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Colorado Community Response: Phase 2

Results of a Randomized Controlled Trial

REPORT HIGHLIGHTS:

- Phase 2 of the Colorado Community Response evaluation randomized caregivers into treatment from January 31, 2020 to June 30, 2021.

- Intake rates varied greatly by provider, resulting in a statewide average intake rate of 14.2%.

- The program did not demonstrate statistically significant reductions in the proportion of caregivers with a re-referral to CDHS leading to an open case.

- Individuals who completed the program reported meaningful gains in seven out of eight economic well-being domains, statistically significant at the 1% level.

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Introduction

Colorado Community Response (CCR) is an innovative, voluntary program to prevent child maltreatment and strengthen families by targeting the protective factors of concrete support and social connections. Primary caregivers are referred to CCR after being reported to the state's child abuse and neglect hotline and "screened out" by county child welfare staff because the allegations do not meet the statutory definition of abuse or neglect and/or the child is not at imminent risk of harm. The hallmarks of CCR are family-driven goal setting and comprehensive, short-term (about 20 weeks) case management to help caregivers access formal and informal services and supports to meet their immediate concrete needs, create a foundation for long-term economic security, and build social capital for sustained well-being and connections. Individual caregivers are referred to CCR, but the benefits of participating accrue to whole families. CCR was previously administered by the Colorado Department of Human Services and moved to the Colorado Department of Early Childhood as of July 1, 2022.

The purpose of this project was to determine whether CCR reduced future incidences of child welfare involvement, thereby establishing an evidence base for the program to inform future expansion and funding decisions. The study aimed to answer the following research questions:

> **Research Question #1: What is the impact of the CCR program on the rate of re-referrals of caregivers to Child Welfare that trigger Family Assessment Responses (FARs) resulting in service provision plans or High Risk Assessments (HRAs) that result in open cases within 76 weeks after randomization relative to a control group?**
>
> **Research Question #2: What is the change in the economic well-being factor, as measured by the Colorado Family Support Assessment (CFSA) 2.0, among treatment caregivers over time?**

Study Design

This study is a randomized-controlled trial of CCR-eligible caregivers referred to CCR from January 31, 2020 through June 30, 2021. As part of their regular duties, county Read Evaluate Direct (RED) teams review cases reported to the child abuse and neglect hotline. Screened out cases involving caregivers who were eligible for CCR (more below) were then entered into the survey platform Qualtrics for random assignment. The Colorado Department of Human Services (CDHS) then uploaded contact information for caregivers assigned to treatment to local CCR providers who then initiated outreach. The only way to enter the CCR program was through this process. Caregivers were not able to self-refer, county case workers were not able refer to the CCR program independently, and CCR providers were not able to directly recruit caregivers.

The primary outcome of interest is the impact of the CCR program on the rate of re-referrals of caregivers to Child Welfare that trigger FARs resulting in service provision plans or HRAs that result in open cases within 76 weeks after randomization relative to a control group. The 76-week follow-up period includes four weeks for outreach and intake, 20 weeks of program services, and 52 weeks of follow up thereafter. Re-referrals that occurred within the first 24 weeks after randomization were not included in the outcome, as these pre-date an individual's completion of the program.

Data Collection Procedures

Study Population

To be eligible for CCR, caregivers must have at least one child ages 0 to 17 and reside in one of the 33 Colorado counties that provide referrals to one of the 23 participating CCR providers. Additionally, the caregiver must have been reported for concerns of child abuse and neglect but be "screened out" by a county RED team. A report is screened out when the referral does not meet the following criteria for further assessment:

- Specific allegations of child abuse/neglect
- Provides information to locate the child
- Victim is under the age of 18
- Allegations have not been previously assessed

Study Eligibility Criteria

Referrals had to meet the following criteria to be included in the study:

- Primary caregiver:
    o   resided within the county in which they were randomized,
    o   had contact information (telephone number or physical address) in the TRAILS system,
    o   had no current open child welfare involvements (i.e., HRA, FAR, or current open case);
- Dates of birth were reported for all children; and
- Screened out reason was not associated with a known Domestic Violence Safehouse address and did not contain allegations of sexual abuse, youth in conflict, child fatality, or third-party incident.

