ORIGINAL PAPER

Prevalence of and Relationship Between Caregiver Adversity Scores and Child Client Eco-systemic Structural Family Therapy (ESFT) Outcome: Implications for Family Based Mental Health Services (FBMHS)

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Abstract

Adverse childhood experiences, especially with primary caregivers, impacts the mental, physical, and relational health of individuals (Felitti et al. in Am J Prev Med, 14(4):245–258. https://doi.org/10.1016/s0749-3797(98)00017-8, 1998). Therefore, caregiver adversity is important to consider when delivering therapeutic interventions to children (Gardner et al. in Clin Soc Work J 42(1):81–89. https://doi.org/10.1007/s10615-012-0428-8, 2014; Eslinger et al. in J Child Fam Stud 24(9):2757. https://doi.org/10.1007/s10826-014-0079-1, 2015; Hagan et al. in J Trauma Stress 30(6):690–697, 2017). This study analyzed archival data to understand the role of caregiver adversity in Eco-Systemic Structural Family Therapy (ESFT) outcomes, within Family Based Mental Health Services. Results indicate caregiver lifetime adversity score did not predict treatment outcome. However, caregiver current adversity and family length of stay were negatively correlated as were length of stay and client discharge level of care. These findings suggest that ESFT benefits families regardless of caregiver childhood adversity level and that clinician attention to caregiver current adversity is important to ensure families receive the full benefits of ESFT. Implications for optimizing ESFT and future directions for ESFT clinical research are discussed.

Keywords Family based mental health services · Eco-systemic structural family therapy · Adverse childhood experiences · Complex trauma · Treatment related caregiver factors · Family therapy

Introduction

Adverse childhood experiences (ACEs) have been found to significantly impact the mental and physical health of individuals well into adulthood (Anda et al., 2006; Dong et al., 2004; Felitti et al., 1998). Complex trauma experiences such as those represented in the Adverse Childhood Experiences (ACE) survey (Murphy et al., 2014), impact a wide spectrum of human development including the ability of individuals to emotionally regulate and to engage effectively in relationships. Relationship struggles can extend to the quality of attachment between caregivers, children, and co-caregiver,

potentially creating repeated patterns of ACEs across generations (Courtois & Ford, 2016; Ford & Courtois, 2016). The mental health and child protective systems within the United States are tasked to intervene with vulnerable families who are experiencing challenges related to family functioning and/or child wellbeing (National Child Abuse and Neglect Training and Publications Project, 2014). Many interventions target the caregiver's parenting skills with their children to improve overall stability. However, when services designed to intervene with families do not consider the role of caregiver past childhood or current adversity experiences (CAE), it may contribute to challenges with caregiver engagement or capacity to benefit from mental health or child protective programing (Eslinger et al., 2015; Gardner et al., 2014; Hagan et al., 2017; Roberts, 2008).

Family Based Mental Health Services (FBMHS) is a community mental health program established in 1993 through draft regulations in the state of Pennsylvania (FBMHS for children and adolescents, 1993). FBMHS

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utilizes an Eco-Systemic Structural Family Therapy (ESFT) clinical model, crisis response and case management services to stabilize and enhance family relationships, parental functioning, and child wellbeing (Lindblad-Goldberg, et al., 1998). This program seeks to intervene effectively with multi-stressed families who have experiences of intergenerational trauma (Jones, 2019; Jones & Lindblad-Goldberg, 2002, 2008). Since its' implementation over three decades ago, only two empirical studies have been conducted on the model (Clossey et al., 2018; Dore, 1995). Both concluded positive outcomes associated with the ESFT intervention. However, no studies have been conducted to understand how exposure to trauma impacts ESFT treatment success. To better understand the role of caregiver ACE/CAE exposure in treatment success within FBMHS, this study analyzed archival data from seven FBMHS programs. Two areas of inquiry guided this research: 1. How prevalent are ACEs/CAEs for caregivers and children who are served within FBMHS? 2. Can caregivers' level of childhood and current adversity predict successful/unsuccessful ESFT treatment outcome for the identified child client?

This study seeks to contribute to the limited empirical literature on ESFT. Research on ESFT is essential as this model is utilized annually for thousands of families across the state of Pennsylvania to divert the need for residential treatment or out of home placement (Pennsylvania Department of Human Services, 2019). Of course, the placement of children outside of their homes into residential treatment and foster care is not unique to Pennsylvania. Indeed, a reported 423,997 children in the United States have been removed from their homes and placed into foster care (Child Welfare Information Gateway, 2021). Therefore, the current study has national relevance to professionals providing children's mental health care and child protection throughout the United States.

