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# Impact of COVID-19 on service delivery for an evidence-based behavioral treatment for families involved in the child welfare system<sup>☆,☆☆</sup>

Gracelyn Cruden, Mark Campbell, Lisa Saldana<sup>\*</sup>

Oregon Social Learning Center, 10 Shelton McMurphey Blvd, Eugene, OR 97401, United States of America

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## ABSTRACT

The novel coronavirus, COVID-19, has dramatically impacted clinical service delivery, particularly substance use treatment. The Families Actively Improving Relationships (FAIR) program is an action-oriented, evidence-based behavioral treatment for opioid and methamphetamine disorders in parents involved in the child welfare (CW) system. A seven-clinician team operates out of a Medicaid-funded clinic, primarily delivering services in the community. Attending to underlying mechanisms of FAIR's intervention strategies that promote client engagement and clinical outcomes, FAIR rapidly adapted procedures in response to COVID-19-onset disruptions. This study analyzed administrative records and Medicaid claims data from January 2019 to July 2020, including 157 clients and 17,449 claims. Analyses considered COVID-19 presence as March–July 2020. The study examined changes in the frequency and reimbursement volume of FAIR service delivery pre- and postonset of COVID-19. Although average monthly reimbursement per clinician did not significantly decline, reimbursement per client significantly declined by 31% (pre: \$1005 [\$732]; post: \$698 [\$546],  $p < .001$ ). Clinicians delivered services on significantly more days per month during COVID-19 (mean (sd) = 16.73 (6.33); 20.26 (7.24),  $t(127) = -2.70$ ,  $p < .01$ ). Average clinician caseload size was stable, as was the average monthly service receipt days for clients. Thus, this study attributes reductions in reimbursement per client when FAIR provided services remotely to the elimination of in-person billable services and reductions in session length, but not in frequency. Medicaid-funded clinics and community-based substance use treatment interventions such as FAIR can successfully sustain and implement substance use treatment practices with deliberate, rapid adaptation to ensure that families receive needed supports in the face of contextual crises.

## 1. Introduction

The novel coronavirus of 2019 (COVID-19) has not only changed daily life drastically, but also health services delivery (Bojdani et al., 2020; Hollander & Carr, 2020). In particular, it has impacted substance use treatment, with compounded risk for programs serving public-system involved populations in community outreach settings (Bojdani et al., 2020; Cochran, Bruneau, Cox, & Gordon, 2020; Kopelovich et al., 2020). The World Health Organization elevated COVID-19 to pandemic status in March 2020 due to its rapid transmission rate (Cucinotta & Vanelli, 2020). State governors across the United States had authority over the degree to which their states imposed and enforced precautionary

measures, including recommendations for social distancing, (e.g., individuals maintain a minimum of 6 ft distance), and enhanced hygiene (e.g., hand-washing, masks) (National Governors Association, 2020). After approximately 3 weeks of promoting voluntary compliance with protective measures, on March 23, 2020, Oregon's governor supported a more restrictive measure—a stay-at-home order (Newsroom, S. of O., 2020). This order required nonessential individuals, including individuals not delivering emergency medical care, to leave home only for essential activities such as accessing emergency medical services or obtaining food. Notably, this order characterized mental health and substance use services as nonessential services except for instances of immediate threat of harm to self or others.

**Abbreviations:** CW, Child welfare; FAIR, Families actively improving relationships; EBP, Evidence-based practice; UA, Urinary analysis.

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<sup>\*</sup> Corresponding author at: Oregon Social Learning Center, 10 Shelton McMurphey Blvd, Eugene, OR 97401, United States of America.

*E-mail addresses:* [gracelync@oslc.org](mailto:gracelync@oslc.org) (G. Cruden), [markc@oslc.org](mailto:markc@oslc.org) (M. Campbell), [lisas@oslc.org](mailto:lisas@oslc.org) (L. Saldana).

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The need for rapid adaptation from intensive in-person community-based services to remote virtual sessions highlighted two key factors to sustain the quality delivery of evidence-based practices (EBPs): (1) client engagement with services and (2) clinician ability to maintain productivity and billing under remote working conditions. This paper details how families involved in child welfare (CW) maintained engagement in the Families Actively Improving Relationships (FAIR) EBP (Child Welfare Information Gateway, 2018) following the onset of COVID-19. FAIR is an action-oriented, behavioral EBP to support parents involved with CW due to substance abuse and child neglect (Child Welfare Information Gateway, 2018). In addition to an overview of FAIR, the paper describes adaptations to delivery in response to COVID-19. Analyses examined the impact of these adaptations on: 1) client engagement with FAIR as measured by frequency and reimbursement volume, and 2) program financial sustainability as measured by Medicaid reimbursement. Potential long-term implications of COVID-19 adaptations on EBP strategies and implementation are proposed.