If any of these criteria were not met, the referral was excluded from the study. If multiple caregivers were involved in a referral, the primary female caregiver (i.e., mother, grandmother, etc.) was randomized. A caregiver need not have been an alleged perpetrator on the referral to be selected as the primary caregiver. The randomizer only allowed a primary caregiver to be randomized once. In cases where multiple caregivers were randomized for the same referral, the referral was omitted from the study.

Sample

Over the course of the enrollment period, 6,903 caregivers in participating counties met the eligibility criteria outlined above. Of the total sample, 3,349 (48.5%) were assigned to the treatment group and 3,554 (51.5%) were assigned to the control group. The proportion of individuals assigned to the treatment group varied by time and county, ranging from a low of 20% to a high of 80%. Probability of assignment to treatment varied by CCR provider based on provider capacity and changed over time when absolutely necessary to manage workload. Initially, 18 of the 23 providers, almost exclusively serving rural areas, selected the maximum allowable 70% of caregivers randomized to treatment. Of the remaining five providers, all of whom served urban areas, one selected 60%, and two each selected to randomize 50% and 30% of caregivers to treatment. Changes over time were discouraged and occurred most frequently among the five urban counties who initially started randomizing less than 70% of caregivers to treatment.

Inverse probability weighting was used in all regression models to account for the variability in the probability of treatment assignment both across sites and over time.

Caregivers assigned to the treatment group were contacted by the CCR provider serving their county. Of the 3,349 caregivers in the treatment group, 476 (14.2%) completed the intake process, of which, 390 (11.7% of the treatment group) successfully completed the program. 218 (6.5%) caregivers in the treatment group agreed to participate, but did not complete the intake process. Figure 1 depicts the composition of the sample.

Figure 1: Sample Composition
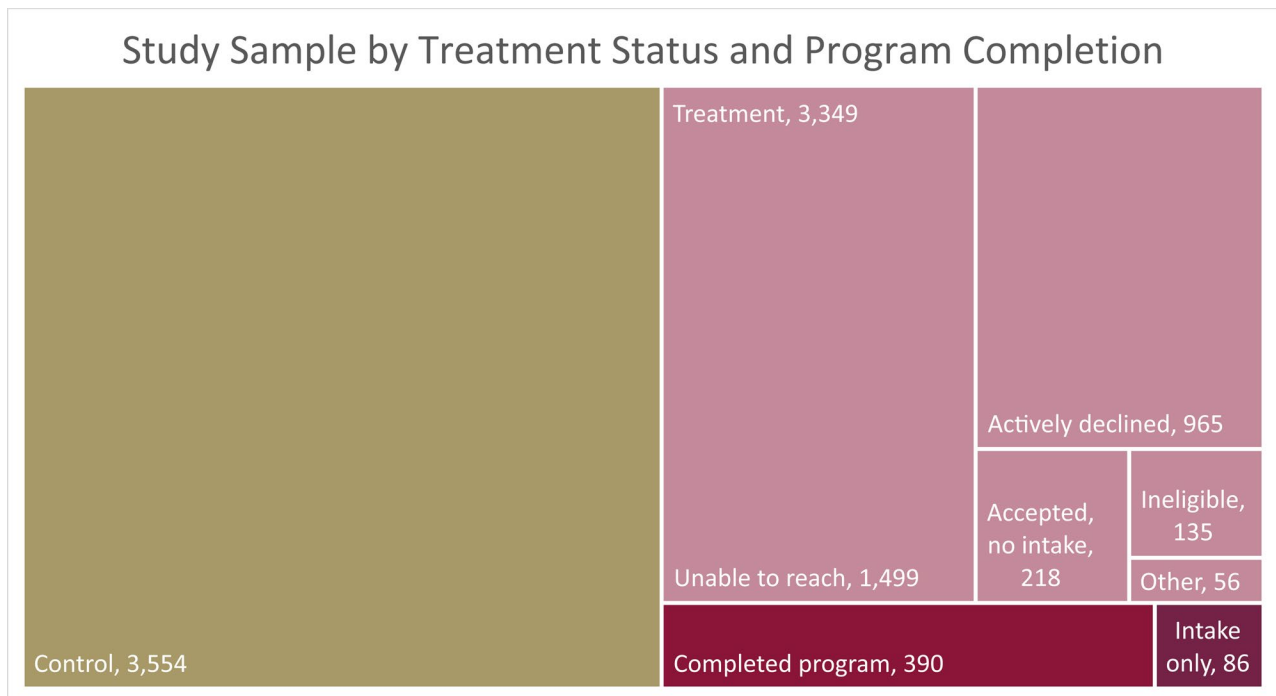
Note: The treatment group subcategory of "Other" includes 44 individuals who were randomized but did not appear in Salesforce and 12 individuals with duplicate referrals.

