



Effect of the SafeCare[®] intervention on parenting outcomes among parents in child welfare systems: A cluster randomized trial

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ABSTRACT

Child maltreatment has long-lasting negative impacts, and interventions are needed to improve caregiver's parenting skills to prevent maltreatment. This paper reports on a randomized trial comparing the SafeCare[®] model to services as usual (SAU) for child-welfare referred caregivers. SafeCare is an 18-session behavioral parenting program that teaches skills in positive parent-child interactions, home safety, and child health. SAU is generally unstructured and includes support, crisis management, referrals for need, and parenting education. Teams of providers at nine sites were randomized to implement SafeCare (19 teams; 119 providers) or continue SAU (17 teams; 118 providers). Two-hundred eighty eight caregivers (193 SafeCare; 95 SAU) with children aged 0–5 who were receiving services agreed to complete a baseline and 6-month assessment. Assessments measured positive parenting behaviors, parenting stress, protective factors, and neglectful behaviors using validated scales. Participants were primarily white (74.6%), female (87.0%), and low-income (68.6%), and had a mean age of 29. Latent change score models (LCSM) using a sandwich estimator consistent with the trial design were used to examine changes in 13 outcomes. Results indicated that SafeCare had small to medium effects for improving several parenting outcomes including supporting positive child behaviors ($d = 0.46$), proactive parenting ($d = 0.25$), and two aspects of parenting stress ($d = 0.28$ and $.30$). No differential change between groups was found for other indicators, including all indicators of neglect. Parenting programs such as SafeCare offer a promising mode of intervention for child welfare systems. Scale-up of parenting programs can improve parenting, improve child outcomes, and potentially reduce maltreatment.

Clinicaltrial.gov registration number: [NCT02549287](https://clinicaltrials.gov/ct2/show/study/NCT02549287)

1. Introduction

Child maltreatment is a significant public health problem in the United States (Hammond et al., 2006) and worldwide (Krug et al., 2002), raising the risk of negative health outcomes by about 70% (Wegman and Stetler, 2009), with long-term impacts on mental and physical health (Dube et al., 2009; Brown et al., 2010; Dong et al., 2003; Dong et al., 2004; Corso et al., 2008). State child protection systems (CPS) respond to maltreatment reports and provide services to promote child safety. However, those services often lack scientific support, with large-scale trials documenting little impact on critical outcomes such as recidivism, family reunification, and out of home placements (Littell, 1997; MacMillan et al., 2005; Chaffin et al., 2001; Westat, 2002; Schuerman et al., 1994). States have begun to adopt evidence-based interventions with documented improvements in these target outcomes, and recent federal child welfare legislation – the

Families First Prevention and Services Act of 2017 – will accelerate the adoption of such programs.

There is a dearth of research on the effectiveness of maltreatment interventions (Berthelot et al., 2019), including programs to improve parenting skills and reduce child neglect (Dubowitz, 1994; McSherry, 2007; Wolock and Horowitz, 1984) among child-welfare referred populations. The California Evidence-Based Clearinghouse for Child Welfare (<https://www.cebc4cw.org/>) rates just three programs as “Supported” in the area of “Parent Training to Address Child Abuse and Neglect”, and three as “Supported” for child neglect the most common form of maltreatment (U.S. Department of Health and Human Services, 2019). None are rated Well Supported. Published reviews of maltreatment intervention find that many of the studies included were conducted with families outside of child welfare systems (Chen and Chan, 2016), and with interventions that may not be optimized for use within child welfare systems.

