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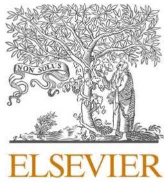

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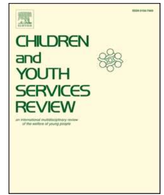

Modified family assessment form (MFAF) and Pennsylvania families: Establishing construct validity and reliability

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ABSTRACT

This study explored the basic psychometric properties of the Modified Family Assessment Form (17 items), using archived data (n = 614, ages 3–21 years) of youth at risk for out-of-home placement receiving ecosystemic structural family therapy via Family Based Mental Health Services in Pennsylvania. Findings of the exploratory factor analysis revealed a three-factor structure (caregiver-child relationship, $\alpha \geq 0.90$; co-caregiver relationship, $\alpha \geq 0.94$; executive functioning, $\alpha \geq 0.87$), established good internal consistency ($\alpha \geq 0.80$), and construct validity and reliability. A paired sample *t*-test indicated differences across three-factor structure from the first 30 days to the last 30 days of treatment ($p < 0.05$, two tailed). It was concluded that the Modified Family Assessment Form shows promise as an evidence-based assessment tool for severely emotionally disturbed youth receiving ecosystemic structural family therapy via Family Based Mental Health Services.

1. Introduction

Selecting and implementing an evidence-based practice with youth identified as having a severe emotional disturbance (SED; Garland et al., 2013) enables mental health professionals to meet an important standard of care, i.e., utilize a theoretically coherent, clinically relevant, and an empirically supported approach (Carr, 2019). Using an evidence-based assessment (EBA) provides corroborating outcome data for evidence-based practices (Boswell, et al., 2015; Flamez, et al., 2015; Sexton & Coop Gordon, 2009). To maximize the value of EBA, it must be theoretically relevant, psychometrically sound, and strategically timed. Stakeholders such as caregivers, mental health professionals, supervisors, administrators, and managed care organizations are provided with vital feedback regarding the effectiveness of treatment interventions and intended clinical outcomes (Alderfer, 2017; Barakat & Alderfer, 2011; Cook & Kenny, 2004).

Developing EBA for ecosystemic structural family therapy (ESFT) could further standardize the application of the intensive in-home family practice for at risk, emotionally disturbed youth (Boswel et al., 2015; Lindblad-Goldberg, Dore & Stern, 1998; Schwartz et al., 2017). Ecosystemic structural family therapy (ESFT; Lindblad-Goldberg & Northey, 2013) is an outgrowth of structural family therapy (Minuchin, 2018). This model is supported by practice-based evidence (Clossey et al., 2018; Herschell et al., 2024; Lindblad-Goldberg, 2019; Lindblad-Goldberg & Northey, 2013).

Historically this model has been used across the continuum of care including outpatient services (Lindblad-Goldberg & Dukes, 1985; Lindblad-Goldberg, 2006; Jones & Lindblad-Goldberg, 2002), in-home settings (Clossey et al., 2018; Herschell et al., 2024; Lindblad-Goldberg et al., 1998), and medical settings (Simms & Hawkins, 2015). In Pennsylvania, ESFT is still delivered through Family Based Mental Health Services (ESFT-FBMHS). Services are funded by the identified youth's county of residence after it is deemed medically necessary, so treatment occurs in the least restrictive environment (Department of Public Welfare Bureau of Children's Services [Draft], 1993). Qualifying youth reside with families burdened and adversely impacted by hardship, tragedy, and trauma, leading to a breakdown of family structure, organization, and function, putting the youth at risk for out-of-home placement (Department of Public Welfare Bureau of Children's Services [Draft], 1993; Simms, et al., 2021). Meeting criteria for

Abbreviations: ESFT-FBMHS, Ecosystemic structural family therapy via Family Based Mental Health Services; SED, severe emotional disturbance; EBA, evidence-based assessment; MFAF, modified family assessment form; FAF, family assessment form; EFA, exploratory factor analysis.

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the identified client being at risk for out of home placement was assessed by a licensed psychologist or psychiatrist and defined as, a having severe behavioral and mental health challenges and being at high risk for being placed at an inpatient psychiatric facility, juvenile justice facility, or placement due to child welfare concerns (Department of Public Welfare Bureau of Children's Services [Draft], 1993; Henggeler, 1999; Hodas, 1997).

The research supporting practice-based evidence for ESFT-FBMHS rests primarily on its 30-year application in Pennsylvania (Lindblad-Goldberg et al., 1998; Jones & Lindblad-Goldberg, 2002), historical rudimentary outcome measures, global assessment of functioning, (American Psychiatric Association, 1994; Lindblad-Goldberg et al., 1988) and the caregivers' reported coping with child-based problems (Dore, 1999; Dore et al., 1996; Lindblad-Goldberg et al., 2004). Broadly, this model guides mental health professionals to see, understand, and respond (Simms & Hawkins, 2015) to the links between child-based SED, family process, and the adverse forces emanating from the broader social ecology influencing the youth and family functioning (Bronfenbrenner, 1979; Carr, 2014; Kelly et al., 2020; Lindblad-Goldberg et al., 2004; Lindblad-Goldberg & Northey, 2013).