Figure 2 depicts the intake rates by county. The overall intake rate for a provider is applied to each of the counties they served, resulting in some clusters of counties with identical intake rates. Intake rates among the treatment group varied by CCR provider, ranging from a low of 2.5% in the City and County of Denver to a high of 40.7% in the counties served by La Llave Family Resource Center, Inc (Saguache, Mineral, Rio Grande, Alamosa, Conejos, and Costilla). Counties in dark gray had fewer than five individuals assigned to the treatment group, while counties in light gray did not have a participating CCR provider and were not included in the study.

Figure 2: Intake Rates by County

Proportion of Individuals Assigned to Treatment that Completed Intake
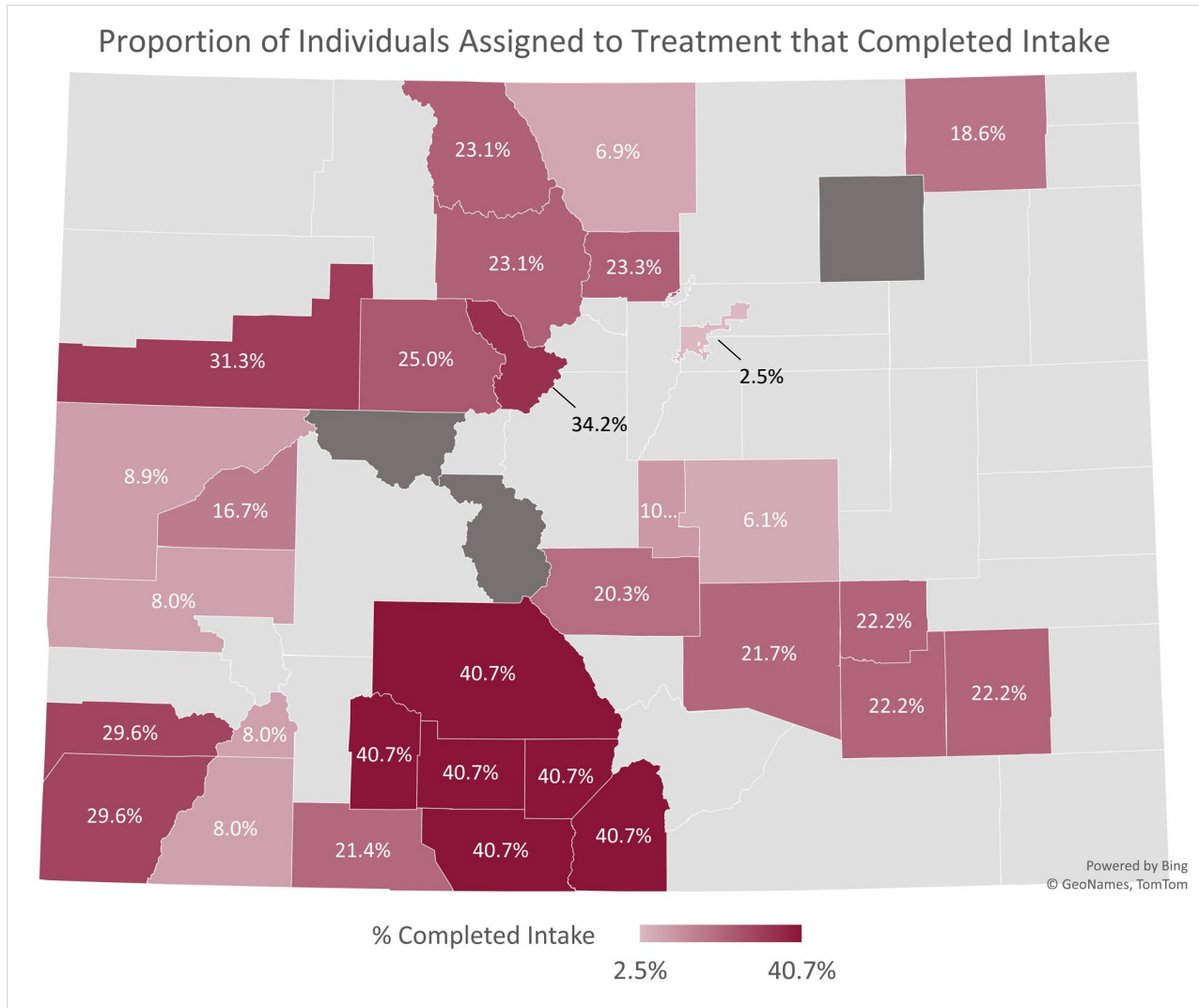
CCR services were targeted at the primary female caregiver in each referral. As a result, the proportion of caregivers identified as female was 86.5%. Although there was no prohibition on serving a different adult if the primary caregiver declined, program targeting was remarkably successful among those who agreed to participate. An analysis of completed intake forms showed that of the 476 individuals who completed the intake process, 452 (95.0%) of them were in fact the caregivers randomized to the treatment group. This highlights the efficacy of the process used to identify a primary caregiver from all adults listed on a referral and then reaching out to that caregiver to enroll them in the program. Although overall program intake was low (14.2% of the treatment group), CCR providers were successful in providing services to the individuals identified by the randomization process.