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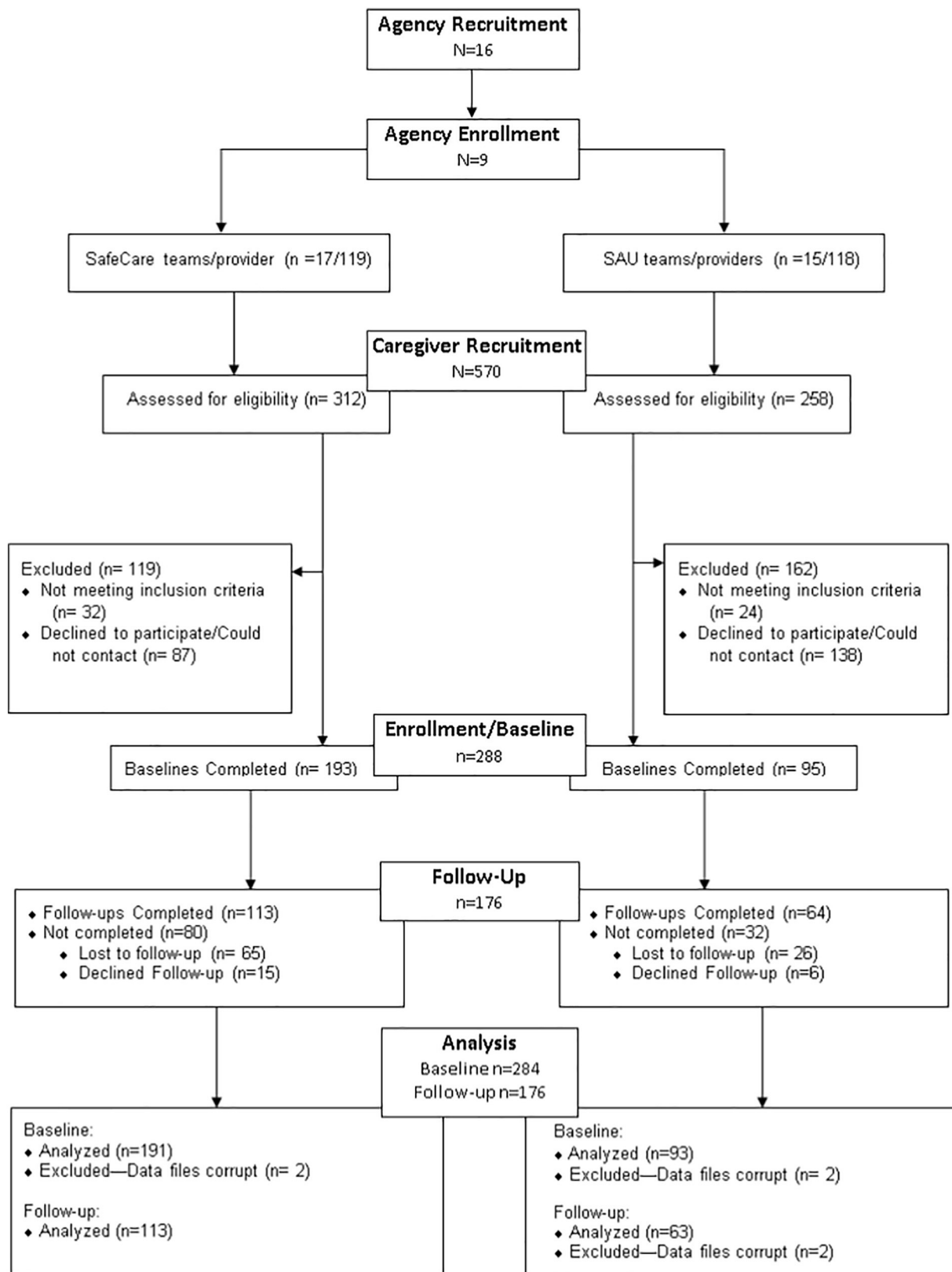


Fig. 1. CONSORT diagram.

One class of programs – behavioral parent training programs (BPT) – were developed to address children's behavioral problems but have been adapted to address the needs of maltreating families (Urquiza and McNeil, 1996). BPT programs teach parents skills through didactics, modeling, and practice to mastery criteria to reduce the likelihood of

abusive or neglectful behaviors (Serketich and Dumas, 1996), and have been recommended by experts as a promising direction for intervention (Whitaker et al., 2005; Barth et al., 2005; Dore and Lee, 1999; Chaffin and Friedrich, 2004). The limited research on BPTs' impact on maltreatment has shown promise with a few randomized trials finding

reductions in maltreatment recidivism (Chaffin et al., 2011; Chaffin et al., 2004; Chaffin et al., 2012; Prinz et al., 2009). Still more research is needed to fully understand impacts, especially as BPTs are scaled up across service systems.

This study presents results of a cluster randomized effectiveness trial comparing the SafeCare® model to services as usual (SAU) within several child-welfare serving agencies across four state systems. SafeCare is a BPT designed for parents of children aged 0–5, and targeting proximal risk factors for physical abuse and neglect (U.S. Department of Health and Human Services, 2019). Recent evaluations have shown SafeCare to influence important child welfare outcomes such as recidivism (Chaffin et al., 2012) and out-of-home placements (Beachy-Quick et al., 2018). Additional data are needed to evaluate SafeCare's impacts on parenting skills to understand mechanisms by which child welfare outcomes may be changed. Additionally, it is imperative to understand impacts across service systems as most prior trials were conducted in single systems. In this study, nine child welfare agencies across four service systems randomized teams of providers to either implement SafeCare or continue SAU. Families were assessed at baseline and at six-month follow-up. We examine whether SafeCare improved key parenting outcomes compared to SAU.