## 2. Methods

### 2.1. Families Actively Improving Relationships (FAIR): overview

#### 2.1.1. FAIR: evidence-base

FAIR is an ecological EBP that targets four domains of care: reducing substance use, improving mental health, building evidence-based parenting skills, and building resources for ancillary supports such as housing and employment (California Evidence-based Clearinghouse for Child Welfare, 2020). Individualized treatment plans include family, peer, and other service provider support. The mother and/or father of child(ren) of any age are eligible for treatment, including mothers who are pregnant. FAIR clients are referred or at-risk for referral to CW for the use of substances other than exclusively THC and/or alcohol in the past year, and either have maintained custody of, or are working toward reunification with, their child(ren). Clients in the current evaluation were enrolled with Oregon's Health Plan (Medicaid).

FAIR's extensive and consistent engagement strategies, use of reinforcement-based techniques based in contingency management (Jones, Wong, Tuten, & Stitzer, 2005), and strengths-based approach (Tuten, Jones, Schaeffer, & Stitzer, 2012) substantially support and benefit clients. Across three rigorous clinical trials, FAIR significantly reduced intravenous and other drug use, drug cravings, neglectful parenting, depression and anxiety, and trauma symptoms, at 6, 12, and 24 months. While parenting stress showed significant reductions until 24 months, its increase at 24 months was not associated with an increase in other symptoms (L. Saldana, 2015; L. Saldana, Smith, & Weber, 2013).

#### 2.1.2. FAIR: treatment delivery location and frequency

FAIR is an intensive outpatient program that is implemented through a fee-for-service, community-based, outpatient clinic, that is dually licensed to provide mental health and substance use services contracted exclusively with Medicaid managed care. While the core treatment components of FAIR are manualized and clearly defined, the implementation protocol is designed to promote adaptability and meet clients' unique needs. For example, services are most frequently delivered in the community where clients spend their time, such as where they live—even if unhoused—work, or other places they frequent. Research has reported engagement as a key method for building trust between FAIR clinicians and clients (Cruden, Crawford, & Saldana, 2020; L. Saldana & Cruden, 2020). Upon treatment initiation, clients typically engage in treatment services five days per week for the first three weeks of treatment. In partnership with their clinician, clients titrate treatment frequency as they progress toward their treatment goals. Treatment duration spans 8–9 months, on average. Clinicians are available to clients 24/7 for support and engagement (California Evidence-based Clearinghouse for Child Welfare, 2020). During each visit, clients

provide a urinary analysis (UA) for an objective measurement of drug use. UAs are crucial to FAIR engagement; clients report that UAs promote positive choices about sobriety (Cruden et al., 2020).

#### 2.1.3. FAIR clinical team

FAIR clinicians maintain one of two licensures in compliance with state standards: Qualified Mental Health Professional (QMHP) or Qualified Mental Health Associate (QMHA). The FAIR team includes a licensed clinical supervisor, another QMHP, and a cadre of highly supervised QMHAs who are assigned as the primary clinician for each client. FAIR utilizes a team approach, in which clients receive exposure to more than one clinician to facilitate clinical coverage, flexible scheduling, comprehensive support, and role stratification.

### 2.2. COVID-19 adaptations

As COVID-19 cases spread in March 2020, the FAIR team quickly pivoted to continue to engage their caseload of approximately 48 clients and limit treatment disruptions. Attending to underlying mechanisms of intervention strategies that promote client engagement and clinical outcomes, and building on the inherent flexibility and responsiveness of the FAIR model, the team adapted clinical service delivery and billing procedures rapidly with supportive supervision to continue serving families.

#### 2.2.1. Supervision and FAIR team communication protocols

The FAIR team meets weekly for 2 h of group supervision to discuss clients' progress and engage in group case conceptualization using FAIR-specific tools and strategies. Meetings were held virtually using the same platform described in Section 2.2.2. The team placed a greater emphasis on attending to clinician self-care needs, including managing their own reactions to the pandemic. However, the team maintained all other group supervision elements. Using technology features to allow shared virtual whiteboards (for demonstrating visual FAIR strategies) and session audio clips, the team maintained use of FAIR supervision tools.