The development of an EBA for ESFT was derived from the theoretical rationale of combining logical positivism and ESFT (Carlson et al., 2012; Lavee & Dollahite, 1991; Park et al., 2020). Logical positivism promotes reality can be observed, measured, and empirically tested (Black & Lebow, 2009). Applying the combined theory is key for interpreting and identifying fit with an assessment tool (Tavares et al., 2020). ESFT views the child's presenting concerns as functions of how people relate within their family and larger ecosystem (Lindblad-Goldberg et al., 1998). Not only would the individual items need to capture family functioning based on ESFT, an ecological approach to systemic family therapy, but the Likert scaling would need to objectively operationalize the observed relational engagement seen by the therapist (Tavares et al., 2020). A review of existing, theory-informed family functioning assessments clarified the need for developing a tool specific to ESFT, and the possible psychometric disadvantages and advantages: Self Report Family Inventory based on the Beavers System Model (Goodrich et al., 2012), Family Assessment Device based on the McMaster Model of Family Functioning (Badovinac et al., 2024; Boterhoven de Haan et al., 2015; Miller et al., 1985), and FACES-III, most recent version FACES-IV (Gavazzi & Lim, 2023; Olson, 2011; Place et al., 2005), based on the Circumplex Model of Marital and Family Systems. Existing assessments were too specific to other theories, utilized self-reports, and Likert scales were evaluating the intensity of behaviors, not the observed relational responses. Evaluating the observed relational responses is vital to identifying strengths in the family system (Tavares et al., 2020) and measuring the second order change process often seen as minor changes in family functioning due to unbalancing the existing structure (Jones, 2019).

The Family Assessment Form (FAF) was identified as having alignment with the combined theoretical rationale, was already in use with youth at risk of out of home placement, showed utility in assessing family functioning within child welfare challenges and clinical judgement studies, was ecologically informed, and practice-based (McCroskey & Meezan, 1997; Meezan & McCroskey, 1996; McCroskey et al., 1991; Meezan & O'Keefe, 1998; Simon, 2020; Simon & Brooks, 2016; 2017; 2019). The FAF was developed during a multiyear process which included content experts' examination of proximal measures for placement prevention (Child Behavior Checklist, Child Well-Being Scale, Family Risk Scale, Family Adaptability and Cohesion Scale, Family Environment Scale; McCroskey et al., 1991). The factor analysis of the FAF reported construct validity and defined a six-factor structure: parent–child interaction ($\alpha = 0.90$), living conditions ($\alpha = 0.76$), caregiver interactions ($\alpha = 0.92$), support for parents ($\alpha = 0.76$), financial conditions ($\alpha = 0.71$), and developmental stimulation ($\alpha = 0.76$; Children's Bureau of Southern California, 1997). The six factors explained 63 % of the variance (Meezan & McCroskey, 1996). Meezan and O'Keefe (1998) utilized five of the six factors and reanalyzed the internal consistency reliability. If the FAF could be modified using content analysis, by area experts, a factor analytic technique could be applied to explore the possibility of standardizing the evaluation of family functioning when receiving ESFT (Alderfer et al., 2008; Boswell, et al., 2015; Clossey et al., 2018; Flamez et al., 2015; Layne et al., 2017; Lutz et al., 2022; McCroskey et al., 1991; Ramaswami et al., 2022; Schwartz et al., 2017).

A disadvantage of the FAF was the influence aggregating subsections could have on interpretations made by the therapist. Even though a single score for each subsection informs the degree to which strengths are present, therapists would still need to examine each item after completing the assessment. The information obtained by reviewing each item could support treatment planning and be helpful for case conceptualizing to organize session intervention. Additionally, the FAF would have to be modified to only include subscales and items aligned with the primary targets of assessment and change in ESFT (caregiver-child attachment, co-caregiver alliance, and executive functioning of the caregivers). Although a clinician-administered measure would be beneficial for the assessment occurring in the first 30 days of treatment these types of measures can result in sources of variance: misclassification, systemic error, subject variance, and observer variance, even with proper training and supervision (Hyland & Shevlin, 2024; Tavares et al., 2020). Finally, if a therapist was earlier in their training process it could prove more challenging until they are familiar with responding to items with Likert scaling. For example, a score of 1.0 is operationalized as "Consistently demonstrates ability to exercise appropriate authority; willing and able to negotiate on privileges and consequences appropriate to child(ren)'s age and situation; caregiver knows how and when to set and hold limits," a score of 3.0 is operationalized as " Some inconsistency in setting limits and structure; arbitrarily exercises authority," and a score of 5.0 is operationalized as "demonstrates no ability to exercise appropriate authority; no structure or limits; complete role reversal; abdicates responsibility" (Children's Bureau of Southern California, 1997).