Methods

An ex post facto quantitative research design was utilized, to determine any correlational or predictive relationships between the variables of caregiver childhood and past year exposure to adversity and child client ESFT outcome. The study was survey-based, without a treatment, experimental or control group. No manipulation by the researcher of any variable occurred. Secondary (archival) data from enrolled child clients and their caregivers was collected from across ten county locations, within the participating agency's FBMHS' programs. The use of archival data eliminates any additional risks associated with the current research project, beyond the risks that would be associated with receiving the program's therapeutic intervention. Prior to study initiation, the project was approved by the Institutional Review Board

and Human Subjects Committee located at Shippensburg University of Pennsylvania. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

Data Collection

De-identified archival data was derived from caregiver report, child client report and clinician report. All data included in the study was the result of the participating agency's standard procedures for intake, discharge, and data collection. Within the Family Based level of care, outcomes data is state mandated as part of the service provision. As part of the agency's standardized procedures, all clients and their caregivers received written and verbal informed consent through their clinician at intake. The agency's informed consent process outlines what is expected in treatment, discusses clients' rights, and specifies the use of outcomes data/ research activities within FBMHS. Clients who wish to opt out of data collection processes are instructed, at intake, to follow the grievance and appeal procedure. For this study, archival data was obtained through a secure portal linked to the agency's Electronic Health Record (EHR) system. This outcomes report portal pulled data from the provider's EHR system and reported it separately from the client's protected health information (PHI). The portal report generates a unique number, organizing each participant's data, without disclosing their identity to the researcher.

Sample

This study utilized a convenience sample. All client and caregiver data from families who discharged from the participating agencies' FBMHS program, were eligible for inclusion. Clients are authorized for this voluntary level of care based on several characteristics, which include: child has received a DSM diagnosis and the child is exhibiting symptoms significant to warrant removal from their home through hospitalization or placement in residential treatment and/or the child is at risk for removal, as a result of family instability.

Identified Child Client Characteristics

Descriptive statistics were utilized to determine basic characteristics of the children who were identified as the FBMHS' client and who, along with their caregivers, received the ESFT intervention. Of the 288 child clients, representing the families who discharged during the study timeframe: 59% were male and 41% were female. Client ages ranged from 3 to 19 years old with a mean age of 12 years. The clinical presentation of the child client sample spanned a variety of mental health diagnoses. The diagnosis identified by the evaluator as primary was reported. The greatest proportion

of clients were diagnosed with Attention Deficit Disorders (21%); Autistic Disorders (16%); Depressive Disorders (14%) or Adjustment Disorders (10%).

Ethnicity data was collected from the agency's electronic database. The sample self-identified as 59% White, 10% Black, 1% American Indian/Alaskan Native and less than 1% Asian, Hispanic, Latino or Native Hawaiian/Pacific Islander. During data analysis, it was noted that approximately 29% of child clients self-identified as "other" in the ethnicity report. There is no way to determine the accuracy of the current data. The agency had newly implemented their process for asking clients about their self-identification and inputting that data into the electronic system. It is possible that the data indicted as "other" represents individuals who would have identified as a specific ethnicity, but their data was not coded into the electronic system, which defaults to "other" when no specific ethnicity is entered. However, "other" is also a choice offered to participants when identifying their ethnicity, so it is possible that individuals chose to identify as "other" when asked.

Caregiver Characteristics

Minimal caregiver demographics are collected as part of the provision of FBMHS. For example, caregiver family role is collected but not caregiver ethnicity, age, or mental health diagnosis. Of the 378 caregivers included in analysis, approximately 53% were the biological mother of the identified client, 18% were the biological father and 6% were a grandmother. See Table 1 for the distribution of all caregiver roles represented in the current sample. Of the families enrolled, 35% indicated the presence of two caregivers in the home.

Measures

Measures of Caregiver Adversity

Caregivers in the study completed the ACE survey which resulted in a total ACE score and a past year Current Adverse Experiences (CAE) score. The ACE survey total score (Murphy et al., 2014) and the CAE total score served as predictor variables in the study. The ACE survey is a dichotomous ten item self-report survey that assesses exposure to three categories of childhood maltreatment: abuse, neglect, and household dysfunction. Higher scores indicate higher levels of adverse experiences. The questions for the survey were developed by the research cohort at Kaiser Permanente, as they worked to assess a variety of life stressors, linked to the adoption of risky health behaviors in adults and ultimately negative adult health outcomes (Anda et al., 2006; Felitti et al., 1998). According to the Centers for Disease Control and Prevention (2017, 2019) adverse childhood experiences

Table 1 Percent of caregiver roles represented in the study sample

Relationship to identified child client	Percentage of sample
Biological mother	52.9
Biological father	17.7
Grandmother	5.6
Step father	5.3
Adopted mother	5.0
Adopted father	3.7
Foster mother	2.9
Aunt	1.9
Step mother	1.6
Grandfather	1.3
Foster father	1.1
Family friend	.3
Caregiver significant other	.8

can disrupt a wide array of human development, including neurological, social, emotional, and cognitive. A total score of four or more on the ACE survey correlates with significant impairment in adult functioning, physical and mental health; the presence of six or more ACEs correlates with a twenty-year reduction in adult life expectancy (Felitti et al, 1998).

The ACE survey demonstrates construct validity and convergent validity with other measures seeking to determine childhood experiences, such as those that measure maternal style of support or attachment (Murphy et al., 2014). Retest reliability of the ACE survey has also been established (Mersky et al., 2017; Pinto et al., 2014). The ACE survey has been used in a variety of settings as a screening tool for assessing trauma exposure. It is widely recommended for use in pediatric and mental health care, where interventions promote secure caregiver–child relationships to prevent child abuse and bolster wellness (American Academy of Pediatrics, 2014; Burke et al., 2011; Murphy et al., 2014). The ACE survey is used by the participating agency to screen the caregiver for exposure to childhood trauma within the first 30 days of treatment. The results of the survey and debriefing process, are utilized to support the therapeutic relationship, inform treatment approach, and determine the need for supportive services such as: linkages to primary care physicians or concurrent individual outpatient treatment for caregivers.