2. Method

2.1. Agency recruitment

Public and private child welfare agencies across the U.S. were recruited between July 2015 and September 2016. Recruitment strategies included advertising on listserves, and outreach to existing SafeCare agencies, child welfare administrators, and child maltreatment researchers. Minimal inclusion criteria for sites were that agencies must (1) serve parents referred from the child welfare systems that were receiving SAU services, (2) had at least two teams of providers that could be randomized, (3) demonstrate sufficient client flow to satisfy recruitment goals. Applicants interested in the study were asked to complete an application describing their agency, service system, current interventions, client flow and demographics, organization capacity for and history of EBPs, and a fiscal plan for service delivery. Ninety agencies expressed an initial interest, 16 completed an application, and 9 were selected for the study.

2.2. Study design

The study design was a cluster randomized trial, with randomization occurring via coin toss at the team level within each agency. We recruited sites with at least two teams of providers that could be randomized. Prior to randomization, teams conducted the same type of services, typically in discrete geographic areas, thus serving discrete populations. Each site agreed that all providers on the designated teams would participate by engaging in service delivery and with the recruitment of families. Teams were chosen as the unit of randomization for practical considerations (statistical power, each agency would receive some training) and to minimize contamination. Randomization of individual providers would have posed logistical challenges and would have increased concerns about contamination. Randomization of families would cause ethical concerns from providers and organizations.

Across the 9 sites, 32 teams with 237 providers were randomized: 17 teams with 119 providers were randomized to implement SafeCare, and 15 teams with 118 providers to continue SAU (See CONSORT Diagram, Fig. 1). When provider turnover occurred, new providers hired were considered “randomized” to their team if they were able to implement the intervention that had been randomly assigned to that team. For SAU teams, all new providers were considered randomized because no additional training was required. For SafeCare teams, only those who were able to be trained in SafeCare were considered randomized (i.e., a provider who joined a “SafeCare team” but was not

trained was not considered a SafeCare provider). In all, there were 37 providers added to the study after the initial randomization (13 for SafeCare; 24 for SAU), but most families (84% SAU and 96% SafeCare) were enrolled by providers that were part of the original cohort. Providers on SafeCare teams were trained by the National SafeCare Training and Research Center (NSTRC) (Whitaker et al., 2008).

2.3. Interventions

SafeCare is a structured parenting program that addresses proximal behaviors that can lead to child neglect and physical abuse (Lutzker and Bigelow, 2002; Hecht et al., 2008). It is typically delivered weekly in the home over 18 sessions, and has three modules: child health, home safety, and parent-child interactions. The child health module focuses on helping parents identify symptoms of illness and injury and take appropriate action. The home safety module focuses on teaching parents to identify and secure home hazards that pose a danger to children, and to supervise children around unsafe environments. The parent-child interaction module seeks to build a positive parent-child relationship through positive interactions, and teach parents to structure activities to prevent challenging child behaviors. Families receive all three modules, which can be delivered in any order. Each SafeCare module is planned for six sessions, though the number of sessions can vary depending on progress.

Services as usual (SAU) for parents referred for services by CPS systems typically consists of a loosely defined, process-oriented intervention in which providers engage families through relationship-building and emotional support, assessing needs and linking families to services, and troubleshooting and addressing day-to-day crises. Providers often do not have specific goals for each session, but rather determine what needs to be addressed with the family in real time. Providers typically conduct visits based on client needs, availability, and caseloads. SAU teams received no additional training as part of the study.

The data on the implementation of SafeCare and SAU was incomplete. SafeCare dosage data was available on only 115 families, where the average number of sessions completed was 8.2 ($sd = 6.2$) with 26 (23%) clients completed 15 or more SafeCare sessions. We also obtained data from each site on the total number of sessions for all services delivered between the baseline and follow-up interviews. Data were received for 147 (77.0%) SafeCare families and 76 SAU (83.5%) families. SafeCare families received an average of 16.97 sessions ($sd = 19.97$), and SAU clients received an average of 8.30 sessions ($sd = 11.26$). Providers were trained to deliver SafeCare by the NSTRC using its standard implementation practices that include skills-based workshop training and on-going coaching (Chaffin et al., 2012; Whitaker et al., 2012). Fidelity to SafeCare was measured as part of the coaching process; providers submitted audio recordings of sessions and SafeCare coaches at NSTRC or at the site scored each session using a standard checklist that included approximately 30 items scored as either having been successfully completed or not. Provider fidelity to the SafeCare model was very good, averaging 92.1% over several hundred sessions across all providers.

