Assessing the Influence of Adverse Childhood Experiences (ACEs) on Recovery Capital, Mental Health, and Quality of Life for Parent Participants with Substance Use Disorder (SUD) in Family Treatment Courts (FTC)

ABSTRACT

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By

Amanda Norris

Tuesday, December 3, 2024

This study examines the impact of Adverse Childhood Experiences (ACEs) on mental health, recovery capital, and quality of life (QoL) among individuals enrolled in Family Treatment Courts (FTC), an 18-month treatment program. I hypothesized that people with high levels of ACEs would report poorer mental health, recovery capital and quality of life, and would show less change over time in the FTC program. One hundred four participants completed surveys at four time points (baseline, 6-, 12-, and 18-months) assessing the relevant outcomes. The mean number of ACEs reported at baseline was almost 4.98, an extraordinarily high number compared to the general public. ACE scores correlated negatively with baseline mental health and QoL but not with recovery capital. When change over time was examined, significant improvements in mental health (depression and trauma symptoms), psychological QoL, and social QoL were found, but the level of ACEs did not moderate change over time. However, recovery capital, physical QoL, and environmental QoL remained stable, regardless of ACE levels. These findings suggest that while FTCs positively impact mental health and certain QoL outcomes, their effect on broader psychosocial factors like physical QoL, environmental QoL, and recovery capital may be limited. Future research should consider larger samples across diverse FTC sites and investigate specific treatment components to better address this vulnerable population's holistic recovery needs, promoting sustained recovery and family stability.

Keywords: Adverse childhood experiences (ACEs), family treatment courts (FTC), substance use disorder (SUD), mental health, trauma, depression, recovery capital, quality of life

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By

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Under the Direction of Daniel Whitaker, Ph.D.

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

MASTER OF PUBLIC HEALTH

in the School of Public Health

Georgia State University

2024

APPROVAL PAGE

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ACKNOWLEDGEMENTS

I am immensely grateful to Dr. Daniel Whitaker and Dr. Wendy Guastaferro for serving as my chair and committee for my thesis defense, as they provided invaluable guidance, encouragement, and insight during this process. Their expertise has been crucial in helping me shape and refine this research. I also extend my thanks to the faculty and staff in the School of Public Health at Georgia State University for their support and resources, which have made this work possible. To my friends and classmates, thank you for the camaraderie, feedback, and moral support you provided along the way. Lastly, my deepest appreciation goes to my family, whose patience, encouragement, and unwavering belief in me have been my source of strength throughout this journey. Thank you all for being part of this accomplishment.

AUTHOR'S STATEMENT PAGE

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Amanda Norris
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INTRODUCTION

The prevalence of substance use disorder (SUD) among parents poses a significant public health challenge, impacting child maltreatment rates and overall family well-being. Research indicates that parental SUD contributes to an increased risk of child maltreatment, neglect, and adverse outcomes for children (Kepple, 2017; Young et al., 2007). Concurrently, adverse childhood experiences (ACEs), such as abuse, neglect, and household dysfunction, further compound these challenges by elevating the risk of developing SUD and experiencing poor mental health outcomes later in life (Centers for Disease Control and Prevention, 2024; Dube et al., 2002; Danese & McEwen, 2012). Moreover, ACEs may negatively influence outcomes related to substance use recovery, including recovery capital, mental health, and quality of life indicators (Merrick et al., 2017; Espeleta et al., 2019). One question that remains unclear is if and how ACEs impact an individual's progression and change through SUD treatment. One comprehensive treatment for parents with SUD is family treatment courts (FTCs), a comprehensive intervention, aimed at addressing parental SUD, child maltreatment, and family challenges (Child & McIntyre, 2015; Worcel et al., 2008). However, research gaps persist regarding the influence of ACEs on participants' outcomes in FTC programs. Therefore, this thesis seeks to address these gaps by examining the impact of ACEs on changes in mental health, recovery capital, and quality of life among FTC participants as they progress through treatment. The broad goal is to understand the complex relationship between childhood adversity, parental SUD, and intervention outcomes.

Significance and Impact of SUD on Families and Child Maltreatment

SUD among parents presents a complex public health issue that affects both the prevalence of child maltreatment and the overall well-being of children within the welfare system and the United States, broadly. According to the National Survey of Drug Use and Health, "approximately 21.6 million (16.2%) of all children in 2022 lived with a parent misusing substances and more than 2 million (1.9%) lived with a parent who had SUD" (Ghertner, 2022). Unfortunately, parental SUD highly impacts parental functioning and child well-being, as it contributes to an increased risk of child maltreatment, neglect, and poor health outcomes for children (Kepple, 2017; Young et al., 2007). For instance, Calhoun et al. (2015) found that parents with SUD supervise their children less, parent more harshly, and engage in dysfunctional interactions and parenting behaviors, thus promoting unstable homes for both their children and recovery. Additionally, children with parents with SUD are less likely to have their basic needs met, as it is this combination of parental SUD and child maltreatment that promotes situations of neglect and poor health, academic, and social outcomes (Calhoun et al., 2015; Kepple, 2017; Young et al., 2007).

Due to the intertwined nature of SUD and child maltreatment, the child welfare system is responsible for addressing the complex challenges of families and safeguarding vulnerable children. The wide prevalence of parental SUD represents a tremendous strain on the child welfare system, thus causing a crisis in foster care in the United States (Wiltz, 2016). Currently, an estimated 60-80% of all substantiated child welfare cases, including foster care cases, involve parents with substance use disorders (U.S. Department of Health and Human Services, 2024). Ghertner et al. (2018) also found that increased placement into foster care was related to increases in substance use indicators from 2011 to 2016. This demonstrates the need for an

integrated approach to the issue of substance use among parents, as it presents a complex relationship between addiction, child maltreatment, and the child welfare system.