Figure 3: Primary Caregivers Assigned to Treatment as a Proportion of Intake Completers

Proportion of Intake Completers Identified as a **Primary Caregiver** during Randomization
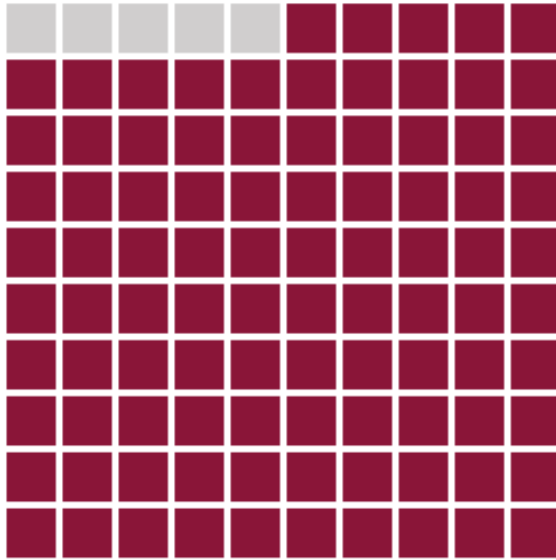
Baseline Equivalence

We assessed equivalence between the treatment and control groups at baseline for the number of previous open assessments and binary indicators for referrals having any children under age 1, between ages 1 to 5, and ages 6 and over. Unfortunately, race/ethnicity data are not consistently or accurately reported in hotline referrals. The number of previous open assessments serves as a pre-test alternative. As shown in Table 1, we achieved balance (defined as an effect size of 0.05 or less) for the presence of any children aged 1 to 5 on the referral. Consistent with the best practice of controlling for variables with effect sizes between 0.05 and 0.25, we included all variables in the regression models.

Table 1: Baseline Equivalence by Group

	Treatment Mean	Control Mean	Pooled SD	Effect Size
Number of previous assessments	0.92	1.01	1.58	0.06
Any children (under 1)	0.11	0.09	0.30	0.15
Any children (1-5)	0.37	0.38	0.48	0.02
Any children (6 and older)	0.78	0.80	0.41	0.07

Note: N=3,349 treatment and 3,554 control caregivers. For dichotomous variables (child age range indicators), the effect size reported is a Cox's *d*. For continuous variables (number of previous open assessments), the effect size is a Hedge's *g*.

