

The Families First Program Impact on Child Maltreatment

Final Evaluation Report

Prepared by:
Social Research Institute

January 2021

The Families First Program Impact on Child Maltreatment Final Evaluation Report

January 2021

Submitted to:

Utah Department of Human Services
Division of Child and Family Services
195 N. 1950 W.
Salt Lake City, Utah 84116

Submitted by:

Social Research Institute
College of Social Work, University of Utah
Kristen West, M.P.A.
Larissa Shuppy, M.S.
Meghan Broadbent, M.S.

Funding for this research was provided by the Utah Department of Human Services with federal grant funds from the United States Department of Health and Human Services, Administration for Children and Families, Family First Prevention Services Act Transition Grant, Title IV-B Subpart 2 of the Social Security Act. Data was provided by the Utah Department of Human Services, Division of Child and Family Services, and the Utah Youth Village Families First program.

The content of this report and the views contained herein are the sole responsibility of the authors and do not necessarily reflect the views of the Utah Department of Human Services.

Introduction

In 2018, there were approximately 678,000 victims of child maltreatment in the United States (U.S.) and approximately 146,000 children who received out-of-home foster care services after a maltreatment report (U.S. DHHS, 2018). Child maltreatment, which broadly refers to all forms of abuse or neglect of children by a caregiver or other custodial relationship, has demonstrated negative long-term impacts on the physical, mental, and behavioral health of victims (Gilbert et al., 2009; Kaplow & Widom, 2007). In addition, child victims of maltreatment are also more likely to experience adult poverty, unemployment, and the need for Medicaid services (Zielinski, 2009). Additionally, child maltreatment has a substantial economic impact due to the increased costs related to social services, healthcare, productivity losses, criminal justice expenses, and more (Fang, Brown, Florence, & Mercy, 2012). To help address the staggering impact of child maltreatment, the U.S. passed the Families First Prevention Services Act in 2018 enabling States to utilize Title IV-B and IV-E funds to additionally support child and family prevention services, including in-home parent skill-based programs (NCSL, 2020).

In considering how to best address child maltreatment, two of the most widely evaluated and implemented program types related to child maltreatment are home visiting programs and parent education programs (Mikton & Butchart, 2009). Parent training and education have long been promoted as a core component in reducing child maltreatment (Fortson, Klevens, Merrick, Gilbert, & Alexander, 2016; Temcheff, Letarte, Boutin, & Marcil, 2018). In general, parenting programs have been demonstrated as an effective approach to reducing child maltreatment both directly and indirectly by reducing risk factors and improving protective factors related to child maltreatment (Chen & Chan, 2016).

Home-visiting programs, which largely focus on early childhood (and may also include parent education components) have long been promoted as an effective approach to preventing child maltreatment (Donelan-McCall, Eckenrode, & Olds, 2009). Further investigation into components of home visiting programs identified teaching new parenting skills or behaviors as a core component impacting parenting behavior, and may also serve as an important factor related to outcomes such as child development, physical health, and maltreatment (Filene, Kaminski, Valle, & Cachat, 2013). However, home-visiting programs in general have proven a challenge for evaluation efforts with regards to the outcome of child maltreatment and have yielded mixed or modest results perhaps partially due to the wide variability of program components (Casillas, Fauchier, Derkash, & Garrido, 2016, Barlow, Simkiss, & Stewart-Brown, 2006).

Prior research suggests that child maltreatment interventions in general can be effective at reducing or preventing child maltreatment, though the evidence is stronger for outcomes related to reducing risk factors related to child maltreatment and is less conclusive for direct impacts on child maltreatment (Mikton & Butchart, 2009; Euser, Alink, Stoltenborgh, Bakermans-Kranenburg, & Van IJzendoorn, 2015; Barlow et al., 2006). One of the challenges

in measuring child maltreatment is that both self-reports and official reports may underestimate the prevalence of child maltreatment (Petersen, Joseph, Feit, & IOMNRC, 2014). Surveillance bias, or an increased likelihood of maltreatment detection due to program involvement, is another factor that may counteract the appearance of program efficacy and further increase the difficulty in evaluating outcomes of child maltreatment (Avellar & Suplee, 2013; Barlow et al., 2006). Additionally, interventions aimed at reducing maltreatment in families with a history of maltreatment are more likely to have significant findings and/or larger effect sizes compared to interventions aimed at preventing child maltreatment in the general population or with families at-risk for maltreatment (Euser et al., 2015). This may be due to a difficulty in detecting treatment effects due to a lower prevalence or underreporting of maltreatment in the general population and at-risk families (Van der Put, Assink, Gubbels, & van Solinge, 2017).

While outcomes based research on child maltreatment is challenging, prior meta-analyses have identified parent training, cognitive behavioral or social learning, home visiting, family-based or multisystemic, substance abuse, and combined interventions as effective program components for targeting maltreatment (Van der Put et al., 2017; Euser et al., 2015, Temcheff et al., 2018). Overall, this evidence suggests the importance of continued research on in-home parent skill-based programs that include these components and target the direct outcome of child maltreatment. The Families First program is one such program that contains several demonstrated effective components and is currently provided by Utah Youth Village in the Salt Lake City, Utah area to families involved with the child welfare system.

Study Purpose

The primary objective of this study was to further the understanding and evidence-base of in-home parenting programs by evaluating the impact of the Families First program on subsequent reports of child maltreatment, with a secondary objective of evaluating its impact on substantiated child maltreatment. Prior research on the program has shown promising results in the domains such as child well-being, family relationships, parenting effectiveness, and reduction in recidivism for youth involved with the juvenile justice system (Lewis, 20015; Hess et al., 2012; Gray, Dawson, Grey, & McMahon, 2011). However, this research is limited and has not previously focused on the outcome of child maltreatment.

