratio	p-value
SafeCare	0.38	1.03	0.14	0.71
Female Child	-0.47	0.92	0.27	0.61
Baseline Labeled Praise	-0.96	1.34	0.51	0.47

Note: Predictors= Treatment group, gender of child, and baseline labeled praise score; \*p<0.05

Table 6

*Did use of unlabeled praise differ based on treatment group?*

	$\beta$	SE	Odds Ratio	p-value
Treatment Group	-0.69	1.07	0.42	0.52
Gender	0.84	0.10	0.71	0.40
Baseline Unlabeled Praise	0.57	0.96	0.36	0.55

Note: Predictors= Treatment group, gender of child, and baseline unlabeled praise score;

\*p<0.05

#### 4. Discussion & Conclusion

Observational data is insightful information that we would not normally be able to capture using self-report only data, such as, frequency of a behavior (Morsbach & Prinz, 2006). Accurately reporting parental behavior change is essential to understanding of how meaningful intervention strategies are in promoting improvement in actual behaviors in parent-child relationships as compared to the self-report of such change (Anderson et al., 2013). The purpose

of the current study was determining whether father participants who received SafeCare (intervention sample) would differ on an observational measure of parent-child interactions, the cPAT checklist, compared to father participants who were in the control group. We hypothesized fathers who received SafeCare would have higher quality interactions with their children than the control group. More specifically, we predicted that fathers who participated in the intervention would demonstrate significantly improved scores on the cPAT checklist at the follow-up (post-intervention) as compared to baseline, and that control group fathers on average would not significantly improve their follow-up score, controlling for baseline. We were also interested in examining the specific skills of praise, given the importance of this factor in leading to positive behavioral change for young children (Leitjen et al., 2016). Given that praising desired behaviors was explicitly taught to intervention fathers, we hypothesized that intervention fathers would perform superior to the control. Our hypotheses were not supported for either the overall score of father-child interaction, nor for Praise specifically.

Although the results were not significant in this study, the overall analyses were limited with regard to power. Father intervention research is an emerging field, and there is not much literature available to suggest how to measure father-child outcomes appropriately. In the overall study, the research team included a mix of quantitative, qualitative, and observational measures. This particular study focused on the observational measure. We learned important lessons from the inclusion of the observational measure that may inform how to organize and plan for future father intervention studies. Primarily we learned that it can be difficult to collect observational data with fathers, as only 22% of the recruited 99 fathers engaged in the observational measure. This challenge arose despite the fact father-child assessments were conducted in the home, and when the appointment was scheduled, the scheduler requested that the child be present. The

most common reason for this was father access to the child on the day of the assessment. Father access to their children, especially when the father and mother are not married or romantically involved which was the case for 40.9% of the father participants, can be limited. In future studies, investigators may need to work in funding to allow for multiple visits and assessment opportunities to increase the likelihood of the father having visitation with their child on the day of the assessment. An additional solution might be to ensure that the mother is also included as a research participant, even when the father is the target of the intervention. Inclusion of the mother will not only allow for the opportunity to collect multi-informant data on the target child, but might also make the mother more engaged and willing to ensure father access to the child when observational measures are included.

Anderson and colleagues (2013) mention there are few studies that examine father-interventions for pre-school aged children. Their study focused on developing a strong reliable and valid measure that can be useful in home-based visitation programs. The measure was intended to be inclusive of supporting child development by identifying father parenting behaviors and strengths and be easy for home visitors to observe (Anderson et al., 2013). The study used father-interaction videos from low-income fathers nationally from Early Start Research and Evaluation Project (Anderson et al., 2013). Videos were obtained when child was 14, 24, and 36 months. From the 428 father-child video interactions, 262 father participants had one video observation, 131 had two video observations, and only 35 fathers had three video observations (Anderson et al., 2013), similar to rates we found in our interaction videos. From the father participants in the interaction videos, 70% were biological-resident fathers (Anderson et al., 2013) comparable to the 60.7% of our father-participants who were married and/or living with their partner. Anderson et al. (2013) observation tool, PICCOLO-D arose from the

psychometrically sound observational measure, PICCOLO used to identify 29 behaviors in mother-child interactions. PICCOLO-D tested each of the 29 behaviors on father-child interaction videos and found only 15 items to be reliable and valid of father interactions, suggesting the fathers and mothers do differ in their interactions with their children, and there is a need for father-centered observational tools (Anderson et al., 2013).

*Limitations of research.* This thesis provides meaningful information on if the cPAT measure could be useful in future studies to detect an effect in father parenting studies, however, several limitations do exist. The primary limitation is having such a small sample size of 22 out of 99 participants of the Dad2K to Kids study. Measurement issues also could have resulted in a lower cPAT score for fathers at both time points. Recorders did not uniformly begin videotaping. There was no consistency in notifying participants when the video was beginning or approaching an end. Thus, a more structured approach to the data collection of observational measures is recommended for future studies.