Adverse Childhood Experiences (ACEs) and Substance Use

As significant public health concerns, Adverse Childhood Experiences (ACEs) represent a range of traumatic events, such as abuse, neglect, maltreatment, resource deprivation, and household dysfunction, that occur before the age of 18 (CDC, 2024). These traumatic events are highly prevalent, as "nearly two-thirds (64%) of all adults in the United States reported experiencing at least one type of ACE and one in six (17.3%) reported experiencing four or more types within their lifetime" (CDC, 2024). However, these rates are substantially higher for individuals in treatment for addiction, as they experience a prevalence of ACEs much higher than the general population. This can be seen in studies by Chandler et al. (2018), Philogene-Khalid et al. (2020), and Stein et al. (2017), where 85.4 to 100% of patients with addiction issues suffered at least one ACE in their lifetime.

While the prevalence of ACEs is alarming, it is the negative life and health outcomes that these events promote that present a major public health issue. For example, several studies have demonstrated the negative influence of ACEs on health outcomes, including the development of substance use disorders and chronic disease later in life (Danese & McEwen, 2012; De Venter, Demyttenaere, & Bruffaerts, 2013). Dube et al. (2002) found that having a history of ACEs is a significant risk factor for the development of SUD in adulthood. Though the specific processes by which ACEs impact later health outcomes are complex, Chandler et al. (2018) suggest that ACEs affect emotion regulation resulting in an inability to manage distressing emotions in a healthy manner, which leads to the use of unhealthy coping methods, such as using substances. A cumulative effect of ACEs has also been seen; the more ACEs an individual possesses, the more

likely they are to develop negative health outcomes, such as SUD, during their lifetime (LeTendre and Reed, 2017). Therefore, as ACEs continue to persist, the likelihood of developing SUD increases, consequently perpetuating the potential occurrence of child maltreatment for parents with SUD. Additionally, because individuals who have experienced ACEs are more likely to perpetuate similar patterns of dysfunction and trauma amongst their own families, intergenerational transmission of trauma perpetuates a cycle of adversity and child maltreatment (Narayan et al., 2021). Thus, the relationship between ACEs, parental SUD, and child maltreatment proves to be complex, interconnected, and worthy of particular concern.

ACEs and Mental Health, Recovery Capital, Quality of Life, and Intervention Outcomes

ACEs have been shown to influence a range of health and life outcomes, including those related to substance use recovery, such as mental health (MH), recovery capital (RC), and overall quality of life (QoL). While ACEs increase the risk of developing SUD and engaging in substance abuse, they also have enduring effects on mental health, including depression, anxiety, and post-traumatic stress disorder (Chapman et al., 2004; Danese & McEwen, 2012). Additionally, as indicated by Afifi et al. (2008), ACEs can significantly increase an individual's likelihood of developing a psychiatric disorder, as well as the occurrence of suicide ideation and suicide attempts. Similar results can be seen when looking at the effect of ACEs on health-related QoL, as studies have shown a negative association between ACE scores and physical and emotional quality of life (Espeleta et al., 2019; Ciobanu et al. 2020). Given that a history of ACEs is a major risk factor for the development of anxiety, depression, and unhealthy coping mechanisms, this proves the importance of considering their impact on these outcomes.

Recovery capital is an index of protective factors for recovery from SUD and includes both internal and external resources that aid in recovery (Sánchez et al., 2020). These internal

and external resources refer to personal and environmental resources, such as self-efficacy, positive social networks, safe neighborhoods, and motivation, that further contribute to successful recovery from a substance (Sánchez et al., 2020). Similar to mental health and QOL, recovery capital is also susceptible to influence from ACEs. Studies by Cristóbal-Narváez et al. (2016) and Merrick et al. (2017) have found that ACEs negatively impact an individual's coping strategies, resilience, and social support networks. Thus, ACEs decrease the individual's ability to successfully overcome adversity and achieve recovery, further hindering treatment outcomes (Merrick et al., 2017). Additionally, studies have also shown that participants in substance use treatment programs often possess limited recovery capital within their support networks (Sánchez et al., 2020; Zschau et al., 2016). This further illustrates the importance of SUD interventions focusing on targeting recovery capital, mental health, and quality of life, especially among clients with histories of ACEs.

Family Treatment Courts (FTCs) as SUD and Child Maltreatment Prevention

Despite the high prevalence of SUD and, specifically, parental SUD, treatment for these individuals remains disparate and inadequate. According to the 2022 National Survey on Drug Use and Health, an estimated 54.6 million people aged 12 and older needed treatment for a substance use disorder (SAMSHA, 2023). However, only 26% of those in need received any help for substance use disorder (SAMSHA, 2023). Concerning parental SUD, Clemans-Cope et al. (2019) found that "less than a third of the estimated 623,000 parents with an opioid use disorder (OUD) received treatment for illicit drug use." Additionally, treatment rates were even lower for the 4,000,000 parents estimated to have other substance use disorders, such as alcohol use disorder (Clemans-Cope et al., 2019). This lack of treatment presents a major issue in the prevention of substance use and, subsequently, child maltreatment.