The ACE does not measure frequency or duration of maltreatment experiences. Instead, participants are asked to report if they experienced the form of maltreatment described in each question utilizing a binary response of yes or no. The tool results in a total score by summing all "yes" responses. In this way, the ACE survey assesses the cumulative exposure to maltreatment for the individual.

Adverse childhood experiences tend to be interrelated rather than independently occurring. Contemporary research demonstrates that the cumulative effect of exposure has a more robust effect on child outcome than the type of maltreatment experienced or the severity of any single experience (Dong et al., 2004; MacKenzie, et al., 2011; Wade et al., 2017; Stepleton et al., 2018).

The FBMHS agency included in the study adapted the ACE survey to also collect a self-report score of past year adversity, to capture ongoing maltreatment events that might be present in the caregiver's current experience. This change, results in the past year CAE score. For the CAE score, the total possible adverse experiences is reduced from ten to seven items. This adaption was made based on research which shows that, child maltreatment by caregivers may be influenced by not just the caregiver's own history of adverse childhood experiences but also by experiences of ongoing violence or maltreatment, for example with their co-caregiver (Dixon et al., 2005).

Demographic Measure of Child Client Adversity

The adverse childhood experiences questionnaire (ACEQ) was administered by clinicians to collect data on trauma exposure for each child client. The ACEQ is completed as part of the agency's screening and assessment process within the first thirty days of ESFT treatment. Exposure data from two versions of the ACEQ were utilized in the current study. The first is designed for children ages 0–12 and is completed by the child's caregiver. This survey consists of 17 items. The second, is designed for children ages 13–19 and is self-report. The self-report survey consists of 19 items. Both versions of the questionnaire ask the participant to count the number of statements that apply and then indicate that number on the form. The total statements endorsed represent the ACEQ score. The ACEQ data provides an estimate for the prevalence of trauma exposure in the client population provided ESFT.

The ACEQ was developed at the Center for Youth Wellness and is recommended by the American Academy of Pediatrics as part of their Resiliency project, as an acceptable ACE screening tool for health care settings (American Academy of Pediatrics, 2020; Burke-Harris & Renschler, 2015). The ACEQ is not a validated diagnostic tool and has no psychometric properties. However, its development is in line with the empirical foundation of the original ACE survey (Burke-Harris & Renschler, 2015), making it a credible survey for use in this study. In the past several years, the focus of ACE research is expanding to include community and environmental sources of adverse experiences with which prevention and intervention are needed to promote child wellbeing (ACEs Connection Network, 2020; Mersky et al., 2017; Wood et al., 2014). The ACEQ mirrors some

of this shifting focus by adding to the initial ten items of the ACE survey systemic factors such as the presence of bullying, racism, and community violence. The ACEQ tool is de-identified to optimize honesty in reporting since confirming the presence of many items could lead to mandated reporting requirements for the screening professional, thus interfering with the effectiveness of the screening process (Burke-Harris & Renschler, 2015). In this study the ACEQ was modified to collect the traditional lifetime ACEQ score for the child or teen as well as a past year score of trauma exposure.

Measure of ESFT Outcome

The ESFT Indicators of Child Functioning were designed to measure treatment outcome within FBMHS at the participating agency. They are completed within 30 days of Family Based intake and again at discharge from the service. The ESFT indicators are a list of child client behavioral correlates of functioning, developed by the Center for Family Based Training (CFBT). The CFBT is one of three training centers approved, within the state of Pennsylvania, to provide mandatory annual training in ESFT to providers of FBMHS. The behavioral indicators listed on the ESFT Indicators are in line with the state goals for ESFT treatment outcome and represent targets for ESFT change (Hodas, 2004; Jones, 2019). As such, the ESFT indicators have no psychometric properties but are an important element of service provision. The ESFT Indicators are presented in a check list format, are clinician completed and produce numeric data or binary responses of yes or no. For the purposes of this study, only four of the discharge ESFT Indicators were assessed as criterion variables: level of care to which the child client was discharged (higher/lower); psychiatric hospitalization of child client during treatment (number of days); status of psychiatric hospitalization during treatment (yes/no); length of the ESFT treatment episode (number of days).

Data Analysis

Of the 708 caregivers who were discharged from the service with their child during the period of inquiry, 47% were eliminated from analysis. Most individuals excluded from analysis (78%) were due to service initiation prior to the agency's adoption of the ACE/CAE screening tool. Another 16% of individuals were removed from the data set because their case was discharged by the agency from services prior to the administration of the ACE/CAE screening. These cases were discharged due to treatment non-compliance. Only 2% of caregivers were excluded from analysis for refusal to complete the ACE/CAE survey. One case was excluded from analysis after the initial data screen. While this case had caregiver ACE/CAE data, the child had been authorized ESFT

while in Residential Treatment but was never discharged home. Thus, this case was disqualified from analysis since no level of the ESFT intervention was provided to this family. A total of 378 caregivers were included in the study sample.