Results

Research Question #1: What is the impact of CCR on the rate of re-referrals of caregivers that result in an open case?

We used a linear regression to estimate the impact of the intention to treat (ITT) and an instrumental variable two-stage least squares (2SLS) regression to estimate the impact of treatment on the treated (TOT) to address the first research question. The ITT model demonstrates the effect of having been randomized to the control group and does not consider whether an individual actively participated in the program. The TOT model, on the other hand, demonstrates the effect of having received treatment, defined here as a caregiver having participated in the intake process as evidenced by completing the CFSA 2.0.

The dependent, or outcome, variable in both models was a binary indicator that an individual had a re-referral to CDHS that resulted in an open case between 24 weeks and 76 weeks after their randomization date. Re-referrals are only considered after 24 weeks post-randomization to account for outreach (four weeks) and program completion (20 weeks), and up to 76 weeks post-randomization to allow for a 52-week follow-up period.

In addition to an indicator for belonging to the treatment group (the variable of interest), all variables examined for baseline equivalence are included as independent variables in the ITT model: number of previous open assessments and a binary indicator for any children in the household at various age groups (under 1, 1 to 5, and 6 and over). In the 2SLS regression for the TOT model, the same variables are utilized, but an indicator for completing at least one CFSA 2.0 (labelled "intake only" in Figure 1) replaces the indicator for belonging to the treatment group and serves as an instrument for receiving treatment. Both models incorporated inverse probability weighting to account for the likelihood that an individual was assigned to the treatment group, which was in turn based on randomization date and county of residence.

Table 2 presents the results of both models and shows that the CCR program did not have a statistically significant impact on the rate of re-referrals to CDHS resulting in an open case as compared with the control group. There was, however, a positive and statistically significant relationship between the number of children ages 1 to 5 and the rate of caregiver re-referrals, meaning that the presence of a child in this age range increased the likelihood of re-referral by just over 1%. The number of previous assessments was also positive and statistically significant, indicating that each previous assessment increased the likelihood of a re-referral by 1%.

If the program had its intended effect, the coefficients on the treatment status variable would be negative, indicating that those caregivers assigned to receive CCR services were less likely to have a re-referral to CDHS that resulted in an open case. Although the coefficients on the treatment indicator variable in both models have a positive sign, neither of these coefficients is statistically significant. This does not indicate that the program increased re-referrals, it just means that when the other variables in the model are controlled for, the effect of participating in CCR was not meaningfully different from having not participated.

Table 2: Impact of CCR on the Rate of Caregiver Re-referrals to CDHS Resulting in an Open Case

	Intention to Treat (ITT) Linear Regression	Treatment on the Treated (TOT) 2SLS Regression
Treatment	0.007 (0.004)	0.043 (0.028)
Number of previous assessments	0.01*** (0.002)	0.01*** (0.002)
Any children under age 1	-0.003 (0.007)	-0.003 (0.007)
Any children ages 1-5	0.012** (0.006)	0.011** (0.006)
Any ages 6 and over	-0.006 (0.007)	-0.005 (0.007)
Constant	0.016** (0.008)	0.016** (0.008)

N=6,903; *p-value<0.10; ** p-value<0.05; *** p-value<0.01

Table 3 presents the re-referral rates for each subpopulation within the sample, based on treatment status and degree of program completion. The overall rate of caregiver re-referral to CDHS that resulted in an open case within 24 to 76 weeks post-randomization was 2.9%. For individuals in the control group, this rate was 2.7%, while for all individuals in the treatment group, it was 3.1%. For the treatment subgroups, those who just completed intake and those who completed the full program, which includes those who completed intake, the rates are 3.6% and 3.1%, respectively. It is worth noting that although these rates are nominally higher than the rate of the control group, re-referral resulting in an open case is a relatively rare event – the rates for each of these subgroups translate to fewer than 20 individuals.