While there is a shortage in treatment participation among those with SUD, there are several forms of treatment available, ranging from medical providers, voluntary social service or psychological treatments, and justice-based interventions known as accountability or drug courts. Parents with SUD present unique challenges given the presence of their children, and often parental SUD is identified not by the criminal justice system, but by the child welfare system, which is then responsible for intervening on behalf of the child. One type of comprehensive intervention, family treatment courts (FTCs), has grown in support and become an increasingly common approach to parents with SUD identified by the child welfare system (Bruns et al., 2012). FTCs are judicially supervised treatment programs for parents with SUD, who are typically referred by their child welfare system. As an 18-month program, FTC aims to improve outcomes by providing an array of resources and services for participants, including substance use, mental health, transportation, and professional and legal assistance (Child and McIntyre, 2015). Furthermore, FTCs facilitate substance use treatment for parents, while concomitantly addressing a full range of family needs, such as parenting education, child-focused services, and access to community resources (Worcel et al., 2008).

FTCs and Their Effects on SUD, Family Functioning, and Child Maltreatment

Parents with SUD may participate in FTCs, which are often the most comprehensive treatment program available. FTCs collaborate with the child welfare system to explicitly focus on substance use, family issues, child safety, and child well-being (Child and McIntyre, 2015). Thus, FTCs simultaneously and comprehensively address both parental SUD and child maltreatment among families. Numerous studies have assessed the effectiveness of FTCs in improving recovery and child welfare outcomes, like child maltreatment. For instance, Bruns et al. (2012) found that FTC participants saw statistically significant improvements in significant

reductions in drug use and family functioning compared to their non-program counterparts. A similar improvement was also seen in Gifford et al. (2014), where FTC participants reported reductions in child maltreatment incidents and increased family reunification rates. Additionally, a seventeen study review by Zhang et al. (2019) found that FTCs were substantially more likely to achieve family reunification, without increasing the risk of subsequent foster care reentry or maltreatment. Thus, the data on FTC effectiveness demonstrate some evidence of reducing parental substance use, but the bulk of the data on FTC effectiveness has focused on child welfare outcomes, such as child well-being, family preservation, and reunification.

Little attention has been paid to the psychosocial outcomes of the parents who are the primary participants in FTCs. Variables such as mental health, recovery capital, and quality of life are important indicators of treatment success and we might expect them to improve with participation. For instance, Sánchez et al. (2020) found improvements in self-efficacy, social support, and motivation for recovery, suggesting that substance abuse treatment may enhance participants' internal and external resources, which are essential for long-term recovery success. However, while much research has focused on the impact of FTCs on traditional outcomes like child welfare and substance use recovery, there is a notable gap in understanding how this intervention influences broader indicators of well-being like mental health, recovery capital, and quality of life. These outcomes may act as mediators of the long-term child welfare and recovery outcomes, thus rendering them worthy of further investigation concerning substance use treatment. Thus, the first question to be addressed in this research is how psychosocial outcomes of mental health, recovery capital, and quality of life change over the course of FTC services.

In addition, it is important to consider whether key moderators may impact how participants change over time. As noted above, research exploring both the influence of ACEs on

these outcomes and outcome changes over time as treatment advances remain limited. Therefore, a key question remains: how do participant ACEs affect changes in participants' mental health, recovery capital, and QoL as they progress through the FTC program? It is expected that individuals with high levels of ACEs have poorer recovery capital, mental health, and QoL when enrolling in FTC; however, a different question is whether ACEs also affect how these variables change over time. Furthermore, this thesis aims to assess whether experiencing adversity influences the successful progression and improvement of mental health, recovery capital, and QoL among FTC participants. Using data collected as part of a federally funded study, data from 104 participants from six Georgia-based treatment courts at 4 different time periods were analyzed. The hypotheses for this study are as follows:

1. Clients will show a positive change in MH, RC, QoL
2. ACES will relate negatively to baseline levels of MH, RC, QoL
3. Participants with higher ACE scores will show less improvement over time in mental health, recovery capital, and QoL outcomes than their lower ACE-scored counterparts as the FTC program progresses

METHODS

Participant Recruitment and Selection Criteria

This study involved 104 participants from 6 family treatment courts in Georgia. Participants were surveyed at four distinct intervals during the program duration: baseline, 6 months, 12 months, and 18 months. Clients from these family treatment courts were systematically recruited and invited to participate in the study as they received treatment. Family treatment court clients were eligible to participate in the study if they were at least 18 years of age, were actively enrolled in one of the six project sites, and were in the first half of the family treatment court program, months one through nine.

Research team members attended court, either in-person or virtually, and gave a verbal summary of what participation would involve. Clients were invited to participate in the study if they were in phases 1-3 and could participate in the completion of up to four online surveys sent to them via email or text. Additionally, participants were informed that participation was voluntary and would not affect their treatment or standing in the FTC. They could drop out of the study at any time but would be compensated for their time in completing each survey. Interested clients provided their contact information to the research team directly after the court session. Clients were also provided flyers with research team contact information to express their interest in participating.

If a client agreed to participate, a member of the research team called the participant, described the study procedures, collected their electronically signed consent form, and sent their first survey for completion. Participants were sent $50 for each survey they completed. Of the 205 eligible family treatment court clients, 105 (51%) clients agreed to participate. In total, only

104 clients completed baseline assessments and were analyzed as one client was lost to follow-up.

This study was approved by the Georgia State University Institutional Review Board (FWA 00000129).

Data Collection and Materials

Surveys were administered at four intervals: baseline, around 9 months, around 12-15 months, and at graduation, around 18 months post-enrollment. The middle time points were selected based on their occurring before and after a specific treatment some participants received.