All data analysis was conducted using SPSS. All data was screened prior to analysis for outliers and missing data and the use or exclusion of any such data was delineated in the description of results for each statistical test. An alpha level of α = 0.05 was set for all analysis occurring in the current project. The project's first research question examined the prevalence and distribution of adverse experiences within the sample population. To this end, descriptive statistics were utilized to determine mean caregiver ACE/CAE scores as well as mean lifetime ACEQ and past year ACEQ scores for the identified child clients. The project's second area of inquiry involved determining the relationship between the variables of caregiver ACE/CAE score and child client outcome in ESFT. This area of focus was approached utilizing two different analysis plans.

First, to determine if caregiver ACE or CAE could predict child client ESFT outcome, bi-nominal logistic regression was utilized. This analysis was utilized to predict the probability of different possible treatment outcomes for the child client, based on each level of caregiver adversity score. In the context of the current study, the dependent variable of ESFT outcome can be classified as either successful or unsuccessful. A child client that was considered successful in ESFT treatment, included those that discharged to a lower level of care and those that had no psychiatric hospitalization. Those that were considered unsuccessful were discharged to a higher level of care and required psychiatric hospitalization during FBMHS. Bivariate correlation was also utilized to determine the relationship, if any, between caregiver ACE/CAE score and the length of stay in ESFT treatment as well as the number of days the child client was hospitalized while enrolled in FBMHS.

Results

Level of Exposure to Adversity in the Current Sample

Child Client Adversity

The mean child client ACEQ score was 5.93, sd = 3.39 with scores ranging from 0 to 15. A majority of the sample (96%) endorsed at least one ACEQ item and 72% endorsed an ACEQ score ≥ 4. Past year ACEQ mean score for the sample was 2.86, sd = 2.55 with scores ranging from 0 to 11. A majority of the sample (79%) endorsed at least one

ACEQ item in the past year and 66% endorsed a past year ACEQ score ≥ 4.

Caregiver Adversity

The mean caregiver ACE score was 3.27, sd = 2.73 with scores in the sample ranging from 0 to 10. Most of the caregivers, 82% (n = 309) identified at least one ACE. Figure 1 illustrates a large proportion of the sample, 41% (n = 155) reported an ACE score of four or greater. Caregiver mean CAE score was 0.83, sd = 1.42 with scores in the sample ranging from 0 to 7. The range for caregiver CAE score is more restricted than was the ACE score, with most caregivers (63%) endorsing no current adverse experiences within the past year (Fig. 2).

Determining the Relationship Between Caregiver Adversity and ESFT Outcome

Given the threat of sampling bias through treatment attrition both as part of initial service refusal and represented by those who did not complete the full treatment episode, analysis was conducted to determine if there was any significant difference between those caregivers who completed treatment and those who discharged from the service early, in terms of their ACE and CAE scores. An independent-samples t test was calculated comparing the mean ACE and CAE scores of caregivers who completed a full treatment episode of ESFT to the mean ACE and CAE score of caregivers who did not complete a full treatment episode of ESFT. No significant difference was found in ACE score ($t(374) = 0.724$, $p > 0.05$). The mean score for those caregivers who completed treatment ($M = 3.16$, $sd = 2.67$) was not significantly different than those who did not complete treatment ($M = 3.37$, $sd = 2.79$). Likewise, no significant difference was found in CAE score ($t(374) = 1.79$, $p > 0.05$). The mean of those who completed treatment ($M = 0.70$, $sd = 1.33$) was not significantly different than those who did not complete treatment ($M = 0.96$, $sd = 1.50$).