The FAF variation from the commonly used Likert scaling (strongly disagree to strongly agree) in other self-report assessments was essential to the psychometric advantages of the FAF. When completing the FAF, therapists can synthesize qualitative data from other family assessment tools, and interviews of family system members to evaluate a spectrum of interactions from strengths to signs of danger for the child's well-being, in the first 30 days of treatment (Children's Bureau of Southern California, 1997; McCroskey et al., 1991). Allowing 30 days to finalize the rating accounts for the well documented impact that joining has on a family's willingness to show challenges in how they relate when the referral behaviors were present (Jones & Lindblad-Goldberg, 2002). The Likert scale provides examples of observations the mental health professional would likely observe in connection to severity of challenge families are experiencing in the caregiver and youth relationship, by subscale (Children's Bureau of Southern California, 1997; Davey et al., 2012). Furthermore, ESFT views the family members' relationship as the problem and assumes a change in family functioning will occur as a family structure is unbalanced in a collaborative and meaningful manner (Lindblad-Goldberg et al., 1998). Therefore, the extended evaluation and half point scaling aids in denoting small but important observation of the therapist's primary targets of assessment and change (Children's Bureau of Southern California, 1997; Davey et al., 2012).

Engaging in practice-based treatment without outcome data does not meet the basic standards of care in the 21st century. Therefore, systemic treatment outcomes measured using EBA tools are critical to meet the growing needs in pediatric mental health care (Lyon et al., 2015; Boswell et al., 2023). The possible benefits of using a modified FAF (MFAF) included a shorter clinician-administered assessment, that was practical, and cost effective (Becker-Haimes et al., 2020; Jensen-Doss & Hawley, 2010; Paul et al., 2024). This is particularly important in a treatment approach that was often under evaluated due to the crisis riddled nature of the caseloads (Lindblad-Goldberg et al., 1998). The

strengths of the MFAF were how it supported data driven decision making for treatment planning, defined "progress" uniquely for each family, and encouraged the incorporation of other family assessment tools into intervention by professionals (Ramaswami et al., 2022). Furthermore, the MFAF results may inform treatment in a way that can build transparency and a working alliance between the professional, the client and family, the supervisor overseeing the case, and other stakeholders (Barakat & Alderfer, 2011; Couturier et al., 2021; Lenz & Luo, 2019; Lyon et al., 2015). Strengthening treatment efficacy is vital for the long-term success and sustainability of any systemic family therapy intensive service. Such programs operate in the context of decreased funding, limited training, poor staff retention, increasing client acuity, and an ongoing need for treatment adherence (Becker-Haimes et al., 2020; McClure et al., 2024).

This study will explore the psychometric properties of the MFAF to serve as an EBA for measuring family functioning based on the ESFT model using the following research questions: (a) What is the factor structure of the MFAF? And (b) Is the MFAF a sensitive measure for determining family related change for each item, from the first 30 days to the last 30 days treatment?

2. Development of the modified family assessment form

During the late 1990′s, a comparison between the ESFT primary targets of assessment and change was conducted with several well-established family assessment and treatment planning measures, including, the FAF (M. Lindblad-Goldberg, personal communication, September 12, 2019; C.W. Jones, personal communication, July 11, 2022). The Children's Bureau of Southern California developed the Family Assessment Form for their in-home family-based program, The Family Connection Program (Children's Bureau of Southern California, 1997). This tool was created to measure program effectiveness and enhance the ability of child protective services case managers to evaluate and accurately identify the needs of referred children and their families (McCroskey et al., 1991; Meezan & McCroskey, 1996). The practice-based, ecologically informed, and non-clinical tool supported professionals at being systemically strength-based, developmental aware, context-sensitive and trauma informed while working to maintain youth in their homes.

The tool comprised of 11 subsections used for evaluating family functioning factors, basic needs, caregiver history and characteristics, and behavioral concerns and observations. The subscales of the FAF are provided in Appendix Table A1. Each subscale varied in the number of items evaluated, and used a nine-point Likert scale, with half-point intervals (1.0 – 5.0). Scores of 2.5 and lower were considered strengths and 3.0 – 4.5 were considered moderate areas of concern. Scores of 5.0 indicated a situation dangerous for the child's wellbeing (Children's Bureau of Southern California, 1997; McCroskey et al., 1991: McCroskey & Meezan, 1997; Meezan & O'Keefe, 1998).

Findings suggested that with a few modifications to the FAF items and instructions (renaming the subscales, reformatting each statement of observation as a question, and evaluating more than one caregiver) it had potential as an EBA for ESFT. First, it targeted youth and families dealing with trauma, tragedy, and hardship, with risk of out of home placement because of complex developmental systemic challenges (Alderfer et al., 2008; Franke et al., 2013; Lindblad-Goldberg et al., 1998). Second, psychometric studies suggested strong validity, reliability, internal consistency in supporting clinically relevant links between treatment needs and empirical data (Simon, 2020; Simon & Brooks, 2016; 2017; 2019). Third, the FAF assessed the child and at least one caregiver, and could accommodate measuring additional caregivers or natural support to increase connection to the community. Fourth, the assessment allowed for application across the heterogeneity of families serviced (Simon & Brooks, 2016; 2017). Finally, the nine-point Likert scale operationalized observations a mental health professional would see and the intensity of each item from areas of strengths to areas of concern (McCroskey et al., 1991).