Survey instruments were administered electronically via email or text to ensure ease of participation and to maximize response rates. The instruments employed for data collection were chosen to evaluate adverse childhood experiences (ACEs), mental health (MH), quality of life (QoL), and recovery capital (RC). Therefore, the data collection instruments included in the survey were the BRFSS Adverse Childhood Experience Module (BRFSS), the Center for Epidemiologic Studies – Depression Scale (CES-D), the World Health Organization Quality of Life (WHOQOL-BREF) assessment, and the Brief Assessment of Recovery Capital (BARC-10). All measures listed were collected via an electronic survey using Qualtrics. Participants completed the surveys by themselves and responses were uploaded after their completion.

Measures

Demographics

Demographic information was collected, encompassing gender, date of birth, pregnancy status, race, ethnicity, marital status, primary language, highest level of education, employment

status, sources of income, monthly income, number of biological and nonbiological children, and details about the focal child of the FTC program. This comprehensive data collection approach aimed to ensure a thorough understanding of the participants' backgrounds and the multifaceted nature of their recovery journeys.

Parent Adverse Childhood Experiences (ACEs)

In addition to demographics, the BRFSS Adverse Childhood Experience Module was utilized to assess participant Adverse Childhood Experiences. This instrument, adapted from the original CDC-Kaiser ACE study, gathers data on experiences of child abuse, neglect, and household challenges. Participants completed this assessment once at baseline. The module comprises 11 items with response scales that include Yes/No/DK, Never/Once/More than once/DK, and Never/A little of the time/Some of the time/Most of the time/All of the time.

Parent Mental Health (MH)

Mental health was assessed using both the Center for Epidemiologic Studies – Depression Scale (CES-D) and the Trauma Symptom Checklist (TSC). The CESD is designed to measure depressive symptoms experienced in the past week. Assessments were conducted at baseline, around 9 months, around 12-15 months, and at graduation, around 18 months post-enrollment. This self-report scale consists of 20 items and has demonstrated reliability in assessing the number, types, and duration of depressive symptoms across various demographic categories. At baseline, the alpha for the CES-D was XX. Using Likert-scaled questions, the Trauma Symptom Checklist (TSC) comprises 40 items that participants rate based on their level of symptoms experienced in the last two months. The TSC measures a range of symptom

domains including anxiety, depression, anger, dissociation, and sleep disturbances. These two standardized tools are combined to encompass the overall mental health of the participants.

Parent Quality of Life (QoL)

Quality of life was evaluated using the World Health Organization Quality of Life (WHOQOL-BREF) assessment. Developed by the WHOQOL Group with fifteen international field centers, this tool is designed for cross-cultural applicability. Participants completed this assessment at each time point. The WHOQOL-BREF is a 26-item measure that includes four domains: physical health, psychological health, social relationships, and environmental health, along with two benchmark items assessing overall quality of life and general health. Responses were recorded on a five-point ordinal scale, with the instrument being self-administered.

Parent Recovery Capital (RC)

Recovery capital was measured using the Brief Assessment of Recovery Capital (BARC-10). This self-report measure assesses the quantity and quality of internal and external resources available for initiating and sustaining recovery from substance use disorder. Participants completed this assessment at each time point. BARC-10 comprises 10 items rated on a six-point scale ranging from strongly disagree to strongly agree. The BARC-10 evaluates various aspects of recovery, including substance use and sobriety, global psychological and physical health, citizenship and community involvement, social support, meaningful activities, housing and safety, risk-taking, coping and life functioning, and overall recovery experience. Items were correlated (alpha = XX) and were thus summed to form an overall index of recovery capital.

Data Analysis

The data analysis for this study was conducted using SAS, a statistical software. The analysis aimed to assess the relationship of adverse childhood experiences (ACEs) to mental health (MH), recovery capital (RC), and quality of life (QoL) among FTC participants, and to examine whether ACEs moderated change in those outcomes over time. First, descriptive statistics on all variables are reported. Next, we computed correlations to determine the relationship between ACEs score and the three outcomes at baseline. Finally, we conducted longitudinal mixed models to examine whether the outcomes of MH, RC, and QoL changed over time. We first examined change over time by itself, and then included the ACE measure and the interaction between Time and ACEs to determine if change over time was moderated by ACEs. To do this we used a dichotomized version of the ACE measure to ease interpretation of any interactions.

Ethical Considerations

Ethical considerations were paramount in the design and implementation of this study. Ensuring the privacy and confidentiality of participants was a primary concern. Participants were informed about the purpose of the study, the nature of the data being collected, and their rights as participants. Informed consent was obtained from all participants prior to their involvement in the study. This consent process included detailed explanations about the voluntary nature of participation, the right to withdraw at any time without penalty, and assurances of confidentiality.

To maintain confidentiality, no personally identifying information was kept with the data; participants were assigned unique identification codes for linking surveys. Data were securely stored and were accessible only to the research team. The study protocols were reviewed and

approved by an institutional review board (IRB) to ensure compliance with ethical standards in research involving human subjects. The IRB provided oversight to ensure that the study adhered to ethical guidelines, particularly regarding participant safety, informed consent, and data confidentiality. By adhering to these ethical considerations, the study aimed to respect and protect the rights and well-being of participants while contributing valuable insights into the impact of family treatment courts on recovery, child welfare outcomes, and broader indicators of well-being such as mental health, recovery capital, and quality of life.