2.4. Parent recruitment and enrollment

Caregivers were eligible for the study if they had a child between ages 0–5 in the home, or were in the process of reunifying with that child, and spoke either English or Spanish. Enrollment of caregivers was not restricted by common risk factors such as mental health problems, substance use issues, partner violence, or intellectual disability. We were unable to obtain complete information about the child welfare history of study families, but all were referred for services because of substantiated or suspected physical abuse or neglect, and none had a primary allegation of child sexual abuse.

Caregivers were introduced to the study opportunity by their

provider, who had already been randomized to SC versus SAU. Providers presented a recruitment flyer to the caregiver and gave a brief verbal summary of involvement. Interested caregivers were referred to the research team who reviewed study procedures over the phone. Caregivers were told the study included two in-home assessments during which they would complete a computerized survey. Caregivers were assured that data would not be shared with their service provider or the local child welfare agency. If a caregiver agreed to participate, a local data collector who was part of the research team contacted the caregiver to schedule the in-home assessment. The local data collector obtained informed consent, administered the survey, and provided a \$40 gift card. Caregivers who did not wish to take part in the trial received whatever services their provider was giving, either SC or SAU, and had no contact with the research team.

The CONSORT diagram (Fig. 1) shows the number of caregivers approached by providers, the number referred to the study, and the number ultimately consenting, enrolling, and being retained at follow up. Of the 300 SafeCare caregivers approached who were eligible, 193 (64%) agreed to participate. Of the 250 SAU caregivers approached 96 (38%) agreed to participate. Retention at the 6-month follow up was 61% overall and slightly higher among SAU (67%) than SafeCare clients (58%). The sample size was smaller than planned. Originally, the study was planned to have a sample size of 960 families across sites, and was powered to detect small effect sizes ($d = 0.20$) with subgroup analyses planned by site and client characteristics. However, implementation difficulties at the sites limited the number of families enrolled.

2.5. Family data collection procedures

All data were collected via a computerized survey using the Qualtrics App by a research assistant who was blinded to the condition and not part of the service delivery team. Assessments were conducted at baseline (prior to intervention) and six-months after baseline. The six-month time frame was chosen as SafeCare typically takes 4–5 months to deliver and many child welfare services last for around 6 months, and thus the interventions should be completed between baseline and post-test. Caregivers responded to a battery of questions including the outcomes described below.

2.6. Measures

We collected standard demographic information, including sex, race, age, education, income, marital status, and number of children, and several standardized measures served as primary outcomes. All scales have been used with parents in high-risk settings, and are thus appropriate for the study sample. Where measures were directed toward a specific child, parents were instructed to think about the index child who was the subject of their involvement with the child welfare system, and if more than one child was the subject, they were instructed to think of the oldest child under the age of six.

The *Parenting Young Children Scale* (PYCS) (McEachern et al., 2012) assesses three dimensions of positive parenting behaviors that are linked to positive parent and child outcomes: *proactive parenting* (e.g., preparing child for challenging situation) is the extent to which a parent takes action to avoid problem behaviors; *support of positive behaviors* (e.g., praising the child) is the extent to which parents use reinforcers for the child and have positive interactions with the child; and *limit setting* (e.g., making sure child follows rules) is the extent to which the parent structures the child's behavior via expectations and rules. Each dimension included seven questions and participants responded on a seven-point scale with higher numbers indicating more positive parenting behaviors.

The *Parenting Stress Inventory-short form* (PSI) (Abidin, 1995) is a 36-item scale designed to measure stressors in parenthood. There are three subscales with 12 items each. The *dysfunctional interactions* subscale (e.g., child smiles less than I expected, child doesn't like me or want to

be close) indicates the extent to which the parent has unmet expectations and does not find interactions with the child reinforcing. The *difficult child* subscale (e.g., child is very mood, child does things to bother me) assesses perception of child's temperament and behavior. The *parental distress* subscale (e.g., having a child has caused problems, feel trapped by responsibilities as a parent) represents perceived child-rearing competence and stresses associated with child parenting. Participants responded on a five-point scale with higher numbers indicating greater parenting stress.