Program Description

The Families First program is an in-home based service for parents, youth, and children and is an adaptation of the Teaching Families Model, an evidence-based trauma-informed treatment model promoting family-style relationships with a basis in cognitive behavioral approaches, social learning theory, and modeling and role-playing skills (Fixsen et al., 2001). The program aims to help improve family functioning, improve parenting skills, and target unwanted child behaviors with the ultimate goals of improving child and adult well-being, child safety, and child permanency. Utah Youth Village has contracted to receive referrals

and provide services to families involved with the Utah Division of Child and Family Service (DCFS). Through the service, families typically receive 8-10 hours of service per week over 8-12 weeks, or approximately 48-52 total service hours. Actual treatment length may be adjusted based on family need and circumstances. Completion of the program is based on skill-acquisition and successful completion of the model's six phases.

Research Questions

The research questions for the current study include:

1. Does participation in the Families First program with Utah Youth Village reduce the likelihood of subsequent reports of maltreatment?
2. Does the participation in the Families First program with Utah Youth Village reduce the likelihood of subsequent substantiated reports of maltreatment?

Methods

Design and Setting

This quasi-experimental study utilized retrospective data collected on in-home services spanning 35 offices across all 5 service regions in Utah; Northern, Salt Lake Valley, Western, Southwestern, and Eastern. The Utah Division of Child and Families Services (DCFS) provided administrative data for the study, which included case information for clients receiving in-home services from 2014-2020 and associated demographic information, assessments, service payment information, and prior CPS maltreatment allegation history. Utah Youth Village also provided data on DCFS participants of the Families First program regarding dosage and completion status of services from 2016-2019. Data from both sources included common identifiers sufficient to link the data from the two sources.

Study Population

Based on available treatment data from DCFS and Utah Youth Village, and to allow for a one-year follow-up time, we narrowed the study sample to children who received DCFS services between 2015-2019. Both the treatment and comparison groups included children with in-home DCFS cases who had at least one year of follow-up information available from the case end date. DCFS involvement indicated these families already had a history or risk of child maltreatment and, consequently, are more likely to experience future reports of maltreatment (Hindley, Ramchandani, & Jones, 2006).

The treatment group consisted of children whose families were referred to the Families First program by DCFS and who successfully completed treatment. Those who initiated but did not successfully complete treatment were excluded from the sample, similarly for those who received accommodations for extended lengths of treatment beyond the 48-52 hour service period. This was to narrow the study to those families who completed the

recommended, standard dosage of Families First treatment service. Due to the non-random assignment to Families First services, we utilized propensity score matching methods to match children in the treatment group to a comparable population of DCFS involved families who did not receive Families First services and were receiving treatment-as-usual (TAU). Additionally, we identified and excluded cases involving clients who may have been involved with Families First Treatment on another case at a different time to reduce the risk of bias from crossover.

A total 9,019 children had an in-home case with DCFS between 2015-2019 and met other defined inclusionary criteria for the study. Of those, 4.6% (n=415) started and completed treatment with Families First during their in-home case. Of the remaining 8,604 TAU children receiving in-home services with DCFS, 415 were matched to those who received Families First treatment based on case and person characteristics for a total of 830 eligible participants.

The required sample size for a propensity score matching design depends on how comparable the treatment group is to the control group. A sample with similar characteristics among the treatment and comparison groups has the same required sample size as a balanced experimental design with the comparison group size 20% to 200% larger than the treatment group size (McKenzie, 2011; Jung, 2007). A treatment group of 415 children and the unmatched comparison sample of 8,406 children, as well as the matched comparison sample of 415, is enough to detect statistical significance for a medium-large effect size at an α -level of 0.05 with 80% power.

Measures

Outcome Measurements

Official maltreatment data collected by administrations is typically measured at different levels including referral, reported, and substantiated and previous studies have included maltreatment measures across these levels (White, Hindley, & Jones, 2015). Prior research has further determined that both substantiated and unsubstantiated maltreatment are policy relevant predictors of child maltreatment outcomes (Drake, Jonson-Reid, Way, & Chung, 2003). DCFS collects data on recorded reports of maltreatment and substantiation status through their CPS investigation process and they use both “supported” and “substantiated” as indicators to describe cases of confirmed maltreatment. They define a supported finding as a CPS investigation that determined there was sufficient information to reasonably conclude that abuse, neglect or dependency occurred based on state law/policies. They further define substantiation as a confirmed judicial finding and supported case-worker finding (Utah Code, 2019).

For the purposes of this study, we considered both substantiated and supported DCFS findings as substantiated maltreatment with reported maltreatment defined as any referral/allegation of maltreatment that was accepted for further investigation regardless

of final substantiation status. While we initially intended to include both reported maltreatment and substantiated maltreatment as outcome measures, the sample size for substantiated maltreatment was too small for analysis (N=27 total, n=11 Families First) and was subsequently excluded.

The final outcome variable is a binary measure of whether or not the child had a subsequent report of maltreatment within one year of the DCFS case end date. We considered reports within one year from case end date in order to keep consistency in the measurement period between the groups, to better analyze the impact of completed treatment on the outcome, and to help mitigate the potential impact of surveillance bias. Since reports of maltreatment can and do occur during the receipt of services, whether or not a maltreatment report occurred during the DCFS case was controlled for in the final model.

