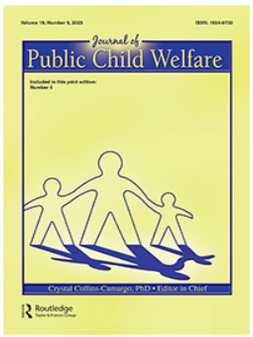

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Development of the Family Engagement in Residential Care Measure

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ABSTRACT

Family engagement in residential treatment (RT) improves relationships, treatment participation, and behavior, yet standardized measures are lacking. This study developed and piloted the Family Engagement in Residential Care Measure through a multi-phase process: item generation with family input, small group reviews, and pre-pilot testing for clarity. A cross-sectional pilot at an RT-focused conference retained 29 items across five subscales, each showing high internal consistency. Participant feedback informed wording revisions and structure. Stakeholder involvement throughout the process ensured the measure's relevance and clarity. The Family Engagement in Residential Care Measure shows promise; however, it requires further validation in future research.

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Family engagement; residential treatment; measurement development; group concept mapping; treatment engagement

Introduction

Residential treatment (RT) settings are psychiatric settings for children and youth who need long-term stabilization and support. l Critical to the child's well-being is the family who are integral in treatment and reintegration into the community (Leichtman, 2006). Recent years have seen the emergence of family-centered care in RT settings, recognized as crucial by organizations such as the Association of Children's Residential & Community Services, the Building Bridges Initiative, and the Child Welfare League of America (American Association of Children's Residential Centers, 2006; Building Bridges Initiative, 2022; Child Welfare League of America, Inc. [CWLA], 2004). Family-centered care emphasizes family empowerment, maintaining healthy connections during treatment, building family strengths, and engaging the family in every phase of treatment (CWLA, 2004). Best practices for engaging families include transportation assistance, flexible scheduling, language interpretation services, rapport building, and empowerment through education and support (Sharrock et al., 2013). These practices aim to facilitate family engagement in treatment, enhance communication, and prioritize

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relationship building (Lee, 2011; Nickerson et al., 2006; Sharrock et al., 2013). A national survey of RT facilities revealed progress but also highlighted areas for improvement in family engagement (Allen et al., 2010). While 92% of facilities included families in treatment planning, there were varying levels of family engagement in activities such as social events, transportation assistance, and involvement in program operations (Allen et al., 2010).

Research indicates that increased family engagement in the RT setting yields positive outcomes, including improved family relationships, enhanced treatment engagement, reductions in parenting, and child behavior problems (Huefner et al., 2015; Merritts, 2016; Preyde et al., 2011). Family engagement is particularly important for addressing disruptions in parent-child relationships that may arise from factors like negative peers, family mental illness, or instability (Robst et al., 2013). Some studies have found that family engagement predicts positive outcomes for youth in RT, including shorter lengths of stay, likelihood of discharge to family, and stability post-discharge (Landsman et al., 2001; Lee, 2011). Studies suggest that engaging families in transition planning, identifying community resources, and increasing home visit opportunities are valuable for successful transitions (Nickerson et al., 2006).

Methods of measuring family engagement

Family engagement measures have been used in pediatric mental health settings including outpatient programs, day treatment, inpatient, and residential substance abuse (see Hock et al., 2015 for review). In RT settings, most studies assessing family engagement rely on administrative data, satisfaction-focused surveys, interviews or direct observation (Herbell et al., 2023). In addition to the empirical literature, several organizations have developed tools to assess family engagement in RT. One of the most widely used is the Building Bridges Initiative Self-Assessment Tool (SAT) which evaluates the supports and services available to children and families in RT settings (Building Bridges Initiative, 2022). A key strength of the SAT is its development through input from stakeholders, which helped identify critical supports in RT. However, despite its widespread adoption, the SAT has not been psychometrically validated, and its length and lack of research foundation may limit its utility.

Administrative data on family engagement in RT often includes chart reviews documenting contact between family members and children or staff during the child's stay (Blankestein et al., 2022; Huefner et al., 2015). For example, Huefner et al. (2015) categorized face-to-face and telephone contacts, including family visits, home visits, and court or treatment-related meetings. Phone calls are typically the most consistent form of contact (Baker et al., 1993; Kruzich et al., 2003), while family visits vary widely (Baker & Blacher, 2002; Baker et al., 1993, 1995). Nickerson et al. (2006)

found that phone contact and visits were the most common forms of involvement, though staff often perceived the level of contact as insufficient compared to families and youth.