The *Mother-Child Neglect Scale* (MCNS) (Lounds et al., 2004) is a 20-item scale that assesses four domains of neglectful caregiving behaviors: physical (e.g., kept child clean), emotional (e.g., comforted child when upset), cognitive (e.g., read books to child), and supervisory (e.g., knew child's whereabouts). Each domain included five questions which participants answered on a four-point scale, with higher score indicating more neglectful behaviors. The MCNS was used for both female and male caregivers.

The *Protective Factors Survey* (Counts et al., 2010) assesses five protective factors for child maltreatment. Here we focus on the constructs most relevant to parenting including: parenting knowledge (e.g., I don't know what to do as a parent), nurturing behaviors (e.g., my child and I are very close), and family functioning (e.g., family pulls together when things are stressful). Each domain included four or five items and parents responded on a seven-point scale.

2.7. Statistical procedures

We created latent constructs for each outcome rather than rely on observed scale means to account for measurement error in each of the outcomes. We conducted confirmatory factor analyses to ensure adequate fit of the measurement models for all latent construct outcomes. Measurement models were deemed to be adequate if they demonstrated an RMSEA ≤ 0.08 and a CFI and TLI ≥ 0.90 (see Table 2). Additionally, indicators with factor loadings less than 0.40 were removed from the measurement models, and thus the outcomes do not necessarily have the same number of indicators as the original scale. Table 1 shows results from the measurement models. All constructs showed adequate fit as indicated by RMSEA, TLI (results now shown), and CFI. We also tested for measurement invariance across treatment conditions as well as longitudinally. Magnitude of measurement invariance was assessed using the w statistic which is equivalent to a correlation or Cramer's V in interpretation (Newsom, 2015). All effect sizes were ≤ 0.09 for the total invariance from configural to strong. Thus, we determined that all construct measures demonstrated strong measurement invariance.

To assess the primary research question, we employed latent change score models (LCSMs) (McArdle, 2009; Geiser et al., 2013) and handled missing data using full information maximum likelihood (FIML). FIML treatments for missing data are superior to traditional methods when data are missing at random (Little, 2013; Peyre et al., 2011) and in some instances may be superior to multiple imputation (Larsen, 2011). We accounted for clustering of data within provider teams and violations of normality via robust maximum likelihood estimation (i.e., sandwich estimator). LCSM is particularly useful for the present study as it is ideal for modeling non-normally distributed data, and it accounts for measurement error which provides more accurate estimates than simple scale means (Geiser et al., 2013; Curran et al., 2010). Analyses were conducted in Mplus version 8.1. (Muthen and Muthen, 1998-2019).

In order to control for any covariate imbalances that may have resulted from differences in recruitment rates between treatment groups, we calculated propensity scores for estimating the probability of the caregiver being in the control vs intervention treatment group. The propensity score was developed using baseline data and logistic regression models that included agency, all demographic variables (e.g., race, sex, education, work status, relationship status, number of children in the home, presence of another caregiver, age of target child), all

Table 1
Measurement model fit statistics at baseline and 6-months for the latent constructs.