Covariates

DCFS administrative data included many potential covariates including child demographic information, UFACET needs assessment information, service payment information, prior maltreatment history and allegation type, primary reason for case, referral sources, case length, etc. Many of these covariates were categorical in nature and some categories were combined due to low sample size. Table 1 includes the full list of the final covariates considered. In the DCFS data, allegation refers to an accepted referral alleging child abuse, neglect, or dependency (Utah Administrative Code, 2012). Reports/investigations of maltreatment may include multiple allegation types.

The UFACET is a communimetrics tool used to engage families and help guide interventions and planning (Utah Code, 2019). The UFACET was established as an evidence based tool with strong reliability when caseworker's UFACET scores on a case vignette were compared to the standard "correct" scores and the intraclass correlation value was well above the 0.69 threshold (Davis et al., 2019). Family Together, Household, and Caregiver are three of the UFACET's core modules that evaluate a family's dynamic, ability to access supports, living environment, ability to meet basic needs, and the caregiver's strengths and needs.

We selected variables for the propensity score method based on their association with the outcome regardless of exposure to the Families First Service. This method of variable selection yields an optimal model that minimizes standard errors and the risk of non-systematic bias of chance associations between a covariate of interest and the exposure to services only (Brookhart et al., 2006; Elze et al., 2017). The optimal propensity score model estimating propensity for treatment included the following covariates:

- Number of services paid for by DCFS (not including the Families First service)
- Number of caseworkers associated with the in-home case
- In-home case type (protective supervision services, followed by protective services counseling and protective family preservation)
- Child age, race, and ethnicity

- DCFS office and region
- Duration of case and year of case start
- Prior reports of maltreatment with DCFS, and whether a maltreatment report was made during the in-home case (yes/no)
- Any allegation of neglect, abuse, or both on the most recent CPS investigation prior to the in-home case (yes/no), as well as the allegation history (total number)
- Family and individual needs identified using the Utah Family and Children Engagement Tool (UFACET) on the Family Together, Household, and Caregiver modules (coded as yes/no for having at least one need identified on the module)
- Primary reason (Reason) for in-home case (Court Ordered, Domestic Violence, Improve Family Functioning, Neglect, Physical Abuse, Sexual Abuse)
- Referral source (Referral; CPS Investigation, Foster Care Services)

Covariates including gender, whether any prior CPS allegation was supported/substantiated, receipt of peer parentings services (non-Families First), allegations of dependency, and UFACET Child Functioning module needs were found to be unassociated with the outcome of interest and unnecessary to the propensity score model with regard to matching. Only one case (associated with the control group) had a missing value for age and was subsequently excluded from the analysis. In some cases DCFS cannot determine a client's race/ethnicity or the client declines to provide that information. In those instances, DCFS records client race/ethnicity as "unknown".

Data Analysis and Procedures

The initial analytic procedures for this study included descriptive statistics and tests of association, effect sizes, and correlation to evaluate case and person characteristics, covariate selection, and baseline equivalence. We utilized propensity score matching techniques to match children whose families completed the Families First program on demographic and case characteristics to children whose families received TAU from DCFS in-home services utilizing logistic regression in the outcome model to estimate the effect of the Families First program on the outcome of repeat reported maltreat. R statistical software (R version 3.5.1) was used for data analysis.

Propensity Score Matching

We calculated the propensity score of each child receiving Families First treatment services with logistic regression using the MatchIt package in R. To select the covariates for the propensity model we evaluated each potential covariate to ensure adequate sample size within the groups (Families First and TAU) and the outcome result (yes, no), followed by a test of association using either a Chi-Square or a Fisher's Exact test depending on covariate characteristics (Brookhart et al., 2006). We further utilized directed acyclic graphs to evaluate the relation of covariates, with an additional testing of potential multicollinearity between similar covariates of interest. The identified covariates had a sufficiently low to moderate correlation, warranting inclusion in the model (e.g., number of allegations and

prior CPS substantiated; Pearson correlation coefficient = 0.36). Interactions were also evaluated but did not warrant inclusion in the propensity score model.

Results of the covariate evaluation suggested that a total of 26 covariates were sufficient for estimation of the propensity for treatment, yielding a model with the lowest AIC score. We then used the calculated propensity score and one-to-one nearest neighbor matching without replacement to match an individual child from the Families First program to a comparable child in the TAU comparison population. We used several functional forms to evaluate and compare the region of common support and model efficiency with regard to covariate balance. Overall, the propensity model produced a sufficient region of common support with every treatment unit matching to a control unit (Austin, 2009; Fig. 1).

Baseline Equivalence and Effect Size

We assessed baseline equivalence between the Families First and TAU groups using Hedge's G or Cox's Index d effect size measures depending on the nature of the covariate. A total of 11 covariates demonstrated a Hedge's G or Cox's Index d value in the satisfactory range between 0-0.05 after matching, with the remaining covariates demonstrating baseline equivalences within the statistical adjustment range of 0.05-0.25 (ACF, 2019; Fig. 2). No covariates had values in the unsatisfactory range. Categorical variables were evaluated using both a numerical ID for Hedge's G as well as dummy coding for evaluation using Cox's Index d . We controlled for covariates with an effect size in the statistical adjustment range in the final regression model.