Caregiver Adversity as Predictive of ESFT Outcome

A binomial logistic regression was conducted utilizing the Enter method of model development where child client treatment success was defined by the child's discharge level of care. To avoid additional inequities between cell sizes that would have been further exacerbated through the use of a multinomial logistic regression, the variable of discharge level of care was converted from three levels: lower level of care, same level of care and higher level of care to two levels: higher/lower. This was accomplished through merging higher and same into one category. In the FBMHS level of care it is considered an unfavorable
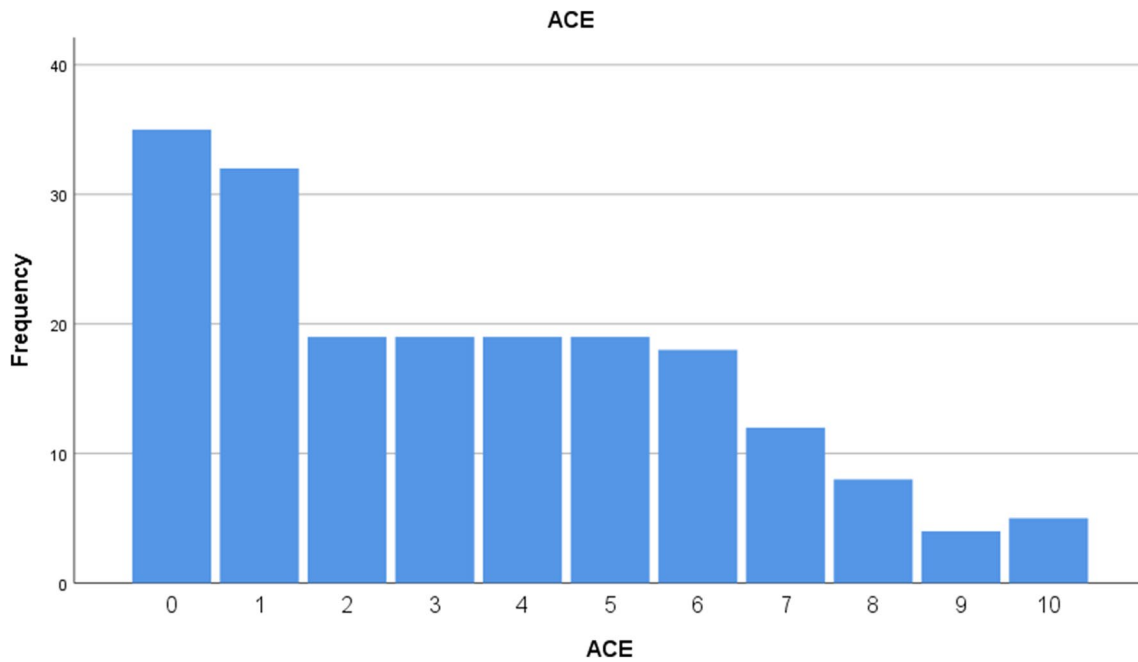
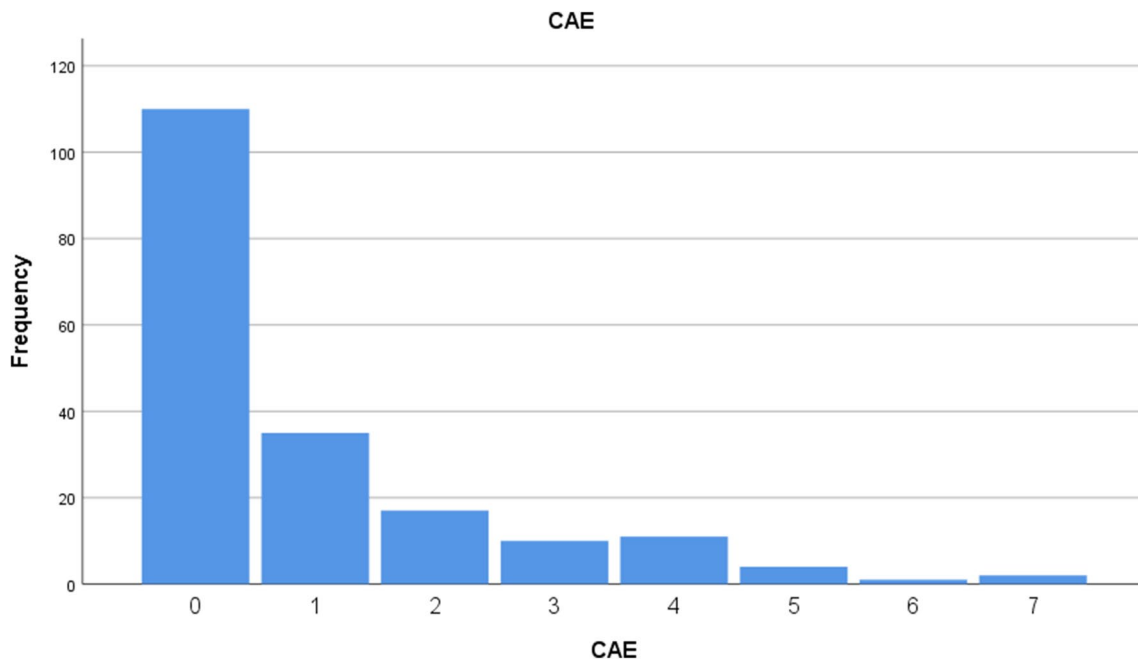**Fig. 1** Distribution of caregiver ACE scores

Fig. 2 Distribution of caregiver CAE scores

outcome to have a child be authorized for concurrent ESFT treatment episodes. Therefore, it was a reasonable step to combine the same category with the higher category since both outcomes represent a non-desired result for services. For the purposes of data analysis in this study, it follows that a child client discharged to a higher level of care was considered unsuccessful and a

child discharged to a lower level of care was considered successful. Despite these efforts, cell sized remained an issue. The current sample had far more individuals who discharged to a lower level of care (n = 312) than discharged to a higher level of care (n = 66). Data screening led to the elimination of 4 outliers. Regression results indicated that the overall model of two predictors

Table 2 Logistic regression predicted versus observed discharge level of care values for child client

Discharge level of care	Lower	Same/Higher	Percentage correct
Lower	309	0	100
Same/Higher	65	0	0
Overall percentage			82.6

Table 3 Logistic regression predicted versus observed hospitalization status values for child client

Hospitalization status	Lower	Same/Higher	Percentage correct
Not hospitalized	310	0	100
Hospitalized	65	0	0
Overall percentage			82.7

(caregiver ACE and caregiver CAE) was not able to reliably distinguish between successful and unsuccessful child client treatment outcomes. The model had insufficient predictive power ($- 2$ Log Likelihood $= 343.037$, $x^2(1) = 2.432$, p > 0.05).