3. Method

3.1. Transparency and openness

Using guidelines from Kazak (2018) researchers reported in accordance with JARS. This study was not preregistered. The presented data analyses were performed with Mplus v8.8 and are available (Franke, 2023).

3.2. Participants

Participants were from a suburban population residing in three Pennsylvania counties serviced by a community mental health agency offering ESFT-FBMHS. After identification, if the youth were three to 21 years of age, enrolled in their local school district, identified as having a SED, deemed at risk for out-of-home placement, and had Medicaid in the state of Pennsylvania, they were offered ESFT-FBMHS (n = 614). Caregivers selected the participating community mental health clinic from a list of credentialed ESFT-FBMHS providers. At least one caregiver and the identified youth participated in intensive, in-home, time-limited (maximum of 240 days) family treatment and met at least twice a week. This service provided a 24/7 crisis support component used to divert out-of-home placement during a mental health crisis (i.e., placement in inpatient psychiatric care).

Demographic information (n = 464; appendix Table B1) were stored separately from outcomes. Data were not disaggregated by sex or gender due to static masking and separate storage of demographics information and outcome data. Data were linked using date of birth and age at time of admissions to ESFT-FBMHS treatment. Youth's reported race included 60 % Caucasian, 13 % African American, and another 14 % identified as more than one race. Sex assigned at birth were 53 % male, 46 % female, 0 % other. Most frequent primary diagnostic categories were anxiety/stress-related disorders (30.8 %) and attention deficit hyperactive disorders (18.9 %).

Outcome data showed the mean age for youth was 11.5 (SD 3.8, n = 614). The mean length of stay for youth was 184 days (SD 64.6). The most common reason for discharge was sufficient progress in treatment, 72 %. Sufficient progress was defined by completing treatment to the extent of stabilizing the youth's at-risk behaviors and being able to discharge to a lower level of care. Another 20 % of youth were discharged because of loss in access to services, the family transferred agencies or withdrew from the program.

3.3. Procedure

Non-probability convenience sampling was used to access archived data for youth enrolled in treatment. Static data masking was used to protect sensitive information. The baseline assessment occurred during the first 30 days of ESFT-FBMHS treatment and the final assessment within the last 30 days of ESFT-FBMHS treatment. For each family, when possible, the same mental health professional, from the two-person team, completed both MFAF.

3.4. Measure

During the new hire orientation, the agency's Program Director trained every mental health professional in the administration of the MFAF based on the FAF recommendations (Children's Bureau of Southern California, 1997). The professionals practiced MFAF administration using a family on their assigned caseload. The MFAF was completed outside of session engagement, identifying the rating that most aligns with the current family functioning for each item, within the first 30 days of treatment. The program director met to review the clinical judgment for all items rated during the training protocol. When

only one caregiver was participating in treatment the co-caregiver relationship items were not completed (Children's Bureau of Southern California, 1997; 2004). To conclude the training, the program director would use the rated MFAF with professionals to engage in identifying areas of need, identified strengths, and how this information can be used to build a treatment plan. The administration was repeated in the last 30 days of ESFT-FBMHS treatment.

The expert-driven content analysis was completed by the leadership and ESFT faculty (doctorate level professionals) at the Philadelphia Child and Family Therapy Training Center. Using content analysis by area specialists all items and subscales were studied and the FAF was reduced from 11 subscales. Area specialist focused on items from subscales D (Caregiver/Child Interaction), F (Interaction Between Caregivers), and one item from E as it spoke specifically about caregivers' executive function with managing siblings (Developmental Stimulation; Appendix Table A1). Operationalized definitions of observations in the Likert scaling assisted area specialist in dividing items into three subscales and labeled: caregiver- child relationship (five items), co-caregiver relationship (six items), and executive functioning (six items; Table A1). In total the MFAF was comprised of 17 items. The FAF Likert scales were retained, including the 9-point scale ranging from 1 to 5 and includes half point increments (Children's Bureau of Southern California, 1997; 2004; McCroskey, et al., 1991). The same cut-offs from the FAF were used to define ratings for MFAF items (California Evidence-Based Clearinghouse for Child Welfare, 2013; Children's Bureau of Southern California, 2004; McCroskey et al., 1991).

4. Analysis

The exploratory factor analysis (EFA) was performed with Mplus v8.9 using a full-information maximum likelihood approach, other analyses were performed with Stata version 18. The EFA sample size of 614 provided approximately 35 subjects per item. Several approaches were used to determine the number of factors to retain including parallel analysis (Horn, 1965), eigenvalues greater than one (Kaiser, 1972) and several fit indices. The fit indices included the CFI, TLI, and RMSEA. Comparisons of model fit were made between adjacent factor solutions. Following the recommendations of Finch (2020), if the difference between the adjacent solution on the CFI and TLI was greater than 0.01, the factor was preferred. For example, if the CFI for the 2-factor solution was 0.91 and for the 3-factor solution the CFI was 0.96, the 3-factor solution was preferred (Table 1). For the RMSEA, the relevant difference between adjacent factors was 0.015, suggesting 3 factors as preferable to 4. Parallel analysis favored 2 compared to 3 factors.