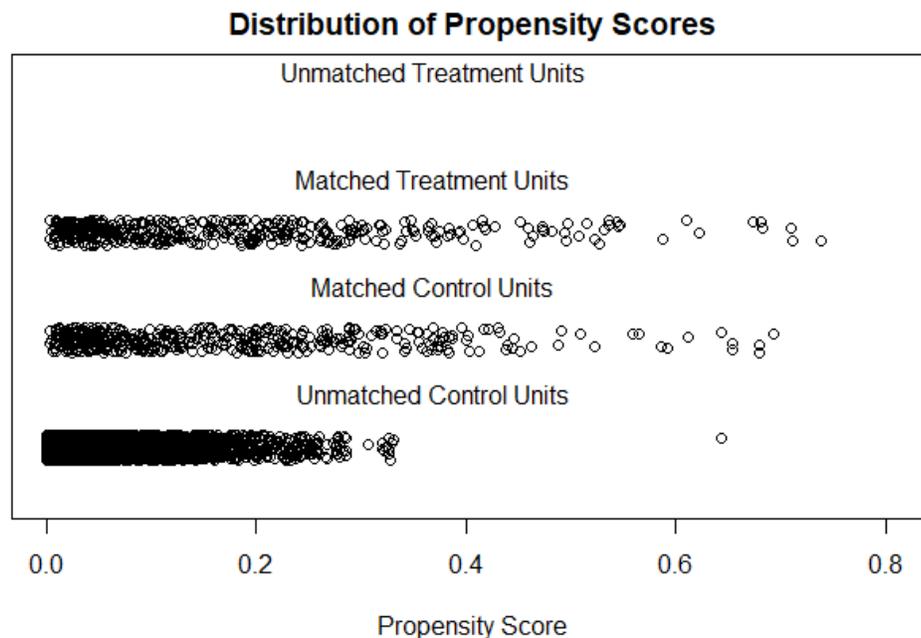


Figure 1. Distribution and Matching of Propensity Scores.

Multiple studies have found that prior maltreatment episodes predict subsequent repeat maltreatment regardless of substantiation status (Hindley et al., 2006; Drake, Jonson-Reid, Way, & Chung, 2003). We therefore considered the number of prior maltreatment reports as a pre-measure to further establish baseline equivalence between the treatment and comparison populations in addition to the key equivalence measures of race, age, and socioeconomic factors.

In this study, the number of prior reports demonstrated a Hedge's *G*-value of 0.048, with measures of age, race, and ethnicity all demonstrating effect sizes in the satisfactory range (Fig. 2). While the DCFS data did not include direct measures of socioeconomic status, it did contain measures of disadvantage collected by caseworkers through the Household module in the UFACET assessment. The Household module consists of five items related to socioeconomic need: access to child care, access to transportation, financial resources, physical home environment, and residential stability. Having any need reported on the Household module yielded a Cox's Index *d*-value of 0.018 which is also in the satisfactory range for baseline equivalence.

Outcome Model

For the final model, we ran a traditional multivariate logistic regression on the matched population comparing the completion of Families First treatment services to the outcome of subsequent reports of maltreatment within 12 months of in-home case close, controlling for the additional covariates requiring further adjustment. This model also included a relevant and significant interaction between needs reported on the Family Together and Caregiver UFACET module, yielding a model with the lowest AIC and optimal standard errors compared to the model without the interaction term (AIC of 466.01 and 469.17, respectively).