A second logistic regression was conducted utilizing the Enter method of model development to determine which independent variables, caregiver ACE score and/or caregiver CAE score, were predictors of child client treatment success. Child client treatment success was defined by the child's hospitalization status. The variable of hospital status had 2 levels (hospitalized/not hospitalized) and was derived from the number of days the child was hospitalized during ESFT treatment. If the child was hospitalized during ESFT treatment, that was considered an unsuccessful outcome (n $= 65$) and if the child was not hospitalized during ESFT treatment that was considered a successful outcome (n $= 313$). Again, cell size inequities were present in this sample. Data screening led to the elimination of 3 outliers. Regression results indicated that the overall model of two predictors (caregiver ACE and caregiver CAE) was not able to reliably distinguish between successful and unsuccessful child client treatment outcomes. The model had insufficient predictive power ($- 2$ Log Likelihood $= 342.927$, $x^2(1) = 2.922$, p > 0.05).

It is important to note that for both logistic regressions the models were able to predict accurately favorable treatment outcomes, those who were not hospitalized and those who discharged to a lower level of care. However, the models could not correctly predict those who were hospitalized or discharged to a higher level of care, thus making each model in its' entirety non-significant (Tables 2 and 3).

Caregiver Adversity Correlated with ESFT Outcome

Bivariate correlations were run to explore the potential relationships between the variables of caregiver ACE/CAE and the child client ESFT outcome variables of days hospitalized and length of stay in ESFT treatment. Prior to analysis, scatterplots were created for each pairing of variables to determine if the relationship between the variables was linear. Results indicated that the variables under study were not normally distributed and as a result a Spearman *rho* correlation coefficient was calculated.

A significant negative correlation was found between CAE score and ESFT length of stay ($r(376) = - 0.104$, $p = 0.044$). As ESFT length of stay decreases, caregiver CAE score tends to increase and vice versa. Additionally, a strong positive correlation was found between ACE and CAE score ($r(376) = 0.374$, $p = 0.000$), indicating a significant relationship between the two variables. As caregiver ACE score increases, caregiver CAE score tends to increase as well. No significant correlations were found between ACE and ESFT length of stay ($r(376) = 0.002$), ACE and days hospitalized ($r(376) = - 0.085$) or CAE and days hospitalized ($r(376) = 0.001$). However, a significant negative correlation was found between ESFT length of stay and discharge level of care ($r(260) = - 0.388$, $p = 0.000$). As days in ESFT treatment increases, discharge level of care tends to decrease and vice versa.

Discussion

An appropriately responsive caregiver-child relationship is essential to a child's normative development, as attachment experiences in early life impact human functioning long into adulthood (Cassidy & Shaver, 2018). In family therapy modalities such as ESFT, attuned relational connection is a powerful resource to support a child's recovery from adverse experiences (Lindblad-Goldberg et al., 2004; Scheeringa & Zeanah, 2001). Cumulative child adversity has been shown to have a steady negative and linear association to child mental health and overall wellness (Gerard & Buehler, 2004). Furthermore, treatment to support children through recovery from adversity is impacted by the level of adversity experienced by the child's caregivers (Courtois & Ford, 2016; Eslinger et al., 2015; Gardner et al., 2014; Hagan et al., 2017). Therefore, this study sought to expand inquiry into the factor of caregiver adversity to determine the extent to which it might impact the success of ESFT treatment. Two general areas of attention comprised the current research focus. First, given the lack of empirical research into ESFT, the current study sought to expand understanding of the trauma related population characteristics of those receiving Family Based Services. Secondly, the study sought to

determine the relationship between caregiver adversity and child client outcome in ESFT. The results of the study support increased understanding around who can benefit from the ESFT intervention and outlines implications for optimizing ESFT with high-risk children and families. Additionally, the study provides a context from which future research in ESFT may expand.

Understanding the Level of Trauma Exposure in FBMHS

Due to the limited empirical research on FBMHS and the ESFT intervention, there are no other studies that provide information regarding the level of adverse childhood experiences present in the lives of children enrolled in FBMHS. Therefore, the ACEQ trauma exposure scores from this study cannot be compared to other ESFT research samples. However, some comparison can be drawn between the current sample and a pediatric sample reported in a study on childhood adversity and child school/behavioral functioning conducted by Burke-Harris et al. (2011). In that sample of children, 67% had one ACE and 12% had ≥ 4 adverse experiences identified. By comparison, the children in this study reported experiencing greater adversity than those of a general pediatric sample. A possible explanation for this difference is that a clinical sample from an intensive mental health program would be likely to include more individuals who have experienced events that might lead to service intervention and emotional or behavioral impacts on functioning. The findings also indicate that the prevalence of caregiver exposure to adversity in the study sample was greater than that of the general population of adults in Pennsylvania and of the participants in the original ACE study. In this study, 82% of caregivers reported an ACE of ≥ 1 as compared to 64% in the original ACE study (Felitti et al., 1998) and the 50% Pennsylvanians estimated to have ≥ 1 ACE (Pennsylvania Department of Health, 2019). Likewise, 41% of caregivers endorsed a score ≥ 4, which is higher than the 12.4% from the ACE study (Felitti et al., 1998). Higher levels of adversity in the current sample could be expected given that one of the defining features of the FBMHS level of care is that family functioning is compromised such that the child may be unable to be maintained in their home (Hodas, 2004). The current sample of caregivers was derived from a clinical program tasked with shifting patterns of family interaction to improve child and family functioning. Logically, this sample would be expected to have a higher proportion of caregivers whose patterns of interaction in parenting and relationship are unable to adequately balance the needs of their child, themselves, and the family system. Experiences of complex trauma can profoundly alter the way in which relationships are experienced. Specifically, children who experience complex trauma may grow into adults who

are easily dysregulated by the demands of relational connection and as such may be less flexible, responsive, able to accept support or able to problem solve in parenting and with their co-caregivers (Courtois & Ford, 2016; Porges, 2017; Porges & Dana, 2018). These finding are in alignment with ESFT's treatment focus areas for families participating in FBMHS. To be ethical and optimally effective these findings emphasize the centrality of a trauma informed approach for those training others in the ESFT model and for those delivering the ESFT service.