As part of standard procedures, clinicians communicate with one another via a secure text thread to facilitate consistent, ongoing communication throughout the day. This communication approach was particularly helpful as clinicians transitioned from a shared office to home work spaces. Example text communications include asking for recommendations about community partners who might be able to help meet clients' ancillary needs, or requests for items in the FAIR store (Section 2.2.2). Clinicians' cell phones and bills are paid as part of FAIR program overhead.

#### 2.2.2. Virtual clinical service adaptations

Similar to most behavioral health program adaptations during COVID-19 onset (Bojdani et al., 2020; Hollander & Carr, 2020), clinical procedures quickly moved to virtual treatment using a HIPAA-compliant video-chat application. To facilitate this transition, the team created a written guide (4-page word document with video-chat application screenshots) to orient clinicians to the virtual platform, its interactive features, and tools for approximating in-person intervention strategies (e.g., use of emoticons on the screen to symbolize receipt of a FAIR Buck, distributed as an incentive for goal progress; FAIR Bucks are a non-monetary currency redeemable in the FAIR store for physical items such as household goods and children's toys). The FAIR virtual education guide included pragmatic instructions such as how to maintain protection of client confidentiality. The guide also included modules on logging in to the platform, creating secure meeting links, sharing links, and troubleshooting tips. The FAIR team received the document in electronic and hard copy form. Support staff provided technical assistance as necessary (e.g., how the platform might work on different cell phone types).

Once the clinicians were competent in their own use of the virtual platform and its capabilities, the team supported them in transitioning

their clients to use the platform. For clients with reliable smartphone and internet access, the transition was relatively smooth. However, many clients involved in FAIR do not have reliable virtual technology capabilities, often relying on public access for internet needs. In such cases, clinicians problem-solved options for accessing virtual services with clients, ranging from identifying a support that would allow wireless internet use from outside their home while protecting their privacy, to loaning a device from a donor. In instances where a clinician did not identify an option and the client was in need of a session, in-person protocols were in place (Section 2.2.3).

Due to the nontraditional service delivery of FAIR, moving from in vivo, community-based, action-oriented interventions to virtual treatment required additional planning and adaptation to fully modify FAIR supports. For example, FAIR clinicians routinely support clients through attending court sessions and child welfare case management sessions with clients. The FAIR clinician can help to advocate for the client through sharing clients' progress, while also continuing evidence-based treatment strategies by providing real-time skills training with clients. Skills training in this context includes communication skills to empower and equip clients to self-advocate in future court or case management sessions. Post-COVID-19 onset, clinicians were able to attend virtual court and case management sessions with clients, continuing a key engagement and treatment strategy. This continuation would not have been possible, however, had the local government not made sessions available through their own virtual platforms.

Of note, the move to virtual treatment delivery did not modify many core treatment components. For example, one advantage of meeting clients in their homes is the ability to spend session time improving the health and safety of the home while talking to clients about their treatment goals. Using virtual sessions, clinicians continued to engage with clients doing shared activities such as folding laundry, washing dishes, or cooking while talking on video technology. Further, clinicians continued to support clients with parenting skills by observing and reinforcing parent-child interactions through video technology.

### 2.2.3. In-person clinical service delivery

In-person interactions were limited to initial assessments, crisis situations, and clients unable to access technology. FAIR provided instructions for safe in-person interactions, consistent with state guidelines (Newsroom, S. of O, 2020) and best practices (World Health Organization, 2020), in writing and verbally to all clients. The FAIR leadership team maintained up-to-date knowledge about local policies and protocols, and availability of community resources to help support safe in-person interactions (e.g., locations of outdoor handwashing stations) to share with clinicians. Best practices included social distancing protocols as well as the provision and utilization of personal protective equipment (PPE) and client temperature checks. The FAIR clinic provided PPE and no-touch thermometers to clinicians for their own use and to distribute to clients, including masks, gloves, sanitizing cleaners, and hand sanitizer. The ODI clinic kept the PPE in a locked, central location, where only the FAIR team had access. The team billed PPE acquisition to FAIR program overhead costs.

Because use of UA results is a key component of FAIR substance use treatment strategies and client engagement, the team implemented modified protocols due to the inability to conduct monitored UAs. While using PPE, clinicians dropped off UA cups to clients' residences, and observed results using a digital image during virtual treatment sessions. In addition, clinicians dropped off items earned by clients from the FAIR store, essential provisions that clients did not have safe access to, and activity packets for parent-child interaction tasks.