Case and person characteristics at baseline
Intent-to-treat matched sample

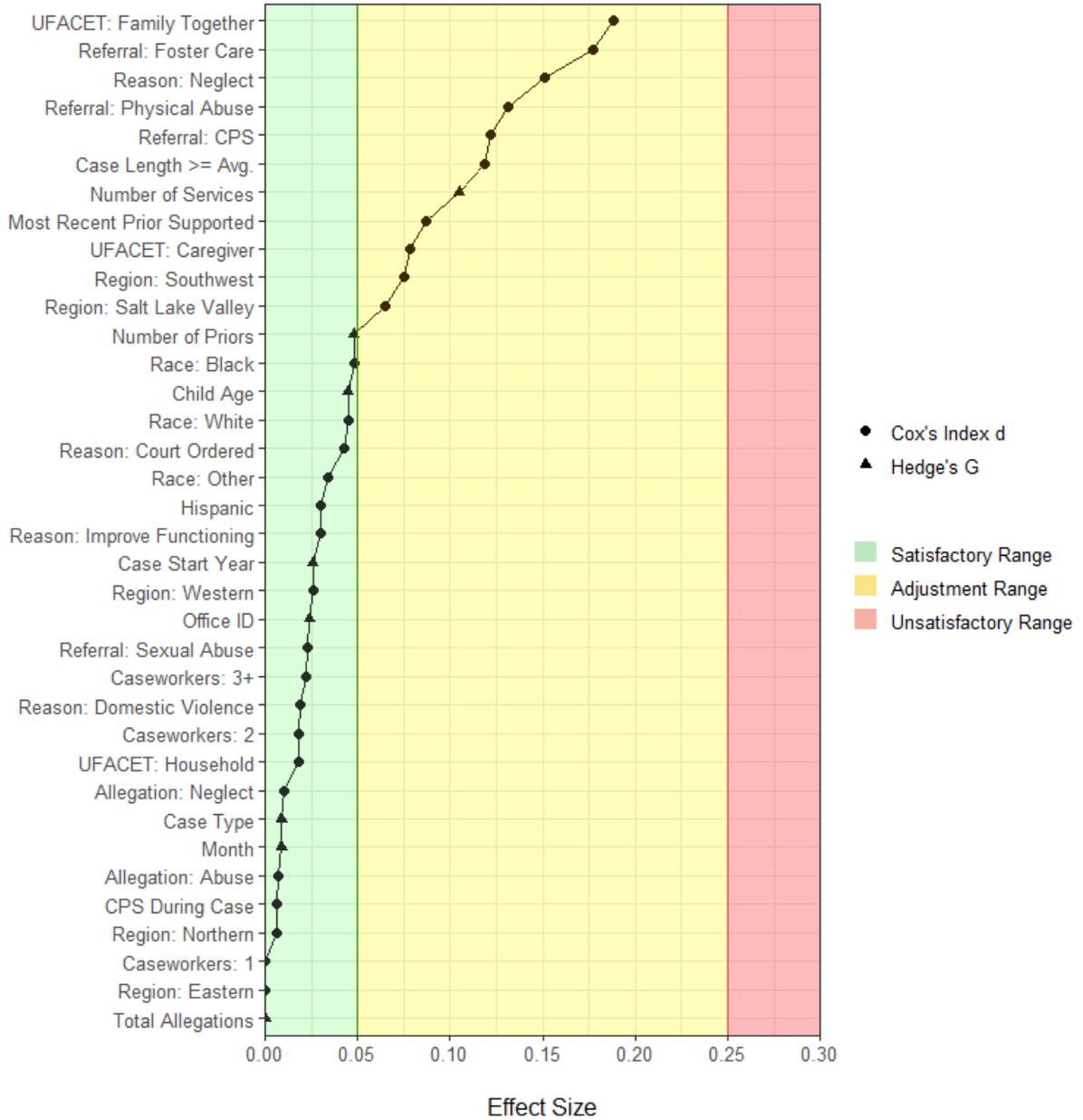


Figure 2. Measures of Baseline Equivalence.

Results

Table 1 highlights the comparison of case and person characteristics of the Families First participants and the TAU participants both before and after propensity score matching. After matching, protective supervision services made up over 60% of the in-home cases, with cases spanning less than one year on average (Table 1). In both groups, nearly 52% of the children were male with an average age of approximately 8 years. An 88% majority of children were reported as white and non-hispanic, with receipt of services similarly distributed throughout the five regions for both groups; Northern being the highest at 35% and Eastern being the lowest at just over 7% (Table 1). On average, children received two additional services throughout the course of their in-home case regardless of treatment services. There were minimal differences in the number of caseworkers assigned to the in-home case by treatment services, with Families First participants having an average of approximately two caseworkers assigned throughout their in-home case and TAU having slightly fewer (Table 1).

With regard to case characteristics and circumstances, Families First participants had a slightly higher number of prior maltreatment reports compared to their matched TAU counterparts with an average of 2.8 versus 2.0, respectively. TAU participants had a higher proportion of prior substantiated maltreatment as compared to Families First participants (20% and 17.4%, respectively; Table 1). Overall, the total number of allegation types made differed by less than 1% between the two groups. However, a slightly higher proportion of Families First participants reportedly experienced allegations of *neglect* compared to *abuse* (Table 1).

In both groups, over 80% of in-home cases reported a need on the UFACET Caregiver module, with slightly fewer experiencing needs on the Family Together module and just over 50% reporting needs on the Household module (Table 1). The two study populations had a similar distribution of reasons for the in-home case, with Families First participants experiencing issues with family functioning more often than the TAU participants, who were more likely to experience issues of physical abuse. However, a CPS investigation was the most common referral source regardless of whether participants received Families First services or TAU (72% and 76%, respectively). Lastly, 106 total children had a subsequent report of maltreatment within one year of case closure of which 48.5% were Families First recipients. Overall, 10.6% of the Families First population had a subsequent maltreatment report whereas 14.9% of the TAU reportedly experienced subsequent maltreatment within one year of in-home case closure (Table 1).

Table 1. Distribution of Case and Person Characteristics

Measure	Families First n=415	TAU	
		Before Matching n=8,406	After Matching n=415
Child Age (Mean)	8.1 years	6.8 years	8.3 years
Gender			
<i>Male</i>	51.8%	47.0%	51.2%
<i>Female</i>	48.2%	53.0%	48.7%
Race			
<i>White</i>	88.7%	88.1%	89.4%
<i>Black</i>	6.8%	4.9%	6.3%
<i>Other</i>	4.6%	7.0%	4.3%
Ethnicity			
<i>Hispanic</i>	10.8%	19.2%	11.3%
<i>Non-Hispanic</i>	88.4%	79.1%	87.2%
<i>Other/Unknown</i>	0.72%	1.7%	1.4%
Case Type			
<i>PSS</i>	64.1%	66.4%	63.9%
<i>PSC</i>	34.2%	31.0%	35.2%
<i>PF</i>	1.7%	2.6%	1.0%
Number of Services (Mean)	2.1	2.1	1.7
Number of Caseworkers (Mean)	2.1	1.7	2.1
Number of Priors (Mean)	2.8	2.0	3.0
Substantiated Total Prior Allegations on Immediate Prior CPS Case	17.4%	22.9%	20.0%
Total by Type			
<i>Abuse</i>	33.5%	33.3%	36.1%
<i>Neglect</i>	16.6%	16.9%	14.9%
Single v Multiple Types			
<i>None</i>	55.9%	58.7%	56.4%
<i>Abuse Only</i>	27.5%	28.4%	26.8%
<i>Neglect Only</i>	10.6%	6.7%	10.4%
<i>Abuse and Neglect</i>	6.0%	8.6%	6.5%
Allegations During Case	38.3%	23.9%	38.6%
Case Duration (Mean)	306 days	203 days	295 days
Region			
<i>Northern</i>	35.4%	31.9%	35.7%
<i>Western</i>	21.9%	25.4%	21.2%
<i>Salt Lake Valley</i>	16.9%	22.7%	15.4%
<i>Southwestern</i>	18.3%	11.3%	20.2%
<i>Eastern</i>	7.5%	8.7%	7.5%
Year of Case Start (Median)	2017	2017	2017
UFACET Module Needs			
<i>Caregiver</i>	85.3%	70.6%	83.6%
<i>Family Together</i>	81.9%	51.5%	76.9%
<i>Household</i>	51.8%	34.5%	51.1%
Case Reasons			
<i>Court Ordered</i>	3.4%	7.8%	3.6%
<i>Domestic Violence</i>	8.4%	9.5%	8.7%
<i>Improve Functioning</i>	17.8%	22.7%	17.1%
<i>Neglect</i>	14.9%	16.7%	12.1%
<i>Physical Abuse</i>	16.1%	10.1%	19.2%
<i>Sexual Abuse</i>	7.0%	1.2%	6.8%
Referral Source			
<i>CPS Investigation</i>	72.1%	61.9%	75.9%
<i>Foster Care Services</i>	1.9%	9.0%	1.5%
Subsequent Repeat Maltreatment (<i>within 1 year</i>)	10.6%	17.8%	14.9%