Two recent Dutch studies (Blankestein et al., 2022; Broekhoven et al., 2023) examined family engagement using surveys that focused on parental involvement and staff attitudes toward family-centered care. First, Blankestein et al. (2022) evaluated whether levels of parental involvement and family-centered staff attitudes and behaviors predicted various outcomes in families in RT. Parental involvement was evaluated through a survey covering various aspects, including visitation frequency and participation in meetings (Blankestein et al., 2022). In a second Dutch study, researchers aimed to explore the relationship between family-centeredness, parental involvement, and the behavior problems of adolescents (Broekhoven et al., 2023). To measure parental involvement, both studies adapted a survey developed for juvenile justice staff that was designed to encourage staff to think about the family perspective during their daily work (Simons et al., 2016). Items probed staff about if they invited families to every meeting, whether staff informed families the same day if their child was involved in an incident, as well as satisfaction questions for staff regarding how satisfied they are with family contact and involvement and whether staff see families as a source of support (Simons et al., 2016). For the Dutch studies, the adapted version of the measure included assessing the frequency of the family visiting the youth at the facility, telephone calls, family and treatment team meetings (Blankestein et al., 2022; Broekhoven et al., 2023; Simons et al., 2016). The subscales included (1) family-centered behavior of group care workers, (2) self-perceived competence of group care workers, (3) attitude of group care workers toward family-centeredness, and (4) perceived barriers of group care workers toward family-centeredness (Broekhoven et al., 2023). Confirmatory factor analysis identified these subscales, each measuring different aspects of family-centeredness within RT (Broekhoven et al., 2023). These studies represent a robust conceptualization and measurement of family involvement in the RT context in the Netherlands (Blankestein et al., 2022; Broekhoven et al., 2023; Simons et al., 2016). While these studies offer a robust conceptualization of family involvement, they primarily reflect staff perspectives and focus on attitudes rather than practices. These measures could serve as useful companions to a family-centered tool, but they do not directly capture the voices or priorities of families themselves.

Family engagement as a core piece of policy

Family engagement is a central component of US policy, particularly under the Family First Prevention Services Act (FFPSA). Enacted in 2018, FFPSA restructured federal reimbursement to incentivize evidence-based prevention

programs and introduced the Qualified Residential Treatment Program (QRTP) model, which includes requirements for family involvement through treatment and post-discharge (Kelly, 2018; National Conference of State Legislatures, 2020). Specifically, RT facilities that are QRTPs must integrate family members into the treatment process including facilitating family participation through outreach and contact (Kelly, 2018; National Conference of State Legislatures, 2020). The RT program must also document integration of family members into the treatment process, including post-discharge. Despite these mandates, there is limited guidance on how to engage families effectively in RT settings, and few validated tools exist to support this work in real-world practice.

The current study

In response to the need for a validated, practice-ready tool to assess family engagement in RT settings, we developed the Family Engagement in Residential Care Measure through collaboration with a team of families, researchers, and clinicians. Families played a central role in generating the initial item set, which was followed by iterative refinement with input from researchers and practitioners. Grounded in evidence and families priorities , the measure reflects multiple layers of stakeholder input and is designed to elevate family voices in a meaningful way.

The primary purpose of the measure is to evaluate family engagement practices and supports provided to families across the trajectory of RT from admission through discharge and into aftercare. In its current form, it is not intended to document individual services delivered or assess general staff competencies, but rather to capture how well programs implement family engagement strategies in practice. Our team initially envisioned the measure as an agency-level assessment, completed by staff to evaluate family engagement practices across families within a RT program. This version is intended to help agencies reflect on how well they are supporting family engagement overall. However, we also believe the measure has strong potential for individual-use, where RT programstaff could assess the experience of a specific family. In fact, we are currently developing a family-report version of the measure that will allow families to evaluate their own engagement experience with a RT program.

Our approach centers families as co-creators and emphasizes actionable practices rather than attitudes alone. The measure incorporates elements of family-driven care which are practices that families consistently strive to see implemented but that often fall short due to resource constraints. Our goal was to create a concise, accessible measure that could be used in the field by both families and RT providers to facilitate communication about what is going well and what needs improvement. While the measure is still under

development, this paper describes the multi-stage development process, highlights the integration of stakeholder perspectives, and reports on initial pilot testing of a potential factor structure. Ultimately, we aim to produce a validated tool that supports collaboration and drives improvements in family engagement within RT.

Methods

The development of the Family Engagement in Residential Care Measure took place over several phases. The focus of this study is on the development and initial pilot test of the measure, but an overview of the measure's completed, and future development is provided (see Table 1). The studies discussed in this manuscript were approved by the Ohio State University Institutional Review Board.

Measure development

Item generation

The study team first began by conducting a Group Concept Mapping (GCM) exercise to understand the desired family engagement strategies within the RT setting (Herbell et al., 2025). GCM is a mixed methods approach that collects, organizes, and synthesizes stakeholders' perspectives on a particular topic (Kane & Trochim, 2007). It integrates qualitative data collection procedures with quantitative analytic approaches to visualize inputs about a topic and has many applications, including measure development (Rosas & Ridings, 2017). The GCM process included three key steps: brainstorming, sorting, and rating. GCM was conducted using an online software platform called GroupWisdom. Family members ($N = 40$) were presented with a prompt and asked to brainstorm as many ideas as possible for family engagement in the RT setting. Next,

Table 1. Overview of completed work and future plans for the family engagement in residential care measure.