### 2.2.4. Billing adaptations

The team also adapted billing procedures. First, a central administrator communicated with community care organizations contracted for state Medicaid service delivery to understand updated billing opportunities, such as new virtual-treatment CPT codes. This administrator then

reviewed new and existing eligible billing codes as well as associated necessary changes in clinical documentation requirements by clinicians' certification (e.g., QMHA or QMHP) with the clinicians. For example, the administrator detailed how video-based treatment services and audio-only based services impacted service billing eligibility and potential reimbursement; audio-based services would be reimbursed at a lower rate than video-based services. Notably, because clinicians could not be present while clients provided UA samples, clinicians could no longer bill UAs.

The clinical administrator provided ongoing feedback via email to individual clinicians about the accuracy of their clinical notes in response to these adaptations. To do so, the administrator reviewed clinic records on a monthly basis to monitor which clients had received services, and then cross-referenced these data to the submitted claims data to ensure that: a) all claims had been submitted, and b) claims had been submitted under the appropriate CPT code. Payor billing procedures (e.g., electronic claim submissions) remained the same.

### 2.3. Clinical data and key variables

Analyses were performed using insurance claims data from January 01, 2019 to July 31, 2020. The analysis used March 1, 2020, as the cutoff for services delivered pre- or post-onset COVID-19, as voluntary compliance measures were released at that time. The overall sample consisted of 157 clients, 5–7 active clinicians per month over 19 calendar months, and 17,449 claims defined as a unique service, on a given date of service per client.

Month was selected as the analytic time unit because: a) client time in FAIR is typically tracked in months, and b) we observed less variance in service frequency outcome variables (see Section 2.3.1) over month time units compared to smaller potential units of analysis (e.g., weeks). Given the limitations associated with billing for UAs under COVID-19 restrictions, primary and secondary outcome analyses were conducted both with and without the inclusion of UAs in pre- and post-onset COVID-19 estimates. The team performed data cleaning and analysis in Stata version 12 (StataCorp, 2012).

#### 2.3.1. Primary outcomes by clinician and client

The team tested differences in two key outcomes by COVID-19 period by calendar month; we tested each outcome at the clinician level and repeated it at the client level: (1) Total reimbursed services—the dollar amount that the clinic received from insurers for clinical services. Reimbursement assumed a state Medicaid reimbursement rate to the clinic for the clinician's services, which may be lower than the contractual rates established with coordinated care organizations. Reimbursement was analyzed per clinician, per month (clinician/month) to understand a clinician's total financial productivity, and was thus a proxy indicator for whether COVID-19 affected overall clinic reimbursement. Reimbursement per client, per treatment month (client/month) was included as a proxy for whether individual clients were receiving the same volume of reimbursable services. (2) Services per month—For the clinician-level analysis, services per month was defined as the total days per month that a clinician delivered services. For client-level analysis, services per month was defined as the total number of days per month that a client received services. Analyses included service frequency as an indicator of treatment dosage and quality.

#### 2.3.2. Secondary outcomes by client

The research team performed subgroup analyses by clients' elapsed time in treatment to understand whether clients in the early stages of treatment (e.g., first three of nine months)—when sessions are delivered with the highest dosage—received the typical dosage during COVID-19. Time in treatment was defined as the difference between the date of service and the client's most recent case opening date, should clients have been enrolled for multiple treatment episodes. The study delineated treatment months (e.g., month 1, month 2) every 30 days.

2.3.3. Descriptive analyses of clinical caseloads

Descriptive analyses assessed changes in the FAIR team’s monthly caseload with respect to only those clients who were part of a clinician’s primary caseload (i.e., primary caseload) and while accounting for team-based coverage when clinicians saw one another’s clients (i.e., primary caseload plus team-based coverage).

2.3.4. Data assumptions

Three data assumptions are worth noting. First, the clinic hired two clinicians at the end of 2019 and two other clinicians were present only in the early months of 2019. The study performed analyses with and without these clinicians; results were similar in magnitude and significance. Thus, presented results include these four clinicians, as this best reflects the dynamic reality of implementing an EBP in a community clinic. Second, months in which a clinician was reimbursed less than \$1500 were removed for that clinician (n = 17 clinician/months), as this represented months where a clinician worked limited hours (e.g., extended vacation, entering or exiting employment). Third, for analyses related to clients’ “treatment month” (e.g., first, second, or third treatment month), the study calculated treatment month in 30-day intervals from treatment enrollment. The study excluded treatment months with service dates both prior to and after the March 1 COVID-19 cutoff (n = 21). This exclusion avoided misallocating treatment months to the pre- or post-onset COVID-19 sample, when that treatment month would have encompassed both periods.

3. Results

Table 1 contains results for both clinician and client-focused outcomes.