Understanding the Relationship Between Caregiver Adversity and ESFT Outcome

This study also aimed to describe the relationship between caregiver ACE/CAE and behavioral indicators of the child client's outcome in ESFT. In other words—is treatment success influenced by the caregiver's level of trauma exposure? Findings indicate that caregiver CAE and family length of stay in treatment were negatively correlated as were length of stay and child client discharge level of care. Additionally, caregivers' ACE/CAE scores did not predict ESFT treatment outcome for the identified child client. Likewise, there were no differences between those caregivers ACE score based on if they did or did not complete the full treatment authorization. This suggests that level of caregiver historical exposure to childhood adversity may not be a significant variable in the process of maintaining service engagement with caregivers or overall ESFT treatment success. Although these findings are *statistically insignificant* it seems likely that they are *clinically significant* to the practice of ESFT and to family therapy professionals. High caregiver ACE exposure in the presence of successful child client outcomes reinforces ESFT's training principles, which ask clinicians to attune to the presence of complex trauma and deliver interventions congruent with the treatment of complex trauma. For example, clinicians are trained to prioritize the therapeutic relationship, co-regulation and the building of family members' physiological regulation. These findings suggest that ESFT benefits children and families regardless of a caregiver's level of ACEs, making ESFT a viable intervention for the treatment of intergenerational trauma within families. These findings represent an important contribution to the ESFT literature. They suggest that the model is accomplishing its goal of diverted hospitalization and reduced need for intensive services for most families enrolled in the program and that this change can occur independent of the level of caregiver past adverse childhood experiences. In short, the ESFT model appears able to successfully engage caregivers with high levels ACEs. The more of the intervention received by the family, the more likely the child is to have a positive outcome. These findings are congruent with a recent value-based purchasing initiative within the state of

Pennsylvania that evaluated claims data within FBMHS and determined that length of stay/engagement in services was a key factor in the child's level of care after the service. Because of this, some Family Based Programs now have length of stay as part of their value-based reimbursement program (Warner et al., 2019). These findings are hopeful. The idea that adversity in childhood may be a challenge that is unchanging and thus insurmountable would be unhelpful to caregivers and clinicians alike. Instead, the results of this study suggest that family therapy can support change and stabilization in families even when caregivers have endured relational trauma in their past. Juxtaposed to these findings is the fact that systems can struggle to stabilize and treat children within the context of their families. Professionals too often turn to more disruptive and intrusive levels of intervention such as foster care and residential treatment. One possible explanation is that many professionals who work with children are not trained to do so from a family systems perspective. These individuals may find themselves ill-equipped to intervene effectively with families, resulting in a sense of overwhelm and a reliance on individual, behavioral, and child focused interventions that serve to reinforce the family's problems. Such possibilities evoke an ethical mandate to require training and supervision from a family systems' perspective for all professionals working with children at all levels of care.

Implications to ESFT Clinician Training and Treatment Delivery

There are several implications for clinical implementation of the current findings. First, they provide an updated picture of the FBMHS population being served. Knowing your population is essential in meeting their clinical needs. Additionally, the current study describes one element of caregiver and child client experience that has never been explored empirically in ESFT, the presence of complex trauma. Given that ESFT conceptualizes families and treatment intervention with a focus on repeating patterns of relational interaction both historically across generations and in the present life of the family members—the current findings are impactful. Clinician understanding that patterns of complex, relational trauma exist in higher proportions for the clients/caregivers they serve is an important consideration in clinical pacing (Courtois & Ford, 2016; Ford & Courtois, 2016). These findings have the potential to influence the way in which ESFT training programs teach clinicians to initially screen, assess for risk and engage caregivers enrolled in FBMHS. Families are required to commit significant amounts of time to the service. Therefore, it is logical that those caregivers experiencing more adversity in their current life would be less able to maintain engagement for the full treatment authorization. This information is in alignment with ESFT

theory which prioritizes safety and stabilization as an initial goal for the child. However, these findings more clearly expand that prioritization of focus to the caregiver's safety and stabilization as well.