RESULTS

Sample Demographics

Data were analyzed from 104 participants who agreed to participate in the research study. Participant demographics were first examined and can be seen in Table 1. The sample was 77% female (n=80) and 23% (n=24) male. Participant age ranged from 21 to 55 years with an average age of 32.3 years. Most identified as white (82%, n=85), and only 20% (n=21) were married. About forty percent (n=42) had an educational level of less than high school, 35% (n=36) finished high school, and 25% (n=26) completed some college. Additionally, 67% (n=69) were employed and 33% (n=35) were unemployed. Half of the participants (n=52) were on public assistance. Concerning income, 37% (n=31) of participants earned less than $1000, per month, 39% (n=33) earned $1000-2000 per month, and 24% (n=20) earned more than $2000 per month. Seventeen percent (n=18) participants had one child, whereas 33% (n=34), 21% (n=22), and 29% (n=30) had 2, 3, and 4 or more children, respectively. Of the 104 participants, 58% (n=60) lived with their romantic partner and 85% (n=88) lived with some other adult.

Table 1

Family Treatment Court Participant Demographics

Variable	Frequency (*n*)	Percent (%)
Sex		
Male	24	23.08%
Female	80	76.92%
Race		
White	85	81.73%
Black	19	18.27%
American Indian	1	0.96%
Other	1	0.96%
Hispanic/Latino	1	0.96%

Marriage Status		
Married	21	20.19%
Not Married	83	79.81%
Educational Level		
Less than high school	42	40.38%
Highschool graduate	36	34.62%
Some college or more	26	25.00%
Employment Status		
Employed	69	66.99%
Unemployed	34	33.01%
Receiving Public Assistance		
Yes	52	50.00%
No	52	50.00%
Monthly Income Group		
>$1,000	31	36.90%
$1,000-2,000	33	39.29%
$2,000+	20	23.81%
Number of Children		
1	18	17.31%
2	34	32.69%
3	22	21.15%
4	19	18.27%
5	6	5.77%
6	2	1.92%
7	1	0.96%
8+	2	1.92%
Lives with Spouse		
Yes	60	58.25%
No	43	41.75%
Any Other Adult in Home		
Yes	88	84.62%
No	16	15.38%
Age in Years M(*sd*)	32.3 (6.2) years	range 21-55 years

Reported Adverse Childhood Experiences (ACEs)

Results from the Adverse Childhood Experience survey showed that study participants had a mean score of almost 5 ACEs (M = 4.98, sd = 3.24). Table 2 displays the frequency of the total number of ACEs, which ranged from 0 to 11. For analytic purposes in statistical models testing whether ACES moderated change over time for drug court participants, a categorical variable was created classifying individuals with an ACE score of five and above as having a "high" level of ACEs, and those with four or fewer ACEs as "low". Fifty-seven (54.81%) participants were classified as having high ACES and 47 (45.19%) were categorized as having low ACEs.

Table 2

Participant Total Number of Adverse Childhood Experiences

Number of ACEs	Frequency (n)	Percent (%)
0	10	9.60%
1	8	7.70%
2	11	10.60%
3	9	8.70%
4	9	8.70%
5	11	10.60%
6	14	13.50%
7	4	3.80%
8	11	10.60%
9	4	3.80%
10	9	8.70%
11	4	3.80%
"Low" (0-4 ACEs)	47	45.19%
"High" (5+ ACEs)	57	54.81%
Average # of Participant ACEs: 4.98 (sd=3.24)		

When examining individual ACE frequency (Table 3), the most frequent ACE reported was living with an illegal street or prescription user in their childhood, with 68.3% of participants endorsing this ACE. A majority of individuals experienced living with a problem drinker or alcoholic (61.54%), living with an illegal street or prescription drug user (68.3%), being physically abused by a parent or adult (66.35%), and being psychologically abused by a parent or adult (61.54%). However, the least frequent ACE experienced amongst the participants was being forced to have sex as a child, but still, 23.1% of the sample reported this form of childhood sexual abuse, and 42.3% reported being touched sexually by someone five years older than them. Participants also reported very high degrees of parental discord, including parental jail time, parental violence, and divorce.

Table 3

Participant Individual ACE Frequencies

Adverse Childhood Experience (ACE)	% endorsing
#1: Living with anyone depressed/mentally ill/suicidal	45.2%
#2: Living with a problem drinker or alcoholic	61.5%
#3: Living with an illegal street or prescription drug user	68.3%
#4: Living with anyone who served time	42.3%
#5: Were their parents separated or divorced	42.3%
#6: If parents or adults performed intimate partner violence (IPV)	46.2%
#7: If physically abused by parent or adult	66.3%
#8: If psychologically abused by parent or adult	61.5%
#9: If touched sexually by someone 5 years or older	40.4%
#10: If someone tried to make them sexually touch them	33.6%
#11: If someone forced them to have sex	23.1%

ACEs and Baseline Mental Health, Recovery Capital, and Quality of Life Measures

A correlational analysis was performed to assess the relationship between total ACE scores and baseline outcome measures. As displayed in Table 4, total ACEs was significantly

correlated with all outcome variables except for recovery capital (p=0.08). With regard to the quality of life measures, correlations with ACEs ranged from -0.29 for physical and psychological quality of life to -0.20 for environmental quality of life (all $p < 0.05$). Thus, individuals with more ACEs reported lower quality of life at baseline. ACEs were also significantly correlated with the mental health outcome of depression ($r = 0.27$, $p = 0.006$) and trauma symptoms ($r = 0.26$, $p = 0.006$) such that individuals with greater ACEs reported greater depression and trauma symptoms. Finally, ACEs were negatively, but not significantly, correlated with recovery capital ($r = -0.17$, $p = -0.08$).