Factor analysis requires certain statistical assumptions to be met. These include linearity, normality, sufficient sample size, adequate correlations, and the absence of outliers. While there are statistical tests for most of these assumptions, given the sample size, most of the tests associated with the assumptions would be overpowered, leading to significant but unimportant differences. This led to using graphical methods and descriptive information to assess each of these assumptions. All of the graphs and descriptive information confirmed that the assumptions were met. The guidelines around sample size suggest that there should be 5–10 individuals for every item, and the sample size clearly meets that assumption. Correlations among items were all above 0.3, and none suggested any multicollinearity. (Tabachnick & Fidell, 2019).

Table 1
Goodness-of-fit measures for factor solutions.

Measure	2-Factor solution	3-factor Solution	4-factor Solution
RMSEA	0.098	0.063	0.057
CFI	0.911	0.969	0.978
TLI	0.883	0.951	0.959

The comparisons between baseline and post-test, on the means for the subscales, were tested using the matched-pair *t*-test. All three of the subscales were normally distributed. Parallel analysis favored 2 compared to 3 factors. An alpha level of 0.05 (2-tailed) was used for these analyses.

5. Results

A three-factor structure was confirmed (Table 2). Factor 1, the caregiver-child relationship, was largely consistent with the theoretically derived scale as defined. Factor 2, co-caregiver relationship was largely consistent with the theoretically derived scale as defined, except for item F3 (0.64). Item F3 did not load onto any other factor. Due to clinical insight, the item was kept. Factor 3, executive function skills, was largely consistent with the theoretically derived scale as defined. Item D3 did not load on any factor and was not kept. However, items D4 and E4 did have loadings above 0.3 on Factor 1. Based on discussions with clinicians, the decision was made to retain items on the factor with the highest loading (Factor 3).

With the established three-factor structure, further analyses were used to understand the differences in scores from the first 30 days to the last 30 days of ESFT-FBMHS treatment. There were statistically significant differences in scores ($p < 0.05$, two-tailed) across all three subscales

Table 2
MFAF item means and reliability.

		Mean	Alpha
Caregiver-child Relationship			
D6.	Are caregiver(s) attached and emotionally responsive to the IP?	2.77	
D7.	Do caregiver(s) enjoy and identify with the parental role?	2.58	
D9.	Do caregiver(s) encourage open communication and involvement with the IP?	2.69	
D10	Is IP able and willing to communicate needs and feelings to caregiver(s)?	3.10	
D12	How securely attached is the IP with each caregiver?	2.94	
Co-caregiver Relationship			
F1.	Are the caregivers able to listen to one another and problem-solve	2.92	0.94
F2.	Are the caregivers able to deal directly and calmly with conflict?	2.75	
F3.	Is there a balance of power between caregivers?	2.84	
F4.	Do the caregivers emotionally support one another?	2.73	
F5.	Do the caregivers show respect and caring for one another?	2.62	
F6.	Do the caregivers show a willingness and ability to communicate with one another?	2.73	
Executive Function (Parents)			
D2.	Are caregiver(s) effective in providing developmentally appropriate structure and routine?	2.89	0.89
D4.	Are caregiver(s) able to use intentional discipline strategies and remain under emotional control when dealing with the children?	2.71	
D5.	Are caregiver(s) consistent in enforcing rules and implementing consequences?	2.85	
D8.	Are caregiver(s) comfortable with authority role, showing effectiveness in setting limits and boundaries with the children?	2.71	
E4.	Are caregiver(s) effective in managing sibling conflicts?	2.59	

with an average effect size of 0.2.

The validity and reliability analysis of the MFAF and subscales were conducted to identify internal consistency (Table 2). Before completing the exploratory factor analysis each item was examined for normality. Results for the exploratory factory analysis indicate items represent each latent variable. The geomin factor loading for the items are presented in Table 3.

Assumptions of the paired sample *t*-test were met across all three factors. Difference in executive functioning skills scores, co-caregiver relationship scores, and caregiver-child relationship scores were analyzed using a paired samples *t*-test ($p < 0.05$, two-tailed) for scores from the first 30 days to the last 30 days of ESFT-FBMHS treatment (Table 4). The means scores differ in a statically significant manner ($\overline{X} = 0.17$, $s = 0.81$) for executive functioning skills, $p < 0.05$. The means scores differ in a statically significant manner ($\overline{X} = 0.17$, $s = 0.85$) for co-caregiver relationship, $p < 0.05$. The means scores differ in a statically significant manner ($\overline{X} = 0.14$, $s = 0.85$) for caregiver-child relationship, $p < 0.05$.