Table 3: Rates of Caregiver Re-referrals by Treatment Status and Program Completion

	Re-Referral to CDHS		
	Yes	No	Total N
Control	2.7%	97.3%	3,554
Treatment	3.1%	96.9%	3,349
Completed just intake	3.6%	96.4%	476
Completed full program	3.1%	96.9%	390
Total	2.9%	97.1%	6,903

The rate of re-referrals to CDHS that resulted in an open case varied geospatially. Figure 4 includes re-referrals for all study participants, regardless of treatment status. The rates of re-referral resulting in an open case varied from a low of 0% to a high of 7.1% (county names suppressed due to small sample sizes). Counties in dark gray had fewer than five individuals re-referred to CDHS, while counties in light gray did not have a participating CCR provider and were not included in the study.

Figure 4: Re-Referral Rates by County
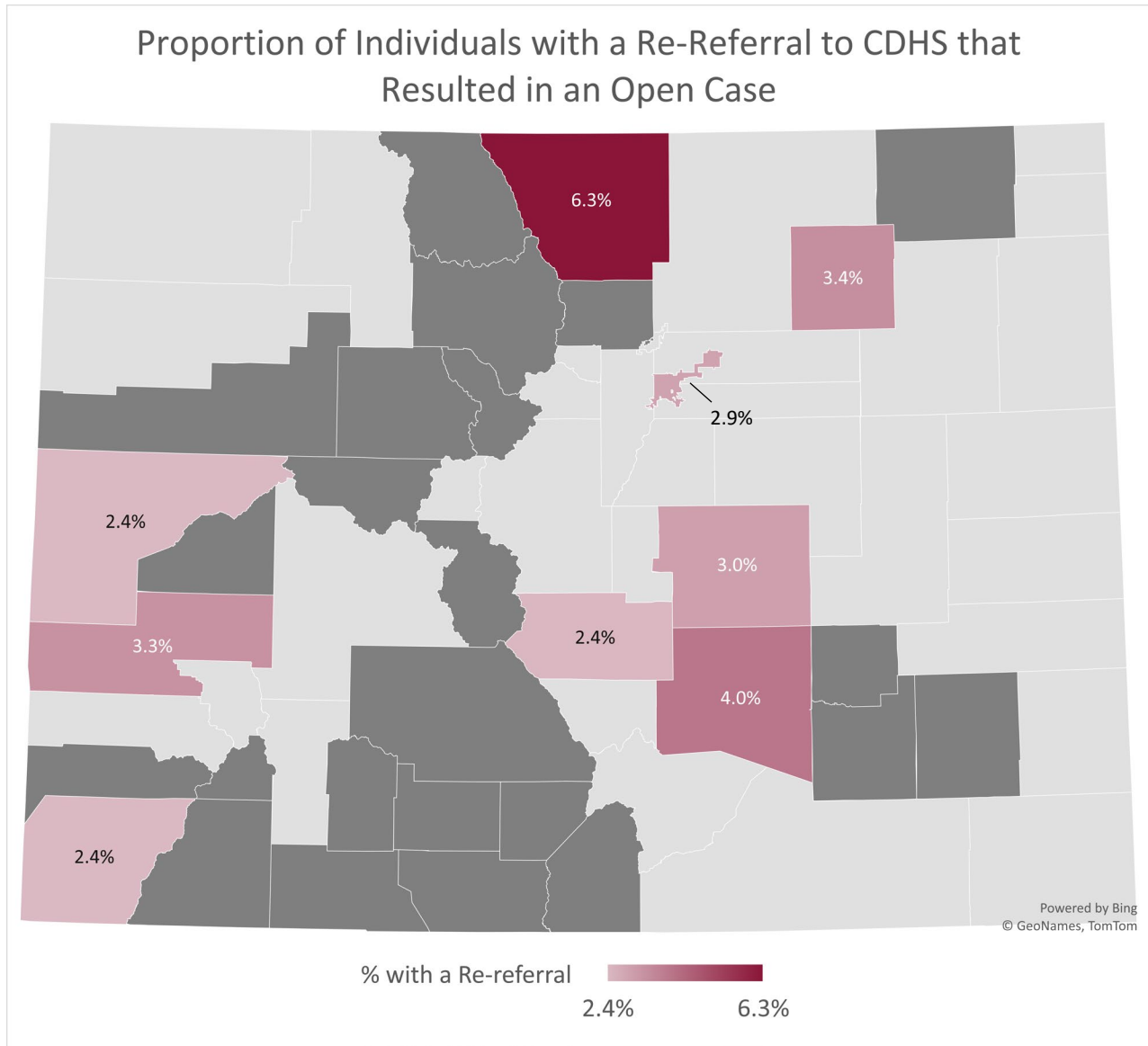
Research Question #2: What is the change in the economic well-being factor among treatment caregivers over time?