**Table 1**  
FAIR service delivery and reimbursement pre- and post-onset of COVID-19.

	Pre-COVID-19			Post-onset COVID-19			t	df	n <sup>a</sup>	
	Mean	SD	95% CI	Mean	SD	95% CI				
<b>Clinician productivity</b>										
Monthly Reimbursement per Clinician	\$6112	\$2320	\$5599, \$6625	\$5918	\$2651	\$5220, \$6616	0.68	109	81, 30	
No UAs	\$5120	\$2121	\$4651, \$5589	\$5257	\$1694	\$4625, \$5890	-0.32	109	81, 30	
Service Frequency										
(service days per client/month <sup>b</sup> )	16.73	6.33	15.44, 18.03	20.26	7.24	17.77, 22.74	-2.70**	127	94, 35	
No UAs	16.52	6.43	15.20, 17.84	20.17	7.39	17.63, 22.71	-2.75**	127	94, 35	
<b>Client service receipt: days per month</b>										
Overall	8.64	5.09	8.21, 9.06	8.88	5.09	8.23, 9.52	-0.62	789	548, 243	
First month of treatment	14.10	5.61	13.00, 15.21	11.88	6.44	9.15, 14.60	1.70	123	101, 24	
Second month of treatment	10.25	5.19	9.15, 11.34	9.24	5.42	7.32, 11.16	0.94	120	89, 33	
Third month of treatment	8.81	4.23	7.79, 9.83	8.55	4.85	6.77, 10.33	0.27	98	69, 31	
<b>Client service receipt: days per month, no UAs</b>										
Overall	8.44	4.93	8.02, 8.85	8.69	5.00	8.06, 9.32	-0.66	788	547, 243	
First month of treatment	13.76	5.50	12.68, 14.85	11.75	6.41	9.04, 14.46	1.56	123	101, 24	
Second month of treatment	9.91	4.99	8.86, 10.96	9.09	5.41	7.18, 11.01	0.79	120	89, 33	
Third month of treatment	8.62	4.19	7.62, 9.63	8.39	4.79	6.63, 10.15	0.25	98	69, 31	
<b>Reimbursement per client/month</b>										
Overall	\$1005	\$732	\$936, \$1073	\$698	\$546	\$624, \$771	5.47***	657	443, 216	
First month of treatment	\$1674	\$751	\$1525, \$1822	\$1300	\$671	\$1017, \$1584	2.23*	123	101, 24	
Second month of treatment	\$1051	\$704	\$903, \$1200	\$711	\$532	\$522, \$900	2.52*	120	89, 33	
Third month of treatment	\$836	\$557	\$703, \$970	\$665	\$476	\$490, \$839	1.49	98	69, 31	
<b>Reimbursement per client/month, no UAs</b>										
Overall	\$846	\$645	\$785, \$906	\$626	\$498	\$559, \$692	4.42***	655	441, 216	
First month of treatment	\$1425	\$664	\$1294, \$1556	\$1187	\$619	\$925, \$1448	1.60	123	101, 24	
Second month of treatment	\$868	\$624	\$736, \$999	\$625	\$479	\$455, \$795	2.02*	120	89, 33	
Third month of treatment	\$691	\$503	\$570, \$812	\$598	\$570	\$440, \$756	0.89	98	69, 31	

<sup>a</sup> pre-COVID-19, post-onset COVID-19.

<sup>b</sup> Client/month is equivalent to 30 days of treatment for a specific client.

\* p < .05.

\*\* p < .01.

\*\*\* p < .001.

3.1. Reimbursement

Average monthly reimbursement per clinician remained relatively stable pre-COVID-19 compared to post-onset COVID-19 when UAs were included, and the study observed a slight, nonsignificant increase when analyses excluded UAs. However, mean reimbursement per client/month was significantly less during COVID-19 compared to pre-COVID-19, both when UAs were included (mean (sd) = \$1005 (\$732); \$698 (\$546), t(657) = 5.47, p < .001) and excluded (mean (sd) = \$846 (\$645); \$626 (\$498), t(655) = 4.42, p < .001). These declines represent a 31% to 26% decline, respectively. Moreover, reimbursement for clients who were at the beginning of treatment post-onset of COVID significantly declined. For example, when UAs were included, the first treatment month (mean (sd) = \$1674 (\$751); \$1300 (\$671), t(123) = 2.23, p < .05), and second treatment month (mean (sd) = \$1051 (\$704); \$711 (\$532), t(120) = 2.52, p < .05) were reimbursed at a significantly reduced amount post-onset COVID-19. When UAs were excluded, the second treatment month remained significantly reduced (mean (sd) = \$868 (\$624); \$625 (\$479), t(120) = 2.02, p < .05). The study found no significant differences in other treatment months.