Table 4

Correlations Between ACE score and Baseline QoL, MH, and RC

Outcome	Baseline Correlation	p-value
Quality of Life Measures		
Physical	-0.29	0.003*
Psychological	-0.29	0.003*
Social	-0.23	0.02*
Environmental	-0.20	0.04*
Mental Health Measures		
CESD (Depression)	0.27	0.006*
TSC (Trauma)	0.26	0.009*
Recovery Capital Measure		
BARC	-0.17	0.08

Do ACEs moderate change over time for participants in family treatment court?

The next set of analyses examined whether participants changed differently over time as a function of ACE scores. To examine this hypothesis, linear mixed models were conducted on each outcome, with clients nested in courts, and time as a repeated measurement variable. Each

model examined (1) whether there was a main effect of Time, and (2) whether there was a significant Time x ACEs interaction. A main effect of Time would indicate the participants' scores on the dependent measure changed significantly from Time 1 to Time 4. A significant ACE x Time interaction would indicate that this change in outcome over time was different for people with High vs. Low ACEs.

All outcome variable means by time point are shown in Table 5. For each variable, overall means are displayed as well as means by ACE score (High vs. Low). Results and significance tests from the mixed model are displayed in the final column.

For mental health measures, modeling showed a significant Time effect for depression ($p=0.01$) and trauma ($p=0.01$). In addition to this, a significant Time effect was displayed for both psychological QoL ($p=0.047$) and social QoL ($p=0.046$). Furthermore, for each measure, symptoms improved over time and were lower at Time 4 than at Time 1. However, the ACE x Time interaction was not significant for these measures, thus indicating the change did not differ by ACE groups.

For physical QoL, environmental QoL, and Recovery Capital, there were no significant main effects of Time and no significant interactions between ACEs and Time. This indicates that none of these measures changed throughout the course of FTC.

Table 5

Outcome Variable Mean (sd) Changes Over Time

Variable	Time=1	Time=2	Time=3	Time=4	p-value
Mental Health Measures					
CESD (Depression)	17.44 (11.35)	17.62 (13.05)	14.32 (11.73)	14.28 (11.22)	Time = 0.01*
CESD for high ACEs	19.75 (12.25)	21.12 (13.52)	16.70 (13.38)	15.55 (12.13)	ACE x Time = 0.76
CESD for low ACEs	14.64 (9.54)	12.17 (10.42)	11.35 (8.57)	12.42 (9.63)	
TSC (Trauma)	25.98 (18.57)	20.80 (16.55)	19.23 (17.92)	21.83 (19.51)	Time = 0.01*
TSC for high ACEs	29.86 (20.29)	24.50 (17.05)	22.73 (20.19)	23.52 (19.64)	ACE x Time = 0.80
TSC for low ACEs	21.26 (15.15)	15.35 (14.53)	15.10 (13.97)	19.44 (19.36)	
Quality of Life Measures					
Physical QoL	3.83 (0.77)	3.94 (0.75)	3.92 (0.88)	3.99 (0.79)	Time = 0.55
Physical for high ACEs	3.68 (0.86)	3.94 (0.73)	3.96 (0.85)	3.94 (0.76)	ACE x Time = 0.13
Physical for low ACEs	4.01 (0.61)	3.94 (0.82)	3.87 (0.92)	4.07 (0.83)	
Psychological QoL	3.77 (0.73)	3.78 (0.80)	3.92 (0.87)	3.99 (0.66)	Time = 0.047*
Psych for high ACEs	3.63 (0.77)	3.70 (0.75)	3.91 (0.96)	3.95 (0.71)	ACE x Time = 0.39
Psych for low ACEs	3.94 (0.65)	3.94 (0.89)	3.92 (0.75)	4.07 (0.58)	
Social QoL	3.94 (0.87)	3.98 (0.94)	3.80 (1.10)	4.16 (0.89)	Time = 0.046*
Social for high ACEs	3.86 (0.92)	4.02 (0.83)	3.90 (1.07)	4.15 (0.95)	ACE x Time = 0.38
Social for low ACEs	4.04 (0.80)	3.90 (1.17)	3.69 (1.14)	4.16 (0.81)	
Environmental QoL	3.82 (0.69)	3.81 (0.72)	3.89 (0.86)	4.04 (0.67)	Time = 0.13
Environ for high ACEs	3.75 (0.78)	3.69 (0.77)	3.90 (0.95)	3.98 (0.75)	ACE x Time = 0.47
Environ for low ACEs	3.89 (0.58)	4.05 (0.56)	3.88 (0.75)	4.11 (0.54)	
Recovery Capital Measure					
BARC	51.44 (7.74)	50.99 (8.25)	53.12 (7.82)	52.06 (8.35)	Time = 0.30
BARC for high ACEs	50.59 (8.22)	50.16 (8.59)	52.84 (9.00)	50.94 (9.13)	ACE x Time = 0.61
BARC for low ACEs	52.47 (7.06)	52.35 (7.73)	53.45 (6.23)	53.61 (6.96)	

DISCUSSION

Summary of Findings

This study aimed to assess how Adverse Childhood Experiences (ACEs) impact the progression of mental health, recovery capital, and quality of life outcomes in participants enrolled in Family Treatment Courts (FTCs). Therefore, these findings offer insight into how participants' psychosocial outcomes in substance use recovery change over time according to their level of adversity experienced in childhood. Inferences made from the present study can be contextualized against the current literature on SUD, ACEs, and the recovery process, thereby contributing to the broader discourse.