Source: Utah Division of Child & Family Services (2016-2019). TAU=Treatment As Usual; PFP=Protective Family Preservation; PSC=Protective Services Counseling; PSS=Protective Services Supervision.

While the Families First recipients were closely aligned with the TAU population after matching, equivalence measures (Hedge’s G or Cox’s Index d) determined a total of 11 covariates with effect sizes in a statistical adjustment range, rendering further adjustment necessary (number of services, prior substantiated maltreatment, case duration above or below the mean, including region, Family Together UFACET needs, Caregiver UFACET needs, referral from CPS or Foster Care, and primary reasons of neglect or abuse; Fig. 2). The remaining child and case characteristics were unnecessary in the model or were within a sufficient range of baseline equivalency (Fig. 2).

Overall, the Utah Youth Village Families First services program was significantly associated with the outcome, with a 41% reduction in the odds of subsequent reports of maltreatment (OR: 0.59; 95% CI [0.35,0.96]; p=0.0385; Table 2). Even when accounting for known risk factors on the outcome, these findings suggest a protective effect against subsequent reports of maltreatment within one year of in-home case end for children whose families received Utah Youth Village Families First treatment services compared to similar children who did not receive these services.

Table 2. Outcome estimates for subsequent reports of maltreatment.

Measure	OR	[95% CI]	z-value	p-value
Intercept	0.09	[0.03,0.25]	-4.28	<0.0001
Families First	0.59	[0.36,0.96]	-2.07	0.038
Number of Services	0.97	[0.90,1.04]	-0.69	0.488
Prior Substantiated Maltreatment	8.84	[4.95,16.24]	7.21	<0.0001
Case Duration Above/Below Mean	0.01	[0.002,0.04]	-5.93	<0.0001
Region*				
<i>Northern</i>	0.94	[0.47,1.93]	-0.17	0.865
<i>Western</i>	2.24	[1.07,4.82]	2.09	0.036
<i>Eastern</i>	0.35	[0.08,1.26]	-1.52	0.129
<i>Southwest</i>	1.17	[0.52,2.68]	0.38	0.702
Family Together UFACET Needs	2.89	[0.98,8.78]	1.91	0.057
Caregiver UFACET Needs	1.22	[0.43,3.60]	0.37	0.713
Primary Reason of Neglect	1.27	[0.53,2.86]	0.56	0.576
Primary Reason of Physical Abuse	0.92	[0.43,1.89]	-0.22	0.825
Referral from CPS Investigation	2.73	[1.42,5.59]	2.87	0.004
Referral from Foster Care	5.71	[0.83,30.9]	1.96	0.051
Family Together+Caregiver UFACET Needs	0.23	[0.07,0.81]	-2.26	0.024

CI=Confidence Interval; OR=Odds Ratio. *Compared to Salt Lake Valley.

Significance of the p-value is considered at $\alpha=0.05$.

Discussion

These study findings demonstrate that DCFS-involved children whose families completed the Families First service are significantly less likely to have a subsequent report of maltreatment compared to similar children receiving DCFS treatment-as-usual. These findings are sustained for at least one year after successful completion of UYV treatment and after DCFS case closure. This has important practice implications targeting the overarching child welfare goal of child safety and supports the use of the Families First program for treating families involved with the child welfare system. Additionally, these results align with and lend further evidence to previous research supporting the effectiveness of in-home parenting skills-based programs on improving outcomes related to child maltreatment, and specifically, those that include home visitation, parent training, and cognitive behavioral therapy components (Van der Put et al., 2017; Chen & Chan, 2016; Temcheff et al., 2018).

Findings based on official reports of maltreatment should be interpreted with caution and with the understanding that they are not a perfect measure since maltreatment is often underreported to child welfare systems and may also include instances where no actual maltreatment occurred (Jenkins, Tilbury, Mazerolle, & Hayes, 2017). Additionally, we were unable to analyze the outcome of substantiated maltreatment and therefore cannot distinguish program impact by maltreatment substantiation status. However, our findings on are still relevant for policy and practice since other studies have shown that reports of maltreatment are linked to negative child outcomes such as repeated maltreatment, delinquency, and behavioral, developmental, and health outcomes regardless of substantiation status (Kugler et al, 2019; Hussey et al., 2005; Leiter, Myers, & Zingraff; 1994; Drake et al., 2003). Future research on the Families First program should examine the impact on substantiated maltreatment and identify other potential outcomes related to child maltreatment to better understand program impact. While surveillance bias has potential to bias the results of any study examining reports child maltreatment as an outcome, the risk in this study was minimal as the population was focused entirely on DCFS children and families who already have some degree of surveillance, and reports of maltreatment during the in-home case were considered during the analysis.