3.2. Service frequency

Clinicians delivered services on significantly more days per month during COVID-19 (mean (sd) = 16.73 (6.33); 20.26 (7.24), t(127) = -2.70, p < .01), even when UAs were excluded (mean (sd) = 16.52 (6.43); 20.17 (7.39), t(127) = -2.75, p < .01). Client service frequency increased minimally and nonsignificantly, on average, even with the exclusion of UAs. Relatedly, clients in their first, second, or third month of treatment received services less frequently during COVID-19 compared to pre-COVID-19, but this decline was minimal, on average,

and nonsignificant.

### 3.3. Caseload

Clinicians had similar monthly caseloads pre- and post-onset COVID-19 when accounting for clinicians' primary clients and clients seen while providing team-based coverage (mean (sd) = 8.44 (1.32); 9.06 (0.98) clients, respectively) and when assessing only clinicians' primary clients (mean (sd) = 5.82 (0.8); 6.94 (0.31)). The FAIR team-level caseload temporarily declined in April 2020 compared to April 2019 as COVID-19 affected the in-person intake assessments, but then recovered to a caseload similar to that observed in 2019 (Fig. 1).

## 4. Discussion

This paper reviewed changes in FAIR service delivery, reimbursement, and client engagement during the first five months of COVID-19. Clinicians worked significantly more days per month during COVID-19 to maintain caseloads of a similar volume to pre-COVID-19 levels and to continue engaging clients with the same relative frequency during COVID-19 compared to pre-COVID-19. Increased service frequency led to lower billable time. Combined with fewer reimbursable services, such as UAs, these trends led to significantly lower monthly reimbursement for the FAIR team during COVID-19 when considering all services. However, when removing UAs, total reimbursement per clinician/month slightly increased during COVID-19 compared to pre-COVID-19. This nonsignificant increase is likely due to the slightly higher volume of non-UA services delivered to clients during COVID-19 onset. During the first five months of COVID-19, reimbursement per client/month was estimated to be approximately 69–74% of pre-COVID-19 levels. Findings suggest that client engagement was maintained through clinicians working more days per week. However, clients did not receive services significantly more frequently. The significant increase in clinician service delivery frequency can likely be attributed to meeting more clients within the same week. Overall, this study demonstrated that clinics are able to successfully engage clients in a complex intervention and continue achieving positive clinical outcomes in the context of

environmental changes (e.g., COVID-19 restrictions).

### 4.1. Lessons learned

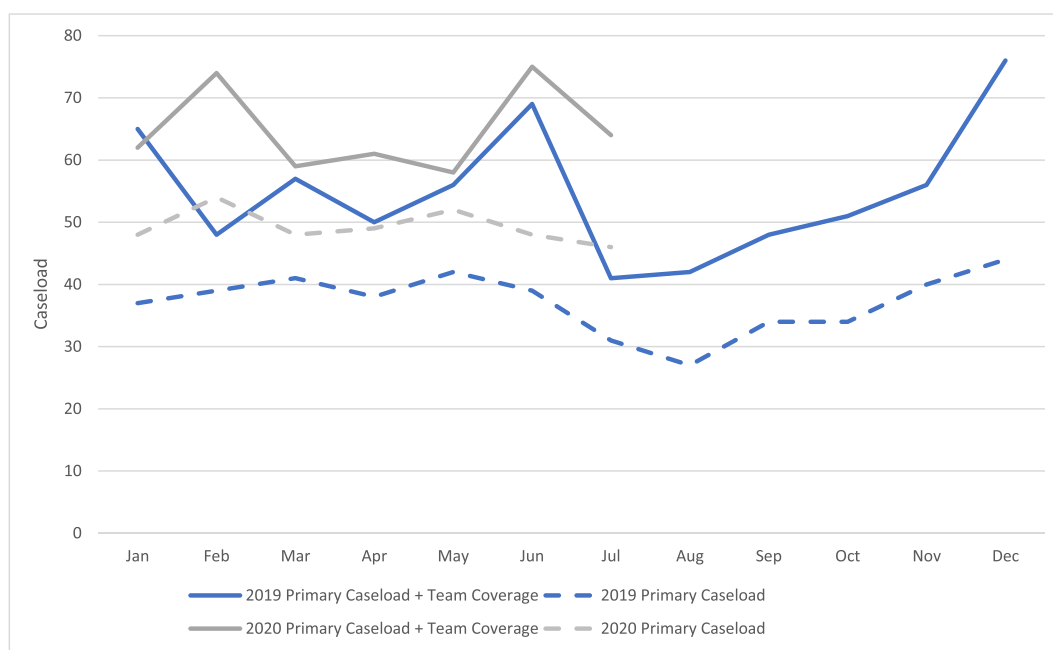
This study offers four key lessons related to EBP implementation adaptations in community clinics: EBP core components can be maintained while EBP implementation is adapted, monitoring the impact of implementation adaptations is crucial for monitoring potential threats to clinics' financial solvency, some EBP implementation and billing adaptations should be considered for maintenance post-COVID-19 to better serve clients, and implementation strategies can facilitate high-quality, rapid EBP implementation adaptations.