With regard to the level of ACEs, 90.4% of the sample reported having experienced at least one ACE, and 63.51% (n=66) reported four or more ACEs. This can be contrasted to national data where about two-thirds (64%) of all adults in the United States reported experiencing at least one type of ACE, and only one in six (17.3%) reported four or more ACEs (CDC, 2024). This substantial contrast between ACE occurrence in the general and study populations highlights the strong association between ACEs and later substance use disorder. Our findings are in line with those of other studies, such as Chandler et al. (2018), Philogene-Khalid et al. (2020), Leza et al. (2021), and Stein et al. (2017), which found that 85.4 to 100% of patients with addiction issues suffered at least one ACE in their lifetime. This higher prevalence of ACEs in populations with SUD may reflect the role of childhood adversity in increasing the likelihood of substance use as a coping mechanism later in life (Dube et al., 2002) (Leza et al., 2021).

The second and third hypotheses focused on how ACEs relate to key outcomes in FTC. We found that the number of ACEs related to participant's mental health, thus partially

supporting hypothesis 2. However, ACEs did not affect change over time in MH outcomes, and thus hypothesis 3 was not supported. We also found statistically significant improvements in both mental health variables of depression and trauma symptoms over time. Consistent with studies like Chapman et al. (2004) and Afifi et al. (2008), our results align with findings that ACEs are negatively related to mental health at baseline. However, unlike studies that suggested ACEs might impair recovery, such as Merrick et al. (2017), which used a cross-sectional design to hypothesize that ACEs could hinder mental health recovery, our study found no evidence that ACEs moderated improvement in mental health outcomes over time. Participants with both high and low ACE scores improved at similar rates as they progressed through FTC. Thus, while ACEs can negatively impact initial mental health, FTCs appear to foster improvements in mental health outcomes, regardless of ACE history. This insight underscores the unique role that FTCs may play in supporting mental health recovery for individuals with diverse backgrounds of childhood adversity, even when prior research has indicated potential challenges in recovery associated with higher ACE exposure.

Similar to the mental health outcomes, we found that ACEs were negatively correlated with all four baseline QoL outcomes. Participants with higher ACE scores at baseline were more likely to have lower social, physical, psychological, and environmental QoL scores compared to their lower ACE counterparts. However, there were differences among the measures when assessing change over time: participants' psychological QoL and social QoL improved significantly over time, but improvements in physical QoL and environmental QoL did not reach statistical significance. The level of ACEs did not moderate change over time for any of the four QoL measures, thus indicating that adversity level at baseline does not significantly affect the progression of QoL for participants. In other words, both high and low ACE individuals QoL

scores improved at similar rates as they progressed through FTC. Based on the literature, we expected that having a greater number of ACEs would contribute to less change in QoL, especially given that ACEs are associated with an array of negative health outcomes, such as chronic health conditions, unhealthy coping mechanisms, and diminished social capital (Merrick et al., 2017). These findings suggest that FTCs may not address aspects of an individual's long-term physical and environmental QoL, which could be critical to overall success in recovery, regardless of ACE occurrence. However, given that both psychological and social QoL improved over time, FTCs may be equipped with addressing certain aspects of QoL for participants, despite their level of adversity experienced in childhood. It is worth noting that QoL reports were not especially low at baseline, with means ranging from 3.6 to 3.8 on a 5-point scale. Thus, while there was some room for improvement, the range may have been limited by the participant's baseline generally positive QoL scores.

Unlike the mental health and QoL outcomes, ACEs did not relate to recovery capital scores, even at baseline. This is contrary to studies, such as Zschau et al. (2016) and Espeleta et al. (2019), which have shown that participants in drug treatment programs, who are statistically likely to have a higher occurrence of ACEs, often possess limited recovery capital when they enter treatment and, without targeted interventions, they may struggle to build the resilience needed for sustainable recovery. We also found no significant change in recovery capital over time or moderation by ACEs. This was surprising given participants were in an intense treatment program, and given the literature's support for an established link between ACEs and diminished recovery resources. For instance, Merrick et al. (2017) and Cristóbal-Narváez et al. (2016) found that individuals with ACEs often struggle with key components of recovery capital, such as lower resilience, reduced social support, and impaired coping strategies.

Our findings contribute to the literature on mental health outcomes and FTC participation by examining mental health, quality of life, and recovery capital as outcomes. Most FTC studies, such as Bruns et al. (2012) and Gifford et al. (2014), primarily focus on child welfare-related outcomes such as family preservation and reunification. Furthermore, our findings propose that FTCs may have the ability to affect initial mental health, QoL, and substance use issues, but do not affect change over time in these outcomes. Additionally, meta-analyses, such as Koratana et al. (2016) and Lyu et al. (2023), may also assess intervention effectiveness on individuals with ACEs, but little to no literature exists comparing intervention effectiveness differences between ACE groups or according to ACE score. Subsequently, there is a lack of synthesis of ACE moderation on intervention effectiveness and specific outcome changes.

Strengths of the Study

The present study demonstrates strength in design and focus. Due to the longitudinal nature of the study, participant data was collected at multiple points throughout their experience in FTC. This provided valuable insights into how psychosocial outcomes change throughout the course of FTC participation, allowing us to determine change effects and the moderation of ACEs. A longitudinal design helps address existing gaps among the long-term effects of FTCs on broader recovery outcomes and success. The study also was designed utilizing validated and widely accepted measures for ACEs, mental health, quality of life, and recovery capital, thereby increasing the reliability and comparability of the findings.