6. Discussion

The results yielded two broad conclusions. One, the MFAF shows promise as a psychometric measure for the family functioning or primary targets for ESFT. The analysis revealed a robust three-factor structure establishing construct validity congruent ESFT targets of assessment and change. It also documented items loading on theoretically predicted factors illustrating good internal consistency ($\alpha \geq 0.80$) and established reliability. Two, it appears the MFAF is sensitive in detecting clinically significant change at the family functioning level, from the first 30 days to the last 30 days of ESFT-FBMHS treatment. The match-paired *t*-tests identified statistically significant, clinically desired differences. Viewing the statistically significant small effect size through the lens of family systems theory indicates even a slight change in family functioning can result in meaningful reduction in youth symptomatology (Jackson & Landers, 2020; Simon & Brooks, 2019). Therefore, the MFAF is showing promise as an EBA for assessing the efficacy of ESFT with a worrisome clinical population in a time-limited, real-world, cost-conscious treatment context (Becker-Haimes et al., 2020; Department of Public Welfare Bureau of Children's Services [Draft], 1993; Ford-Paz et al., 2020; McClure et al., 2024).

Table 3
Geomin rotated loading.

Item Number	Item	Factor 1	Factor 2	Factor 3
D6.	Are caregiver(s) attached and emotionally responsive to the IP?	0.77		
D7.	Do caregiver(s) enjoy and identify with the parental role?	0.779		
D9.	Do caregiver(s) encourage open communication and involvement with the IP?	0.823		
D10	Is IP able and willing to communicate needs and feelings to caregiver(s)?	0.794		
D12	How securely attached is the IP with each caregiver?	0.838		
F1.	Are the caregivers able to listen to one another and problem-solve		0.818	
F2.	Are the caregivers able to deal directly and calmly with conflict?		0.732	
F3.	Is there a balance of power between caregivers?		0.636	
F4.	Do the caregivers emotionally support one another?		0.901	
F5.	Do the caregivers show respect and caring for one another?		0.924	
F6.	Do the caregivers show a willingness and ability to communicate with one another?		0.881	
Executive Function (Parents)				
D2.	Are caregiver(s) effective in providing developmentally appropriate structure and routine?			0.711
D4.	Are caregiver(s) able to use intentional discipline strategies and remain under emotional control when dealing with the children?	0.365		0.492
D5.	Are caregiver(s) consistent in enforcing rules and implementing consequences?			0.865
D8.	Are caregiver(s) comfortable with authority role, showing effectiveness in setting limits and boundaries with the children?			0.857
E4.	Are caregiver(s) effective in managing sibling conflicts?	0.307		0.458

Note. Displaying all loadings above 0.3.

Table 4
Paired Samples *t*-test factor scores from first 30 days to last 30 days of treatment.

		N	M	SD	CI	Effect size
Caregiver-child relationship	Pre	614	2.81	0.70	2.76–2.87	0.24*
	Post		2.61	0.75	2.56–2.67	
	Difference		0.20	0.85	0.13-0.27	
Co-caregiver relationship	Pre	389	2.78	0.75	2.71–2.86	0.19*
	Post		2.62	0.84	2.54–2.71	
	Difference		0.14	0.74	0.09-0.24	
Executive function skills	Pre	614	2.75	0.68	2.70–2.81	0.22*
	Post		2.57	0.78	2.51–2.63	
	Difference		0.18	0.81	0.12-0.25	

* $p < 0.05$.

6.1. Limitations

The current study has several limitations due to the use of clinician-rated scales and study design. First, the use of clinician-rated scales could be restricted by the professional's ability to synthesize findings from other family assessment tools and their clinical observations of the family. Understanding the MFAF psychometric structure does not assure skilled interpretation by professionals. Competent interpretation requires users to translate data into a theoretically grounded clinical focus that is culturally and contextually sensitive while managing assumptions of positive changes in ratings simply because treatment is occurring. Without having expert ratings, it is unclear the fidelity of mental health professionals' use of the assessment. Additionally, without having family members' self-report or clients' report the correlations for inter rater assessment are unable to be determined. Second, convergent and discriminant validity was not assessed. Since the MFAF is comprised of only three subscales from the FAF, specifically subscales not previously correlated with existing measures, the focus of the study was to explore the factor structure and potential as an EBA for ESFT-FBMHS. Further analysis of construct validity will be necessary. Third, mental health professionals completing the assessment were all trained by one of the three approved ESFT-FBMHS training centers. Without a cross-training centers' analysis possible sources of variance would not be analyzed, and adherence to training protocol would be unknown. Finally, the sample was derived from a suburban population dominated by Caucasian youth with a western European heritage and exclusively targeted children diagnosed with a SED who were at risk for out of home placement and receiving intensive in-home treatment. Subsequent psychometric investigations must include families from a broader geographic sample including urban and rural populations, people of color representing characteristic of the recent census figures, and families served by a broader continuum of care. For example, youth treated in an outpatient or inpatient service.

6.2. Future

To address the identified limitations researchers must strategically attend to future study design needs including evaluating the tools sensitivity based on demographics and assessing discriminant and convergent validity. Study design changes will need to incorporate, one, participant data from agencies trained by the other ESFT-FBMHS training centers. Two, examining item score changes at other levels of care from the point of admissions to termination of service. Three, identifying other measures being used by ESFT-FBMHS programs to analyze correlations with the MFAF and subscales. Four, continued distinction regarding the clinical value of items in each subscale versus the clinical significance. In addition to these design changes further analysis of the remaining variance for items F4 and F5 are needed, as well as the exploration of a reliable change index.