Since this study focused on treatment of families with a history of maltreatment currently receiving services from DCFS, these results are limited to child welfare populations and cannot be generalized to preventing maltreatment in the general population or other subpopulations. Additionally, we narrowed the treatment population to those who successfully completed treatment within the standard treatment duration so we cannot distinguish if there are differences in outcomes based on treatment dosage. It is not unusual for Families First clients to drop out of treatment or to receive more than the standard dosage of treatment. There may be characteristics of families who received more than standard treatment or less than standard treatment that require further examination.

Subsequent studies should investigate if there may be some treatment impact for those receiving partial Families First services and if impact would vary for those who received longer than the standard service.

Finally, this study was quasi-experimental and retrospective in nature, limiting the data to previous collected non-randomized service records and limiting outcomes to those already collected during service provision. Additionally follow-up time for the outcomes was limited to one year based on the available data and there was also insufficient data available to look at the impact of UYV follow-up services on the outcomes beyond the standard treatment. As such, future research should consider a more rigorous prospective design with randomization, longer follow-up time, and considering additional factors and outcomes not included in this study.

Conclusion

The Families First program provided through Utah Youth Village has a significant 41% reduction in subsequent reports of child maltreatment, with effects sustained for at least one year from in-home case end. This adds to the evidence-base of this service and supports its usage for families involved with child welfare systems to target the overarching goal of child safety. As evidence for this service is still emerging, continued expanded examination of its effectiveness is recommended. The results of this study are limited to child welfare populations and those who completed the service with the standard dosage. This study was also retrospective in nature and limited to the outcome of reports of maltreatment regardless of substantiation status. For a more holistic view of the child welfare system, future research should aim to evaluate the relationship between the Families First program and additional relevant outcome measures including referrals and substantiation of maltreatment. Program specific components, such as receipt of follow-up services, should also be considered in future research along with differing lengths of treatment duration, dosage, and period of sustained effects. Lastly, future research should aim to conduct a more rigorous research design, with randomization between Families First and treatment-as-usual.

References

- ACF. (2019). The Prevention Services Clearinghouse Handbook of Standards and Procedures. Retrieved December 10, 2020, from <https://www.acf.hhs.gov/opre/resource/the-prevention-services-clearinghouse-handbook-of-standards-and-procedures>
- Austin P. C. (2009). Balance diagnostics for comparing the distribution of baseline covariates between treatment groups in propensity-score matched samples. *Statistics in medicine*, 28(25), 3083–3107. <https://doi.org/10.1002/sim.3697>
- Avellar, S. A., & Supplee, L. H. (2013). Effectiveness of home visiting in improving child health and reducing child maltreatment. *Pediatrics (Evanston)*, 132(Supplement), S90-S99.
- Barlow, J., Simkiss, D., & Stewart-Brown, S. (2006). Interventions to prevent or ameliorate child physical abuse and neglect: Findings from a systematic review of reviews. *Journal of Children's Services*, 1(3), 6-28.
- Brookhart, M. A., Schneeweiss, S., Rothman, K. J., Glynn, R. J., Avorn, J., & Stürmer, T. (2006). Variable selection for propensity score models. *American Journal of Epidemiology*, 163(12), 1149-1156. doi:10.1093/aje/kwj149
- Casillas, K. L., Fauchier, A., Derkash, B. T., & Garrido, E. F. (2016). Implementation of evidence-based home visiting programs aimed at reducing child maltreatment: A meta-analytic review. *Child Abuse & Neglect*, 53, 64-80.
- Chen, M., & Chan, K.L. (2016). Effects of parenting programs on child maltreatment prevention. *Trauma, Violence & Abuse*, 17(1), 88-104.
- Davis, M.D., West, K., Vanderloo, M.J., O'Conner, A., Tanana, M.J., Hopkins, R. Cheng, J., Anderson, S. (2019). Utah Title IV-E demonstration project: final evaluation report (Utah): May 2019 Available from <https://dcfs.utah.gov/wp-content/uploads/2020/02/Utah-final-report-revised-2-1-20.pdf>
- Donelan-McCall, N., Eckenrode, J., & Olds, D. L. (2009). Home visiting for the prevention of child maltreatment: Lessons learned during the past 20 years. *The Pediatric Clinics of North America*, 56(2), 389-403.
- Drake, B., Jonson-Reid, M., Way, I., & Chung, S. (2003). Substantiation and recidivism. *Child Maltreatment*, 8(4), 248-260.