An area of potential change to service delivery supported by the current findings would be to develop a distinctive phase of ESFT treatment authorized to occur prior to the initiation of traditional ESFT between the caregiver(s)/ child. This phase would focus solely on caregiver natural support and basic needs stabilization/development. Consider the following clinical scenario: a mother referred for ESFT, expresses at intake that she hopes the clinician can work individually with her child because she does not have time to spend in session. She explains that she is a single mother who works many hours and has elderly parents and other children to care for. In such a situation, the clinician utilizes this new phase of treatment to focus on the mother's needs for support by convening individuals (for example friends, neighbors, aunts, uncles, and other service professionals) who can provide concreate and emotional support to the mother. The clinician supports the adults to resolve any barriers to cooperation within their relational context and develops a commitment from the adults to carry out a specific caregiving plan of support. The mother's brother agrees to provide transportation for the siblings to their sporting events, a close family friend commits to caring for the children at her house one weekend a month, the mother is linked to the agency on aging which begins to provide helpful services to her parents, the mother's cousin agrees to wake up and get the children on the bus each morning so that the mother can shift her working hours and participate in family sessions. As a result, the mother's burden is reduced, and her support for caregiving is increased. By reducing the mother's isolation from her potential supports, the identified child client also becomes less isolated, as the mother's availability increases. If services were approached in this way, caregivers would be better situated to take advantage of the caregiver/child phase of intervention which could focus on child functioning and would require the caregiver be adequately motivated, resourced, and regulated so that they can engage in new ways of relating to their child. Approaching treatment with families in this way may increase the period of caregiver/child stabilization achieved post discharge from FBMHS. This type of service approach might also result in reduced extensions of FBMHS services beyond the standard authorization period and in reduced family need for successive rounds of FBMHS. Finally, the findings of this study may be of value in building an evidence base for state level professional and clinical advocacy to develop an early intervention model of FBMHS in which authorization for the service is not based on child but on *caregiver* mental health diagnosis, level of adversity and functioning. In this way, a family systems intervention would occur for families in the

state of Pennsylvania much earlier, reducing the amount of exposure a child has to ACEs and potentially disrupting the intergenerational transmission of ACEs, prior to greater levels of child/caregiver deterioration. Such a program would shift children's mental health in Pennsylvania from reactive to proactive and from child/individually focused to family/community focused.

Study Limitations and Future Research Directions

The current study has several limitations. First, the project utilized assessment tools, that while widespread in their use within social services, the current literature and the FBMHS program, are essentially checklists and as such do not have well established psychometric properties. Additionally, the outcome factors for the current study, while representative of the ultimate outcomes for FBMHS, are binary in nature. As such, they cannot decern more nuanced impacts of the treatment intervention that a formalized assessment might provide. In the future, utilizing a more sensitive measure of family functioning or child focused change connected to caregiver adverse experiences may result in additional understanding of the successes/limitations of ESFT with this population of caregivers. Future research might also consider utilizing a more nuanced measurement of current caregiver adversity/current stress along with the CAE screening tool. The current CAE screening tool could be expanded to include some of the elements incorporated into the ACEQ. Many experiences of complex trauma are not captured by the current version of the ACE/CAE survey, for example: community violence, racism or deprivation of basic needs are missing.

Another significant limitation of the current study is that the ACE/CAE scores of the 16% of families who were discharged for non-compliance before their ACE/CAE could be assessed are an unknown factor in the current study. It is possible that the service is less effective at initially engaging caregivers who have higher adversity scores. Maybe those individuals with greater trauma exposure leave the service through avoidance of contact after intake. This is a potential threat to internal and external validity within the current study and should be addressed in future studies. Related to this finding, shortened length of stay in treatment does not automatically indicate a negative outcome. Since length of stay was a significant finding connected to caregiver CAE, future research should delineate the reason for early discharge. In this way, early discharge that indicates the accomplishment of treatment goals can be statistically separated from early discharges that represent an unfavorable outcome.

Additionally, the current sample size (n = 378) which would have been adequate to complete logistic regression was likely not because the distribution of participants between cells were uneven. Most participants were

discharged to a lower level of care (n = 235) versus a higher level of care (n = 52) and not hospitalized during treatment (n = 237) versus hospitalized (n = 50). Because of the uneven distribution of scores, the statistical power of the analysis was likely inadequate. This unequal distribution could not be remedied during the current project due to the unanticipated COVID-19 pandemic which required data collection for the current study be discontinued early. It is likely that because the program consistently shows positive outcomes, the inequity in cell size between those with a successful outcome will continue to exceed the unsuccessful program outcomes. A future study might consider utilizing a selective sampling approach such that all cases collected with an unsuccessful outcome are included for analysis along with a randomly chosen sample of the same number of successful cases.

Finally, a full replication of the original implementation study with 12 month follow up would be an admirable step towards additionally delineating ESFT efficacy. However, current research into ESFT would need to take into consideration the expansion of telemental health into ESFT service delivery. ESFT was not designed to be delivered through virtual platforms. However, the COVID-19 pandemic necessitated its use. The research on telemental health has almost exclusively been conducted on individually based models of intervention, with less complex clinical presentations and at the outpatient level of care (Backhaus et al., 2012; Gouvernet & Haddouk, 2017; Richards & Vigan, 2013). The pandemic created an unexpected and significant gap in knowledge for ESFT and an ethical dilemma for those delivering this model to an at-risk population without guidance from the professional literature on how to do so remotely while maintaining fidelity. Therefore, moving forward, the modality of treatment delivery should be considered as a variable in data collection. Additionally, if this data along with ACE/CAE scores are collected, researchers could identify the potential benefits or barriers between level of complex trauma exposure and engagement/outcome in ESFT when delivered through telemental health.

Declarations

where she was employed as the Clinical Director of Children's Services. Additionally, at the time of this project, Tara Byers was a paid contractor at the Center for Family Based Training, where she provided training in ESFT. The Center for Family Based Training is directed by C. Wayne Jones who co-authored the current article.

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