Latent construct	Ind.	Baseline				Loadings	6-Months			
		RMSEA [95 CI]	CFI	$\chi^2(df), p$			RMSEA [95 CI]	CFI	$\chi^2(df), p$	Loadings
Supporting positive behavior	6	0.094 [0.057, 0.133]	0.966	27.60(8), 0.001	> 0.41	0.055 [0.0, 0.110]	0.992	13.74(9), 0.13	> 0.52	
Proactive parenting	6	0.037 [0.0, 0.085]	0.996	11.05(8), 0.20	> 0.67	0.119 [0.073, 0.169]	0.953	27.68(8), < 0.001	> 0.60	
Setting limits	6	0.053 [0.0, 0.097]	0.994	14.31(8), 0.07	> 0.68	0.086 [0.058, 0.116]	0.984	34.50(8), < 0.001	> 0.68	
Family functioning	5	0.082 [0.028, 0.139]	0.995	11.42(4), 0.02	> 0.84	0.173 [0.117, 0.234]	0.973	30.73(5), < 0.001	> 0.84	
Nurturing parenting	4	0.0 [0.0, 0.11]	1.0	1.57(2), 0.46	> 0.66	0.0 [0.0, 0.11]	1.0	0.77(2), 0.68	> 0.63	
Parent knowledge	3	Just-identified			> 0.51	Just-identified			> 0.53	
Emotional neglect	4	0.041 [0.0, 0.132]	0.997	2.94(2), 0.23	> 0.56	0.0 [0.0, 0.121]	1.0	0.95(2), 0.62	> 0.47	
Cognitive neglect	5	0.0 [0.0, 0.081]	1.0	3.18(4), 0.53	> 0.53	0.11 [0.053, 0.177]	0.969	15.97(5), 0.01	> 0.51	
Supervis. neglect	3	Just-identified			> 0.31	Just-identified			> 0.28	
Physical neglect	5	0.0 [0.0, 0.073]	1.0	2.55(4), 0.64	> 0.54	0.162 [0.100, 0.230]	0.955	22.07(4), < 0.001	> 0.53	
Dysfunctional interactions	11	0.074 [0.056, 0.093]	0.957	97.36(38), < 0.001	> 0.45	0.135 [0.113, 0.157]	0.894	153.44(37), < 0.001	> 0.50	
Difficult child	12	0.071 [0.055, 0.086]	0.944	125.58(52), < 0.001	≥ 0.42	0.096 [0.076, 0.116]	0.923	135.13(52), < 0.001	≥ 0.36	
Parental distress	12	0.075 [0.059, 0.090]	0.939	134(52), < 0.001	> 0.49	0.116 [0.097, 0.136]	0.880	166.15(50), < 0.001	> 0.48	

Notes. Ind. = indicators; CI = confidence interval; RMSEA = root mean square error of approximation; CFI = comparative fit index.

parenting variables reported in this paper, and several additional available variables not described above (drug and alcohol use, tobacco use, mental health status, resource needs, home chaos, social support, concrete support; complete information on all measures is available from the first author). All LCSMs controlled for the latent construct at baseline and included an inverse probability propensity weight as a continuous covariate in each model. We conducted the LCSMs to assess the effect of the intervention on change in the parenting outcome over time. From the LCSMs, we extracted standardized parameter estimates, and calculated Cohen's *d* as a standardized effect size, which here is the difference between SafeCare and SAU in the change scores from the baseline to the six month assessment (Cohen, 1988).

3. Results

Table 2 shows the demographic characteristics of the sample. The sample was primary female (87%) and white (75%) and had a mean age of 29 (*sd* = 7.9). Half of the sample reported working and over two-thirds reported a monthly income of \$1250 or less. One-third had no children in the home (the child had been removed by the CPS system), and 39% reported having two or more children in the home. About half of participants reported they were currently in a relationship, and half reported another adult caregiver for the child in the home. Over half reported alcohol use, 40% reported drug use, and a quarter reported experiencing physical partner violence.

Table 3 shows the factor score means, results from the LCSM's, and Cohens *d*, which represents the difference between SafeCare and SAU in the pre-to-post change. Note that factor score means were computed in the original scale of the observed indicators for ease of interpretation. Two hundred fifty-nine participants were included in the final LCSM analyses due to 25 participants missing on the propensity weight variable. Findings for several variables favored SafeCare over SAU, and none favored SAU. SafeCare was associated with small to moderate effect sizes for increasing supporting positive behavior (Cohen's *d* = 0.44), and proactive parenting (*d* = .25). SafeCare was also associated with small to moderate reductions in two aspects of parenting stress: dysfunctional parent-child interactions (*d* = - 0.28), and

Table 2
Sample demographics.*

Variable	Full sample (n = 284)	SafeCare (n = 191)	SAU (n = 93)
Parent age in years, mean (<i>sd</i>)	29.5 (7.9)	28.6 (6.9)	31.3 (9.3)
Sex			
Female	247 (87.0)	159 (83.3)	88 (94.6)
Male	37 (13.0)	32 (16.8)	5 (5.4)
Race			
White	209 (74.6)	146 (77.3)	63 (69.2)
Black	37 (13.2)	21 (11.1)	16 (17.6)
Latino	19 (6.8)	11 (5.8)	8 (8.8)
Other	15 (5.4)	11 (5.8)	4 (4.4)
Education:			
Less than HS	64 (22.6)	51 (26.7)	13 (14.1)
HS	99 (35.0)	64 (33.5)	35 (38.0)
Some college	120 (42.4)	76 (39.8)	44 (47.8)
Employment			
Working	140 (49.3)	89 (46.6)	51 (54.8)
Not working	144 (50.7)	102 (53.4)	42 (45.2)
Monthly income:			
< \$600	86 (34.7)	62 (37.8)	24 (28.6)
\$600-\$1250	84 (33.9)	55 (33.5)	29 (34.5)
\$1250+	78 (31.5)	47 (28.7)	31 (36.9)
Kids in the home			
0 ^a	95 (33.6)	54 (28.3)	41 (44.6)
1	76 (26.9)	60 (31.4)	16 (17.4)
2	63 (22.3)	41 (21.5)	22 (23.9)
3+	49 (17.3)	36 (18.9)	13 (14.1)
Age of target child in months, mean (<i>sd</i>)	27.67 (20.60)	25.18 (19.19)	32.81 (22.53)
Has relationship partner	161 (57.7)	119 (63.3)	42 (46.2)
Second caregiver in home	152 (53.5)	104 (54.5)	48 (51.6)
Alcohol use last 12 m	163 (58.8)	107 (57.5)	56 (61.5)
Illegal drug use last 12 m	111 (39.6)	71 (37.6)	40 (44.0)
Victim of physical partner violence, past 12 m	64 (25.8)	45 (26.6)	19 (24.1)