Additionally, this study focuses on psychosocial outcomes of mental health, recovery capital, and QoL in parents, all of which merit thorough investigation in relation to substance use or child welfare outcomes. These psychosocial factors are critical for understanding the full impact of FTC participation and recovery interventions, broadly. Subsequently, the focus on a

highly vulnerable population, such as individuals with SUD who also have experienced an increased incidence of ACEs, proves to be a strength. By examining this vulnerable population, the intersection between adversity, substance use, and recovery can be further investigated, which is critical due to gaps in the literature surrounding this complex, but pressing issue. Furthermore, the study provides a meaningful contribution to the FTC, SUD, and ACE literature.

Limitations and Weaknesses of the Study

Despite the present study providing some significant findings and potential implications for research, practice, and policy, several limitations and weaknesses are worth noting. First, this study included a limited sample size of 104 participants, which reduces the statistical power and generalizability of the results to the broader population. The small sample size limits the statistical power needed to detect likely small interaction effects between ACEs and changes in outcomes.

Second, the data collected for this study is all self-reported. Self-reported data is subject to certain biases, including social desirability bias, which has been shown to affect individual's reports of drug use and mental health (Latkin et al., 2017). Related, overly positive reports can lead to a "ceiling effect" as participants rate themselves at the upper limit of the scales at baseline, which leaves little to no room for the demonstration of improvement over time.

Third, it is important to note that baseline data was collected after the participants enrolled in the FTC (usually within 30 to 60 days), and thus participants had already been exposed to some treatment at baseline. It was not feasible or ethical to try to collect data at the time of entry into the drug court as most participants were in an intense stage of detoxification.

A final weakness is that we lack process data from the courts that identify the specific treatment elements received by each individual. While the FTC treatment program is fairly

standardized across participants, there can be some tailoring done to meet individual client needs. It may be the case here that clients with more ACEs received more or different treatments than those with fewer ACEs, and improved because of it; this would account for the non-differential change observed between ACE groups over time. In other words, the treatment program may simply be meeting each individual client's needs, which is exactly what one would hope for.

Implications for Research, Practice, and Policy and Future Directions

The study findings raise several potential implications for research, practice, and policy. For instance, a key finding was that there was no change in recovery capital, physical QoL, and environmental QoL outcomes for FTC participants over time. This suggests a need to specifically focus on and tailor FTC interventions to improve these outcomes. Therefore, not only should FTCs focus on individual mental health and substance use outcomes, but should also ensure effective and accessible community-building resources, such as job training, educational opportunities, and housing. These suggestions represent external resources that are often essential to recovery and can bridge the gap between individual, short-term changes and long-term, sustainable recovery.

Interventions should also be tailored to address those most vulnerable, such as individuals with higher levels of ACEs, as they are more susceptible to negative long-term health outcomes than their lower-level counterparts (Dube et al., 2002; Chandler et al., 2018). While the study did not find a difference in change over time for the separate ACE groups, the higher-level ACE groups began at baseline with worse scores in every category, suggesting they are more disadvantaged and thus may have unique needs with respect to treatment (i.e., more treatment or

different treatment). Potential targeted interventions could include trauma treatments for individuals with high numbers of ACEs.

As psychosocial factors, mental health, recovery capital, and QoL are all interconnected. In fact, Merrick et al. (2017) suggest that improvement in one area can often lead to progress in others. In this study, mental health outcomes, psychological QoL, and social QoL significantly improved. However, even though recovery capital, physical QoL, and environmental QoL did not significantly change, there were positive improvements in values as time progressed. Therefore, further research should be conducted to examine the factors that drive the differential changes across these psychosocial outcomes. In doing so, specific components of FTCs can be investigated to determine whether they focus primarily on mental health, psychological QoL, and social QoL improvements and target participant recovery capital, physical QoL, and environmental QoL less. This will enable FTCs with the ability to alter current initiatives to better shape the needs of participants and provide quality comprehensive interventions that improve all of their psychosocial outcomes.

Lastly, future studies should be conducted on a larger scale across multiple FTC sites to gain a larger, more generalizable sample. As previously stated, a major weakness of the study was the limited sample size, which could have negatively affected the external validity of the study results. Also key is understanding the elements of treatment within the FTC to fully understand changes over time. As noted, here we had little information on any treatment elements, so it is impossible to understand specifically what each client received regarding treatment sessions. By obtaining more generalizable results, researchers would be better equipped to scale FTC programs to diverse settings, populations, and geographic regions. This would enable FTCs with a more comprehensive, tailored approach, which would promote a

greater impact on psychosocial outcomes and recovery, broadly. Furthermore, future research can ensure that FTC programs not only influence substance use and child welfare outcomes but also improve those psychosocial outcomes that promote sustainable recovery.

CONCLUSION

In conclusion, FTCs demonstrate significant promise in improving mental health and quality of life outcomes for participants, offering valuable support to a vulnerable population. Our findings indicate that while individuals with high ACEs face greater challenges at baseline, including more severe trauma, depression symptoms, and lower quality of life, their progress throughout treatment aligns closely with that of their low-ACE counterparts. This suggests that FTCs provide an equitable framework for fostering positive outcomes, regardless of the level of childhood adversity. However, the persistence of baseline disparities emphasizes the need for further research to better understand the mechanisms driving these improvements. Future studies should focus on identifying the specific treatment elements within FTCs that contribute to success and exploring ways to enhance program effectiveness for participants with high ACEs. Additionally, targeted interventions may be necessary to address the unique needs of high-ACE individuals and bridge the gaps observed at the start of treatment. By refining these programs, FTCs can more effectively support participants in achieving lasting improvements in mental health and overall quality of life.

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