The CFSA 2.0 is a tool used by the CCR program to assess the needs and outcomes for families receiving services. The CFSA 2.0 is administered at intake and at the close of services to provide a pre- and post-assessment of family outcomes. It can also be administered at 30-day intervals during services as needed based on family progress. The indicators for each domain of the assessment range from 1 (not meeting any elements of the measure/in crisis) to 5 (meeting or exceeding all elements of the measure).

The economic well-being factor (EWB) is a measure of the following eight domains in the CFSA 2.0:

1. **Income**: Assesses family income adequacy using Federal Poverty Level guidelines.

2. **Employment**: Assesses the status and stability of employment.

3. **Housing**: Assesses the ability of the family to obtain appropriate housing of choice based on their circumstances.

4. **Transportation**: Assesses the degree to which family transportation needs are met.

5. **Food Security**: Assesses a family's level of food security based on United States Department of Agriculture definitions.

6. **Adult Education**: Assesses adult(s) academic, institution-based achievements.

7. **Cash Savings**: Assesses the degree to which a family is building liquid assets via cash savings.

8. **Health Coverage**: Assesses the degree to which family members have adequate medical health insurance.

Figure 5 depicts the average score across each of the eight EWB domains. We estimated the raw change in the means and the effect size—the raw change in means normalized by their pooled standard deviation—for each of the domains individually and for the total EWB score (see Table 5). The raw change in means reflects a positive change for all EWB domains, meaning that the average post-assessment scores after successful completion of the CCR program were higher than the average pre-assessment scores obtained during program intake. The effect sizes, which provide a standardized measure of the magnitude of the change from pre- to post-assessment scores, show that housing and cash savings increased the most over the course of receiving CCR services. Adult education, health coverage, and income increased the least over the course of receiving CCR services.

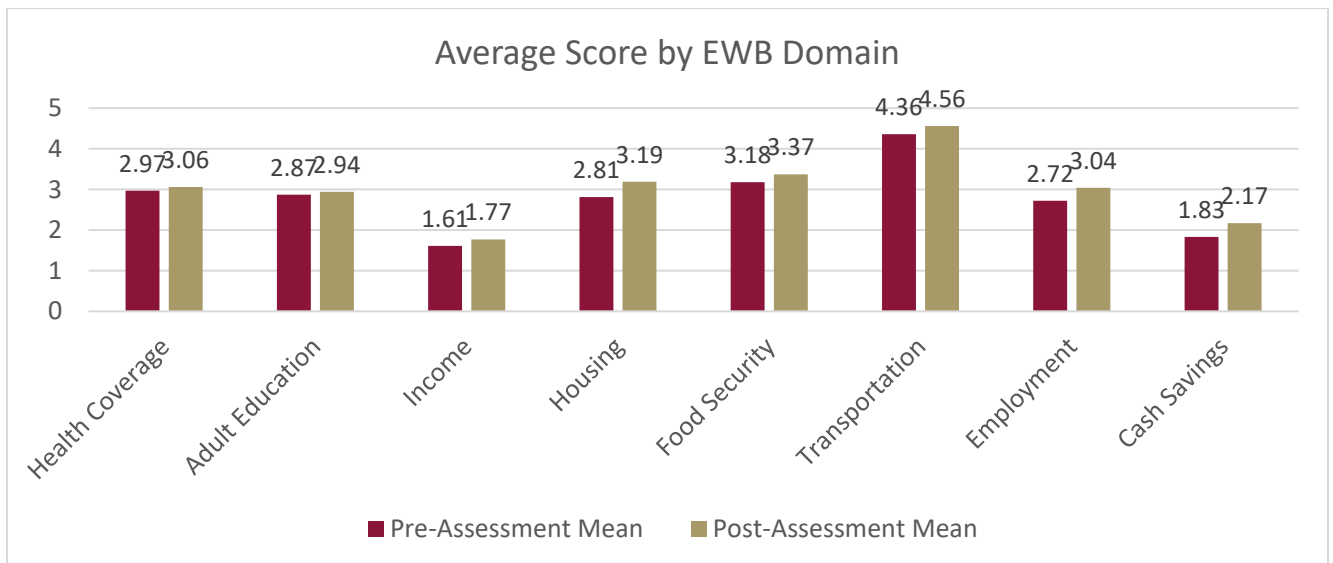Figure 5: Average Pre- and Post-Assessment Scores by EWB Domain