* Count (percent) displayed unless otherwise noted.

Table 3
Results of latent change models examining intervention effects on parenting outcomes ($n = 259$ in all models).

Outcome	SAU factor means		SC factor means		Standardized estimate (95% CI)	p-value	Cohen's d	Model fit statistics	
	Baseline	6-month	Baseline	6-month				RMSEA	CFI
Supporting positive Beh.	6.156	6.107	6.133	6.459	0.201 (0.036, 0.366)	0.017	0.438	0.057	0.946
Proactive parenting	5.556	5.700	5.375	5.992	0.116 (0.001, 0.230)	0.049	0.249	0.035	0.974
Setting limits	5.957	6.227	5.800	6.285	0.039 (-0.079, 0.157)	0.516	0.083	0.005	0.999
Family functioning	5.065	5.061	5.035	5.473	0.104 (-0.021, 0.229)	0.103	0.223	0.041	0.984
Nurturing parenting	6.412	6.364	6.549	6.625	0.108 (-0.034, 0.250)	0.136	0.232	0.032	0.975
Parent knowledge	5.774	5.573	5.786	5.753	0.126 (-0.189, 0.441)	0.434	0.271	0.016	0.993
Emotional neglect	3.764	3.760	3.749	3.797	0.041 (-0.120, 0.201)	0.619	0.088	0.036	0.967
Cognitive neglect	3.690	3.729	3.691	3.738	0.002 (-0.117, 0.121)	0.971	0.004	0.000	1.000
Supervisory neglect	3.720	3.805	3.679	3.772	-0.092 (-0.287, 0.103)	0.355	-0.197	0.024	0.957
Physical neglect	3.772	3.782	3.773	3.792	-0.020 (-0.139, 0.100)	0.748	-0.043	0.017	0.995
Dysfunctional interactions	1.651	1.745	1.550	1.572	-0.131 (-0.255, -0.007)	0.039	-0.282	0.046	0.911
Difficult child	2.116	2.183	2.018	2.048	-0.091 (-0.199, 0.017)	0.097	-0.195	0.045	0.919
Parental distress	2.269	2.350	2.134	2.051	-0.139 (-0.267, -0.008)	0.033	-0.300	0.049	0.912

Notes. SAU = services as usual; SC = SafeCare; SE = standard error; RMSEA = root mean square error of approximation; CFI = comparative fit index.

parenting distress, ($d = -0.30$). No significant differences by group were found for setting limits, family functioning, nurturing parenting, parenting knowledge, stress due to a difficult child, nor any of the four neglect constructs. We conducted the Benjamini-Hochberg procedure to guard against false discovery, and all significant differences based on traditional p -value tests remained significant after the correction.

4. Discussion

We found changes favoring SafeCare over SAU for several outcomes including improved parenting behaviors and reduced parenting stress. Across outcomes, with the exception of the neglect measures, there was a fairly consistent impact favoring SafeCare in the range of 0.2 to 0.3 standardized effect. These findings suggest that child welfare systems may improve parenting outcomes by implementing behavioral parenting models to replace unstructured services. BPTs such as SafeCare continue to represent a promising option for use within CPS systems. BPTs are brief and focused on specific parenting behaviors, consistent with recent recommendations for evidence-based service planning in child welfare (Berliner et al., 2015). BPTs are also cost-effective; for example, SafeCare is estimated to yield \$21.60 in benefit for every dollar spent (Washington State Institute of Public Policy, 2019). BPTs can be embedded in the context of other services that address different needs, such as mental health, substance abuse, and concrete service needs. However, systems must prioritize and sequence interventions, addressing areas of greatest need first so as not to overwhelm clients with services (Berliner et al., 2015). Our analyses did not examine the influence of commonly reported risk factors for parents in the child welfare system, such as mental health concerns, substance use, or partner violence (though these variables were included in propensity score matching).