- Elze, M. C., Gregson, J., Baber, U., Williamson, E., Sartori, S., Mehran, R., . . . Pocock, S. J. (2017). Comparison of Propensity Score Methods and Covariate Adjustment. *Journal of the American College of Cardiology*, 69(3), 345-357. doi:10.1016/j.jacc.2016.10.060
- Euser, S., Alink, L. R. A., Stoltenborgh, M., Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2015). A gloomy picture: A meta-analysis of randomized controlled trials reveals disappointing effectiveness of programs aiming at preventing child maltreatment. *BMC Public Health*, 15(1), 1068.
- Fang, X., Brown, D. S., Florence, C. S., & Mercy, J. A. (2012). The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse & Neglect*, 36(2), 156-165.
- Filene, J. H., Kaminski, J. W., Valle, L. A., & Cachat, P. (2013). Components associated with home visiting program outcomes: A Meta-analysis. *Pediatrics (Evanston)*, 132(Supplement), S100-S109.
- Fixsen, D. L., Blase, K. A., Timbers, G. D., & Wolf, M. M. (2001). In search of program implementation: 792 replications of the Teaching Family Model. In G. A. Bernfeld, D. P. Farrington, & A. W. Leschied (Eds.), *Wiley series in forensic clinical psychology. Offender rehabilitation in practice: Implementing and evaluating effective programs* (p. 149-166). John Wiley & Sons Ltd.
- Fortson, B. L., Klevens, J., Merrick, M. T., Gilbert, L. K., & Alexander, S. P. (2016). Preventing child abuse and neglect: A technical package for policy, norm, and programmatic activities. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
- Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries. *The Lancet*, 373(9657), 68-81. doi:10.1016/s0140-6736(08)61706-7
- Gray, D., Dawson, K. L., Grey, T. C., & McMahon, W. M. (2011). Best practices: The Utah youth suicide study: Best practices for suicide prevention through the juvenile court system. *Psychiatric Services*, 62(12), 1416-1418.
- Hess, J. Z., Arner, W., Sykes, E., Price, A. G., Village, U. Y., & Tanana, U. M. (2012). Helping juvenile offenders on their Own "Turf": Tracking the recidivism outcomes of a home-based paraprofessional intervention. *OJJDP*.
- Hindley, N., Ramchandani, P. G., & Jones, D. P. H. (2006). Risk factors for recurrence of maltreatment: A systematic review. *Archives of Disease in Childhood*, 91(9), 744-752.

- Hussey, J. M, Marshall, J.M., English, D. J., Knight, E.D., Lau, A. S., Dubowitz, H., & Kotch, J.B. (2005). Defining maltreatment according to substantiation: Distinction without a difference? *Child Abuse & Neglect*, 29(5), 479-492.
- Jenkins, B. Q., Tilbury, C., Mazerolle, P., & Hayes, H. (2017). The Complexity of child protection recurrence: The case for a systems approach. *Child Abuse & Neglect*, 63, 162-171.
- Jung, S., Chow, S., Chi, E., (2007). A note on sample size calculation based on propensity score analysis in nonrandomized trials. *Journal of Biopharmaceutical Statistics*, 17:1, 35-41. doi: 10.1080/10543400601044790
- Kaplow, J. B., & Widom, C. S. (2007). Age of onset of child maltreatment predicts long-term mental health outcomes. *Journal of Abnormal Psychology*, 116(1), 176-187. doi:10.1037/0021-843x.116.1.176
- Kugler, K. C., Guastafarro, K., Shenk, C. E., Beal, S. J, Zadzora, K. M., & Noll, J. G. (2019). The effect of substantiated and unsubstantiated investigations of child maltreatment and subsequent adolescent health. *Child Abuse & Neglect*, 87, 112-119.
- Leiter, J., Myers, K. A., & Zingraff, M. T. (1994). Substantiated and unsubstantiated cases of child maltreatment: Do their consequences differ? *Social Work Research*, 18(2), 67-82.
- Lewis, R. E. (2005). The effectiveness of Families First services: An experimental study. *Children and Youth Services Review*, 27(5), 499-509.
- McKenzie, D. (2011). Power calculations for propensity score matching. *Developmental Impact*. Available from <http://blogs.worldbank.org/impactevaluations/power-calculations-for-propensity-score-matching>
- Mikton, C., & Butchart, A. (2009). Child maltreatment prevention: A systematic review of reviews. *Bulletin of the World Health Organization*, 87(5), 353-361.
- NCSL. (2020). Family First Prevention Services Act. *National Conference of State Legislatures*. Retrieved December 08, 2020, from <https://www.ncsl.org/research/human-services/family-first-prevention-services-act-ffpsa.aspx>
- Petersen, A., Joseph, J., Feit, M. N., & Institute of Medicine National Research Council. (2014). *New directions in child abuse and neglect research*.

- Temcheff, C. E., Letarte, M-J., Boutin, S., & Marcil, K.. (2018). Common components of evidence-based parenting programs for preventing maltreatment of school-age children. *Child Abuse & Neglect*, 80, 226-237.
- U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children Youth and Families, Children's Bureau. (2018). Child maltreatment 2018. Available from <https://www.acf.hhs.gov/cb/research-data-technology/statistics-research/child-maltreatment>
- Utah Administrative Code. (2012). *Utah Office of Administrative Rules*. Utah Department of Administrative Services. Retrieved December 10, 2020, from <https://rules.utah.gov/publicat/code/r495/r495-890.htm>
- Utah Code. (2019). *Utah Child and Family Services Code*. Utah State Legislature. Retrieved December 10, 2020, from https://le.utah.gov/xcode/Title62A/Chapter4A/62A-4a-S101.html?v=C62A-4a-S101_1800010118000101
- Van der Put, C. E., Assink, M., Gubbels, J., & van Solinge, N. F. B. (2017). Identifying effective components of child maltreatment interventions: A meta-analysis. *Clinical Child and Family Psychology Review*, 21(2), 171-202.
- White, O. G., Hindley, N., & Jones, D. P. H. (2015). Risk factors for child maltreatment recurrence: An updated systematic review. *Medicine, Science and the Law*, 55(4), 259-277.
- Zielinski, D. S. (2009). Child maltreatment and adult socioeconomic well-being. *Child Abuse & Neglect*, 33(10), 666-678.