Table 5: Pre-Assessment and Post-Assessment EWB Outcomes

EWB Domain	Observations	Pre-Assessment Mean	Post-Assessment Mean	Raw Change in Means	Effect Size	Significance Test for Mean Change P-value
Health Coverage	389	2.97	3.06	0.09	0.12	0.000***
Adult Education	381	2.87	2.94	0.07	0.05	0.030**
Income	377	1.61	1.77	0.16	0.17	0.000***
Housing	385	2.81	3.19	0.39	0.33	0.000***
Food Security	390	3.18	3.37	0.19	0.20	0.000***
Transportation	390	4.36	4.56	0.20	0.21	0.000***
Employment	353	2.72	3.04	0.32	0.21	0.000***
Cash Savings	375	1.83	2.17	0.34	0.33	0.000***
TOTAL EWB SCORE	319	22.26	24.08	1.82	0.35	0.000***

*N = 390; p-value<0.10; ** p-value<0.05; *** p-value<0.01

It is worth noting that although there were 390 individuals who completed both a pre- and post-assessment, questions were not answered uniformly. For 71 individuals (18.2% of the total), one or more of the EWB domains had a missing value in either the pre- or post-assessment. Table 6 shows the number of missing observations by EWB domain for pre- and post-assessments.

Table 6: Counts of Missing Pre-Assessment and Post-Assessment EWB Outcomes by Domain

EWB Domain	Missing Pre-Assessment Observations	Missing Post-Assessment Observations
Health Coverage	1	0
Adult Education	8	3
Income	10	8
Housing	4	2
Food Security	0	0
Transportation	0	0
Employment	28	28
Cash Savings	14	2

When looking within EWB domains over time, missingness is higher in the pre-assessment than the post-assessment in nearly every instance. This is especially so for adult education and cash savings. It is not immediately clear from the data why this is the case. Take, for instance, the cash savings domain – a missing value in the pre-assessment could signify that an individual refused to answer the question, did not understand the question, did not have any cash savings (although this should have been answered with a low score), or was not aware of their cash savings status. It is plausible that a reduction in the number of missing values for this domain in the post-assessments indicates that the program increased awareness about the importance of cash savings, but this cannot be posited with any certainty. Programs that utilize the CFSA 2.0 should take care to clarify to individuals administering the assessment when and how missing answers should be reported. Greater certainty surrounding these scores will benefit program participants and evaluators alike.

Conclusion

This evaluation highlighted some of the successes of and challenges facing the CCR program. Program providers had varying degrees of success in reaching out to and enrolling caregivers, resulting in a statewide intake rate of 14.2%. Despite this relatively limited participation rate, 82% of those who completed the intake process went on to complete the program. The rate of re-referrals to CDHS resulting in an open case did not differ meaningfully between caregivers in the treatment and control groups. This finding was reinforced by the regression models leveraged to answer Research Question #1 – only the number of previous assessments and the presence of a child ages 1 to 5 were statistically significant. The program did, however, appear to improve participants' economic well-being, as addressed in Research Question #2. For the 390 individuals in the treatment group who completed both pre- and post-assessment CFSA 2.0 evaluations, there were meaningful gains made across seven of the eight domains measured. These individuals reported substantial improvements in cash savings and housing, and modest improvements in food security, transportation, and employment. Overall, however, low recruitment rates undermine our ability to draw conclusions regarding the program's impact and highlight opportunities for improvement in program implementation.