The MFAF clinical application requires users to process observed data through the lens of family structure and organization, the family's adaptive and dysfunctional observed interactional patterns, and the monitoring of treatment-related changes. The clinical application should include controlling for the type of treatment outcomes (reduced need for services) when analyzing change in scores from the point of admission to termination of service across factors (Simon & Brooks, 2019). Efforts to standardize MFAF training for all ESFT-FBMHS should include a three-tiered process. A process that organizes assessment around primary target strengths and needs, integrates family assessment tool data to portray the family's unique way of relating, and uses repeated administrations to assess change (Walsh, 2016).

This study established promising validity and reliability of the MFAF as an EBA for mental health professionals practicing ESFT with families in a community mental health setting. The instrument also shows promise for measuring a change in theoretically based targets for ESFT-FBMHS. With a strengthened research design, future research may be able analyze further the validity and how the assessment's utility generalizes across geographics and demographics. Systemic family therapy intervention must strive to meet this standard, because EBA is best practice.

7. Author note

The Philadelphia Child and Family Therapy Training Center is contractually permitted by the Children's Bureau of Southern California to use and distribute the Modified Family Assessment Form for assessment and research. This study was not preregistered. Research data are available in a data repository.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendices

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Table A1
Subscales for FAF and question reformatting for MFAF.

Section	Item Description FAF	MFAF
Living Conditions		
	A1. Cleanliness/Orderliness-Outside Environmental Conditions	
	A2. Cleanliness/Orderliness-Outside Home Maintenance	
	A3. Cleanliness/Orderliness-Inside Home Maintenance	
	A4. Safety- Outside Environmental Conditions	
	A5. Safety-Outside Home Maintenance	
	A6. Safety- Inside Home Maintenance	
A. Financial Conditions		
	B1.Financial Stress	
	B2. Financial Management	
	B3. Financial Problems Due to Welfare System/Child Support	
	B4. Adequate Furniture	
	B5. Availability of Transportation	
B. Supports to Caregivers		
	C1. Support from Friends and Neighbors and Community Involvement	
	C2. Available Child Care	
	C3. Chooses Appropriate Substitute Caregiver	
	C4. Available Health Care.	
	C5. Provides for Basic Medical/Physical Care	
	C6. Ability to Maintain Long-term Relationship	
C. Caregiver/Child Interactions		
	D1. Understands Child Development	
	D2. Daily Routine for Child(ren).	
	Refers to all areas of child(ren)'s life such as bedtime, meals, naps, homework, bath, etc.	Are caregiver(s) effective in providing developmentally appropriate structure and routine?
	D3. Use of Physical Discipline.	
	Refers to use, frequency, and severity of physical punishment. Assess the age and vulnerability of child(ren) and potential for harm.	Do caregiver's practice only non-physical forms of discipline?
	D4. Appropriateness of Disciplinary Methods	
	Refers to a planned approach to child(ren)'s age; caregiver is in emotion control and uses discipline to teach rather than punish.	Are caregiver(s) able to use intentional discipline strategies and remain under emotional control when dealing with the children?
	D5. Consistency of Discipline	
	Refers to predictability; child(ren) has been made aware of consequences and feels secure about caregiver's response. Misbehavior is corrected each time it occurs and in a similar manner.	Are caregiver(s) consistent in enforcing rules and implementing consequences?

(continued on next page)

Table A1 (*continued*)