#### 4.1.1. Evidence-based program design and implementation flexibility

First, this paper highlights how the inherent flexibility of the FAIR treatment model allowed for rapid adaptations in the face of COVID-19-onset that resulted in minimal disruptions to clients' treatment dosage. By understanding the underlying mechanisms of FAIR, clinicians and clinic staff could make adaptations to how they delivered FAIR services, while maintaining the mechanisms of change (Stirman, Baumann, & Miller, 2019). For example, the ability for clients to "purchase" items from the FAIR store using the FAIR Bucks earned as part of the contingency management system is key to treatment success. Through the use of virtual walk-throughs and delivery of selected items (e.g., laundry detergent, clothing) to client's doorsteps by clinicians, clinicians maintained this critical component.

#### 4.1.2. Monitoring virtual clinical services impact fee-for-service funded clinics

Second, this study provides a potential model for tracking and assessing how virtual treatment might impact the financial solvency of fee-for-service-based programs. Results indicated that clinical services could be continually delivered with high quality due to high levels of clinician productivity and client engagement. However, reimbursement declined due to billing challenges, such as an inability to receive reimbursement for a frequent, crucial treatment component: urinalysis. The current analyses did not address total clinic expenditures to facilitate



**Fig. 1.** FAIR clinical team caseload when considering clinician primary caseload only or clinician primary caseload plus coverage of team member cases. Note: FAIR provides "team-based coverage" for clients to ensure that clients can always access services when needed, even if the primary clinician is unavailable. Thus, while clients are assigned a primary clinician, clients may receive services from another FAIR clinician. Clients might, therefore, be represented more than once when team coverage is included in the caseload.

COVID-19 adaptations, such as acquiring PPE, paying for HIPAA-compliant video-chat accounts for each FAIR team member, and mileage and non-billable time dropping off supplies to clients without conducting a billable session. Therefore, current results cannot speak to the gap between clinic expenses and reimbursement. Although this challenge of small community clinics obtaining sufficient reimbursement for EBP delivery is not new, this study highlights the significant burden placed on such programs due to any external environmental or contextual change, such as COVID-19 restrictions. Notably, since the time period included in these analyses, the clinic's community care organization has allowed reimbursement for PPE and thus facilitated the clinic's capacity to provide PPE to its staff and clinicians long-term. Given the importance of consistent, ongoing service delivery for intensive outpatient programs to meet clients' needs, insurers must adopt similarly responsive policies to support EBP service providers as they respond to changing contexts and to continue successful EBP delivery.

#### 4.1.3. Implications for future clinical operations and solvency

Third, the results of this study point to the potential of virtual treatment delivery for effectively engaging difficult-to-treat populations and delivering treatment during COVID-19 disruptions. Together, these results point to the more generalized possibility of FAIR's effectiveness under a hybrid remote/in-person model. Such adaptations to infrastructure hold promise for the delivery of FAIR under a range of challenging contexts (e.g., rural environments), thereby expanding the potential range of clients that FAIR can serve. Without the external challenge that COVID-19 has imposed, adaptations to facilitate a transition to virtual treatment might not have been as urgent or possible, as some of the billing codes that facilitated virtual treatment might not otherwise have existed. Therefore, insurers might consider the clinical implications of maintaining these billing codes post-COVID-19.

#### 4.1.4. Implementation strategies for implementation adaptation

Finally, the feasibility and value of implementation science strategies for facilitating such adaptations were evident in the FAIR clinical team's adaptation. The rapid, effective response of the FAIR clinical and administrative teams are consistent with known implementation strategies as classified in the Expert Recommendations for Implementing Change (ERIC) project (Powell et al., 2015). These include: 1) provide clinical supervision (i.e., weekly supervision meetings; Section 2.2.1); 2) develop education materials (i.e., virtual technology handout; Section 2.2.2); 3) distribute education materials (i.e., distribute handout to clinicians virtually and physically; Section 2.2.2); 4) promote adaptability (i.e., virtual and in-person clinical service adaptations; Sections 2.2.2 and 2.2.3); 5) organize clinical implementation team meetings (i.e., urgent team meeting on billing and clinical adaptations; Section 2.2.4); and 6) facilitate relay of clinical data to providers (i.e., monthly administrative billing review; Section 2.2.4). Utilizing these strategies, the combined rapid response of the clinical and administrative teams facilitated seamless delivery of services pre- and post-onset of COVID-19. Implementation strategies could similarly inform other EBP adaptations to changing contexts while maintaining EBP treatment fidelity.