*Future directions in father intervention research.* More studies are needed that focus on the use of observational data for fathers who have partial and full custody. Father participants who did not have access to their children the day of assessment, often cited the child's mother as the reason for not having more time with child. Parental conflict and strain, particularly for those who are not romantically involved, may have played a role in our father participants having limited access to their child thus reducing the probability of fathers being able to record observational data. The nature of the relationship with child's mother can hinder father involvement with the child. Future research should examine how to promote mother and father participation in an observational study of non-residential fathers.

Although there is value in father observational data collection, in that, we can learn about fathers differently to understand behaviors and possible methods of intervening, for our research participants, data collection opportunities were very limited, and we could not draw meaningful conclusions. Observational data should still be used in support of self-report data collection methods in parenting research because although self-report may not be useful in capturing frequency of child behaviors (Morsbach & Prinz, 2006) it can provide insight on self-perceptions of parenting, competence, investment, and satisfaction gained from parenting. Parenting cognitions has been shown to have an influence of parenting behaviors that impact child outcomes (Morawska, Adamson, & Especkerman, 2015).

Thus, every investment should be made in future studies to gather more targeted data collection of fathers with their children. In addition to improving methods that ensure better access, there can also be improvements for the observational measure processes. For instance, research focused on father-child interaction could explore the use of having multiple levels of play activity. The four levels could explore treatment-structured play, treatment-free play, control-structure play and control-free play (Kwon, Bingham, Lewsader, Jeon, & Elicker, 2013). Kwon and colleagues (2013) investigated associations between parenting quality, toddler-parent engagement with parents and play using structured and free play. The study showed main effects activity setting (structured task vs free play) on parenting quality expect parenting responsiveness. Similarly, future studies should use structured play group where fathers would be engaged in an activity provided by the assessor, such as a coloring book and crayons. This could provide more evidence on how fathers may differ in their interaction if they are provided with materials for their interaction.



Praise is an important behavior that should be further explored with observational measures in future studies. There is limited data on behavior-specific praise in parenting intervention studies, and none have focused on fathers specifically. With such a limited body of work, we do not know if fathers respond differently than mothers in receiving skills training on praise. Though our results did not have statistically significant results, it is meaningful that our control group had identical frequencies for the use of unlabeled praise at baseline and follow-up. Raaijmakers (2008) suggested labeled praise does not typically happen sporadically for parents, meaning, parents who do not use labeled praise are not going to randomly start using it without intervening. Future studies to continue to examine how improve fathers comfort level when using labeled praise so it comes across more naturally for fathers and they are more likely to use labeled praise post intervention.

*Conclusion.* It is important to have more research examining the efficacy and effectiveness of proven parenting interventions with fathers as the primary participant and in partnership with mothers. This thesis was a part of a study that is the first to examine how SafeCare works specifically with fathers, with the goal of improving positive father-child interactions and reducing father child maltreatment risk (Self-Brown et al., 2014). Positive father-child interactions are critical in potentially reducing child maltreatment risk and improving the life-course of a child by eliminating an increased risk for poor health outcomes (Kim et al., 2017). Father research should continue to advance, in that, it looks at multiple levels of how to intervene, exploring how to accurately assess father behavior skills, and work towards improving the relationship between parents to give their child an enhanced care experience.

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## Appendix

### *Study Sample Demographics*

Baseline Characteristics	<u>SafeCare (n=14)</u>	<u>Control (n=8)</u>
	n (%)	n (%)
<b>Father Participant Race</b>		
White		1 (12.5)
Black	13 (92.9)	7 (87.5)
Refuse to Answer	1 (7.1)	
Child Male	5 (35.7)	5 (62.5)
Child Female	9 (64.3)	3 (37.5)
<b>Parent Highest Education</b>		
9th Grade	1 (7.1)	
10th Grade		1 (12.5)
11th Grade	1 (7.1)	
High School Graduate/GED	4 (28.6)	3 (37.5)
Some college	6 (42.9)	2 (25.0)
Associate's degree	2 (14.3)	1 (12.5)
Bachelor's degree		1 (12.5)
<b>Father Participant Employment Status</b>		
Employed	7 (50.0)	6 (75.0)
Unemployed	7 (50.0)	2 (25.0)
<b>Hours worked on average if employed</b>		
Less than 20 hours per week	1 (7.1)	

20-30 hours per week	1 (7.1)	1 (12.5)
30-40 hours per week	1 (7.1)	3 (37.5)
More than 40 hours per week	4 (28.6)	2 (25.0)
Marital Status		
Single (not living with a partner)	5 (35.7)	2 (25.0)
Living with a partner (not married)	4 (28.6)	2 (25.0)
Married	4 (28.6)	3 (37.5)
Divorced	1 (7.1)	1 (12.5)
Annual Household Income		
\$0-\$4,999	3 (21.4)	1 (12.5)
\$5,000-\$9,999	3 (21.4)	
\$10,000-\$14,999	1 (7.1)	2 (25.0)
\$15,000-\$24,999	4 (28.6)	1 (12.5)
\$25,000-\$34,999	1 (7.1)	1 (12.5)
\$35,000-\$49,000	1 (7.1)	2 (25.0)
\$50,000-\$74,999		
\$75,000-\$99,999		1 (12.5)
Refuse to Answer	1 (7.1)	
	M (SD)	M (SD)
Father Participant Age	29.0 (6.89)	33.50 (7.75)

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