Section	Item Description FAF MFAF	
	D6. Bonding Style with Child(ren)	
	Refers to emotional investment and attachment of the caregiver to the child(ren).	Are caregiver(s) attached and emotionally responsive to the IP?
	D7. Attitude Expressed About Child(ren)/Caregiver Role	
	Refers to verbal or nonverbal behaviors indicating enjoyment of the child(ren) and parenting. Assesses degree to which caregiver accepts child(ren) as he/she is without projecting either positive or negative attitudes about or onto the child(ren).	Do caregiver(s) enjoy and identify with the parental role?
	D8. Takes Appropriate Authority Role	
	Refers to caregiver's ability to convey and accept appropriate authority.	Are caregiver(s) comfortable with authority role, showing effectiveness in setting limits and boundaries with the children?
	D9. Quality and Effectiveness of Communication [Caregiver to Child(ren)]	
	Refers to caregiver's ability not only to make own desires known but foster child(ren)'s understanding and communication abilities	Do caregiver(s) encourage open communication and involvement with the IP?
	D10. Quality and Effectiveness of Communication [Child(ren) to Caregiver]	
	Refers to child(ren)'s verbal or nonverbal ability to communicate needs and feelings to caregiver.	Is IP able and willing to communicate needs and feelings to caregiver(s)?
	D11. Cooperation/Follows Rules and Directions	
	D12. Bonding to Caregiver	
	Refers to child(ren)'s emotional attachment to caregiver(s). To help in assessing, not to whom the child(ren) seems most bonded and the qualities of the attachment. These qualities can be seen in language, facial expression, tone of voice, content of communications, visual contact, physical closeness or distance and amount of time spent with caregiver and depends on the developmental stage of the child(ren).	How securely attached is the IP with each caregiver?
D. Developmental Stimulation		
	E1. Appropriate Play Area/Things-Inside Home	
	E2. Provides Enriching/Learning Experiences for Child(ren)	
	E3. Ability and Time for Child(ren)'s Play	
	E4. Deals with Sibling Interactions	
	Refers to caregiver's ability to cope with sibling conflicts and structure positive interaction. Mark N/A if no siblings.	Are caregiver(s) effective in managing sibling conflicts?
E. Interactions Between Caregivers		
	F1. Conjoint Problem Solving Ability	
	Refers to the ability of caregivers to listen, develop options, and compromise (rate ability of all caregivers in household, not each caregiver).	Are the caregivers able to listen to one another and problem-solve
	F2. Manner of Dealing with Conflicts/Stress	
	Refers to way in which caregivers handle conflicts (rate ability of all caregivers in household, not each caregiver).	Are the caregivers able to deal directly and calmly with conflict?
	F3. Balance of Power	
	Refers to healthy interdependence (rate caregivers together, not each caregiver).	Is there a balance of power between caregivers?
	F4. Supportive	
	Refers to emotional support and degree to which caregivers can count on each other (rate each caregiver separately).	Do the caregivers emotionally support one another?
	F5. Caregivers' Attitude Towards Each Other	
	Refers to overall feelings partners seem to have about each other (rate each caregiver separately).	Do the caregivers show respect and caring for one another?
	F6. Ability to Communicate (Verbal and Nonverbal)	
	Refers to ability and/or willingness to listen to the other and express oneself (rate each caregiver separately).	Do the caregivers show a willingness and ability to communicate with one another?
F. Caregiver History		
	G1. Stability/Adequacy of Caregiver's Childhood	
	G2. Childhood History of Physical Abuse/Corporal Punishment	
	G3. Childhood History of Sexual Abuse	
	G4. History of Substance Abuse	
	G5. History of Aggressive Act as an Adult	
	G6. History of Being an Adult Victim	
	G7. Occupational History	
	G8. Extended Family Support	
G. Caregiver Personal Characteristics		
	H1. Learning Ability/Style	
	H2. Paranoia/Ability to Trust	
	H3. Current Substance Use	
	H4. Passivity/Helplessness/Dependence	
	H5. Impulse Control	
	H6. Cooperation	
	H7. Emotional Stability (Mood Swings)	
	H8. Depression	
	H9. Aggression/Anger	
	*H*10. Practical Judgement/Problem-Solving and Coping Skills	
	*H*11. Meets Emotional Needs of Self/Child	
	H12. Self-Esteem	
H. Acting Out Behaviors		
	I1. Poor Sibling Relationship(s)	
	I2. Aggressive/Assaultive/Destructive	
	I3. Tantrums	
	I4. Sexual Acting Out	
	I5. Runaway	

(*continued on next page*)

Table A1 (*continued*)

Section	Item Description FAF MFAF
I. Inner-Directed Behaviors	
	J1. Sleep Disturbance
	J2. Somatic-Eating Problems
	J3. Self-Destructive/Accident Prone
	J4. Depressed/Withdrawn/Suicidal
	J5. Anxious/Fearful
J. School Behavior Problems	
	K1. Learning Delays
	K2. Disruptive in Class
	K3. Attended Many Schools
	K5. Poor School Attendance/Phobia
	K6. Premature Labor/Difficult Pregnancy of Delivery
	K7. Asthma
	K8. Demanding/Irritable/Difficult

Table B1
Sociodemographic characteristics of clients serviced ($N = 595$).

Characteristics	N	%
Sex Assigned at Birth	464	
Male	250	53.9
Female	214	46.1
Other	0	
Gender Identity	Not Available	
Race/Ethnicity	464	
Caucasian	285	61.4
African American	62	13.4
Asian	4	0>.01
Pacific Islander	0	0
More than one race	68	14.7
Other	18	3.9
Did not disclose	27	5.8
Primary Diagnosis Category	461	
Anxiety or Stress Related Disorders	142	30.8
Other Behavioral & Emotional Disorders	11	2.4
Attention Deficit Hyperactive Disorders	87	18.9
Conduct Disorders	51	11.1
Mood Disorders	97	21
Autism Disorder	37	8
Other Developmental Disorders	4	0.9
Intellectual Disabilities	2	0.4
Eating Disorders	3	0.7
Impulse Disorders	5	1.1
Other Non-Mood Psychotic Disorders	2	0.4
T 74.XX codes & Z codes	20	4.3
Reason for Discharge	592	
Sufficient Progress in Treatment	426	72.0
Family Withdrew/Agency Transfer	116	19.6
Out of Home Place Requiring Discharge	22	3.7
Administrative Discharge	28	4.7
Treatment During the Pandemic	595	
Before March 13, 2020	317	53.3
After March 13, 2020	278	46.7

Data availability

Data will be made available on request.

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