The lack of changes in neglectful parenting were disappointing. Child neglect is the most common (U.S. Department of Health and Human Services, 2019) — and in many ways — detrimental form of maltreatment as neglect tends to be chronic, and recurrent (U. S. Department of Health and Human Services, 2007). Measuring neglect is difficult (Stowman and Donohue, 2005; Slack et al., 2003), however, and the scale used may not be sensitive to the relatively small changes found for other parenting variables. Caregivers did not report high levels of neglect for any subscales (mean of 1.5 on a 4-point scale at baseline), and had little room to improve. Of note, this was also the case for the other scales as well; responses were compressed at the 'positive' end of the scale. This may be a function of assessing populations who are largely coerced into treatment and have strong motivations to present positively. This highlights the need for assessment methods beyond self-report (e.g., observational, administrative records) for

studies focusing on child-welfare involved families.

Overall, the findings add to the evidence-based for SafeCare. This is the first randomized trial across child welfare systems to show positive impacts, albeit short-term impacts, on parenting behaviors, and fit nicely with other evaluations of SafeCare demonstrating impacts on child welfare outcomes such as recidivism (Chaffin et al., 2012) and out of home placements (Beachy-Quick et al., 2018). There were obvious implementation challenges encountered here, and we hope that qualitative data collected not presented here can inform future implementations.

5. Study limitations

There are several limitations of this study. First, the group sample sizes were imbalanced as many more families were recruited from SafeCare versus SAU providers. We believe this was primarily due to SafeCare providers' greater engagement in the project. SafeCare providers were trained to deliver the new intervention in addition to recruiting families, and because of this, they were likely more aware of the project and the need to recruit families for the study.

Second, the attrition from baseline to 6-month follow up was high at 39% overall, and though not statistically different between groups, attrition was nominally higher among SafeCare participants (41.4%) than SAU participants (32.6%). Most of those lost could simply not be re-contacted; they were lost to both the research team and the service system, reflecting the difficulty of serving and tracking this population.

Third, only a single follow-up time point was included, and it was relatively short, 6-months after baseline. Meta analyses of BPTs with non-CPS referred populations have found the strongest effects immediately after the intervention and decrease over time (Lundahl et al., 2006a), and a lack of long-term follow-up intervals is not uncommon (Lundahl et al., 2006b).

Fourth, there were several measurement issues. The primary outcomes were measured on an interval scale and non-normal distributions prevented the application of multilevel modeling methods. The use of latent constructs, because they do not use the original unit of measurement, do not allow for direct comparison (e.g., of means) to existing research. However, standardized effect sizes can provide comparative data, as one should avoid reliance on statistical significance alone (Wasserstein et al., 2019).

Fifth, no data were collected on the administrative outcomes used by child welfare system (e.g., maltreatment recidivism, out-of-home placements, and reunifications), or other non-self-report outcomes. Improvements in parenting behaviors are critical for promoting children's behavioral health (Centers for Disease Control and Prevention, 2014; Shonkoff, 2016), especially for children who experience early

childhood adversity (Shonkoff, 2016). However, maltreatment incidences, placements, and permanency are the key metrics on which child welfare systems are evaluated.

Finally, the lack of implementation data resulted in not being able to fully capture the dose of SafeCare and the activities performed by SAU providers. Difficulty defining and describing ‘usual care’ is a common problem in child welfare research, but an important one to address to fully understand research findings (Jonson-Reid et al., 2017).

6. Conclusions

Data continues to accrue suggesting that BPTs can improve outcomes for families at risk for maltreatment or involved with child welfare systems. Scale-up efforts of BPTs and other evidence-based programs can have population-level impacts on key outcomes, such as repeat maltreatment and removal (Chaffin et al., 2012; Prinz et al., 2009) and can yield significant cost benefits (Washington State Institute of Public Policy, 2019). Scale-up efforts must be done according to best practices of implementation science, with attention to key implementation drivers (Fixsen et al., 2009), and to the individual, organizational, and systemic factors that can influence implementation success (Aarons et al., 2011).

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