## 4.2. Limitations

This study relied on claims data, which is limited to services that are eligible for reimbursement and that clinicians billed. Results might have underestimated the total volume of services delivered, should some services not have been eligible or not submitted for reimbursement. Second, the study based reimbursement on the Oregon Medicaid fee schedule instead of the contracted rates between the clinic and Medicaid community care organizations, as the contracted rates are confidential per agreements. The Oregon Medicaid fee schedule might be lower than contractual rates; thus, our analyses might have underestimated the magnitude of monthly reimbursement across the whole time period. Third, although the sample was sufficient to detect significant changes

in reimbursement and service dosage, the small sample size limited analyses to descriptive analyses. Finally, the relatively short COVID-19 period limited power to detect significant differences in key outcomes pre- to post-onset COVID-19, such as successful treatment completion. As such, ongoing analyses will track the long-term impact of COVID-19 adaptations on FAIR engagement, retention, treatment outcomes, and reimbursement.

## 4.3. Future research

As COVID-19 restrictions continue to impact health service delivery, health care providers and insurers are positioned to assess whether clients consider virtual treatment delivery to be acceptable, and to extract clients' suggestions for improving the acceptability. Research has shown that virtual adaptations can be effective (Possemato, Bishop, Willis, & Lantinga, 2013), provided that clients feel their confidentiality is protected (Bischoff, Hollist, Smith, & Flack, 2004) and continue to feel engaged by a "real" person behind the virtual space (Mohr, Cuijpers, & Lehman, 2011). However, such studies took place prior to COVID-19. Less is known about virtual health attitudes and effectiveness post-COVID-19 onset, during which many aspects of daily life were moved to the virtual space, from school, to work, to socializing. Thus, the parameters by which clients find virtual delivery to be acceptable might have shifted during COVID-19. Relatedly, research should continuously evaluate the acceptability and financial sustainability of virtual treatment delivery by health care providers, especially substance use and mental health services (Uscher-Pines et al., 2020). Substance use and mental health clinics are faced with relatively small financial margins even without contextual crises (Johnson & Roman, 2002; Munjal & Carr, 2013; Stewart et al., 2016; Maxwell et al., 2021); the additional need for such services during severely disrupted periods such as COVID-19 (Czeisler et al., 2020; Volkow, 2020) in the face of fewer potentially billable services threatens service sustainability (Berenson & Shartzler, 2020; Johnson & Roman, 2002) not only in terms of the volume of services that a singular clinic can deliver, but whether community clinics that rely on fee-for-service reimbursement can survive when evidence-based treatment components cannot be reimbursed (Stewart et al., 2016). To better understand whether insurance providers can maintain or modify reimbursement structures to aid in the financial solvency of community mental health and substance use clinics and ongoing provision of high-quality client care, future studies should assess system-wide implications such as whether other service providers (e.g., emergency departments, residential treatment facilities) also experienced reimbursement changes during COVID-19.

## 4.4. Conclusion

This paper presented encouraging, preliminary support for rapid, structured adaptations to FAIR's traditionally in-person mental health and substance use treatment services during challenging contextual circumstances due to COVID-19. By utilizing structured, team-level adaptations, such as technology and creative modifications to FAIR treatment and implementation strategies, the clinic maintained the key mechanism of action for FAIR outcomes—engagement. Through clear communication about modifications to reimbursement codes, close supervision, and team member coverage support, services that traditionally rely upon skills training and observation in the community were delivered with minimal disruption, allowing parents to continue their work toward building strong relationships and making positive choices about their health, sobriety, and children's well-being.

## CRedit authorship contribution statement

Cruden: Conceptualization, Methodology, Software, Formal Analyses, Writing- Original Draft Preparation

Campbell: Conceptualization, Data Curation, Methodology,

Software, Formal Analyses, Validation, Writing- Review & Editing  
Saldana: Writing- Review & Editing, Supervision, Developer, Funding Acquisition

### Declaration of competing interest

Lisa Saldana is the developer of FAIR. She was not involved in any analyses or data management. The authors have no other conflicts of interest to disclose.

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