Step	Description	Status
Item Generation	The initial item set was developed in partnership with families via group concept mapping.	✓
Item Review	Researchers reviewed draft items for clarity, alternative phrasings, and interpretation.	✓
Pretest	Researchers and clinicians provided feedback; item stems were refined.	✓
Initial Pilot Test	Conference participants completed the initial 75-item measure.	✓
Item Reduction	Reduced item set to 33-items based on psychometric analysis and qualitative feedback.	✓
Subsequent Testing	Administer 33-item measure; assess reliability, validity, and refine items as needed.	Upcoming
Development and Validation of Family-Report Version	Develop parallel family-report version; conduct testing for reliability and validity.	Upcoming

✓ *Indicates the step has been completed.*

they sorted the brainstormed ideas into conceptually similar categories. Finally, each family member individually rated the ideas based on their perceived importance and feasibility within the RT setting. These ratings were then analyzed, and 44 ideas emerged as the highest priority to families based on their combined scores. By using GCM to refine our understanding of desired family engagement strategies, families actively participated in the critical preliminary stages of the scale development process. The product of the GCM study was a list of 44 highly prioritized items, which formed the basis of the Family Engagement in Residential Care Measure

Item review

After the initial item set was developed, five researchers with expertise in RT, child welfare, family involvement, parenting, and vulnerable populations who were not related to the project were selected to review the 44 items generated during the GCM process. The study team developed a worksheet that listed the item stems and instructed reviewers to identify important concepts that may be missing from the items. The reviewers were instructed to read each item stem and provide as many different phrasings as possible. The reviewers were also encouraged to use synonyms and highlight terms that were confusing or open to interpretation. The study team collated the reviewers' interpretations into one document and reviewed the feedback (see Table 2 for examples). The study team then chose the phrasing for each item and removed duplicate items. This exercise resulted in the item bank increasing from 44 items to 63 items.

Pretest with researchers and clinicians

Next, seventeen researchers and clinicians with experience working with families accessing RT were invited to review the 63 items. Reviewers were instructed to read each item and provide written feedback on the clarity of the items and if there were multiple interpretations in meaning. Table 3 provides three sample item stems, the reviewers' feedback about the items, and how the reviewers' feedback was used to modify item stems. The reviewer feedback ultimately increased the item pool by twelve items (Total items 75). The reviewers were invited to provide overall commentary on the measure in an open-response question. The comments provided in the open response were related to the order in which items were presented, with several reviewers suggesting that reordering the items could improve clarity, flow, or thematic grouping.

Initial pilot test

Sample

The 75-item measure was then pilot tested with a cross-sectional design. Using convenience sampling, recruitment occurred at a conference targeted toward

Table 2. Sample item stems and reviewer responses.

Original Item Stem	Reviewer #1	Reviewer #2	Reviewer #3	Reviewer #4	Reviewer #5
Preparation for next steps in process	Ihelped parents/family understand the steps in the residential treatment process.	I support families through the entire residential treatment experience.	I educate guardians about the upcoming steps of their child's residential treatment process.	Families were prepared for next steps because of my work.	I supported parents/family to understand the next steps in the residential treatment process.
Discharge planning that includes natural and community supports as well as a list of resources in the community	I provided discharge planning to families that included natural and community supports as well as a list of resources in the community	I include resources and supports in the families community to support successful transition to home.	I provided families information regarding available support resources including available community resources.	Discharge planning took into account the resources in the family's community.	Discharge planning includes all available supports to the family including other family members and friends and local resources.
Who's who and what do they do on your child's treatment team	I provided information to the parents/family about each person who was working with their child and what their role is on the treatment team.	Parents are provided names and contact information for all members of the youth's treatment team.	I ensure that families are aware of each person on their child's residential treatment team and what their role is.	I made sure the family had a good understanding of who was on their child's team and what their roles were.	The family is educated on who all members of the treatment team are and what they do.

Table 3. Exemplar reviewer feedback and resulting changes to item stems.

Original Item Stem	Reviewer Feedback	Resulting Item Stem
Staff work with families to develop a safety plan for when the child is discharged.	Question might be prefaced with "when needed" since safety plans are not always relevant or applicable.	If needed, staff works with families to develop a safety plan for home visits.
In preparation for discharge, families are provided education about resources located in their home community.	May need to increase the threshold from "provided education" to "referred" Might need to add examples of the resources	Before discharge, families and support members are referred to resources (e.g., outpatient therapists and afterschool programs) in the home community.
There is clear and frequent communication with the family about how a child is doing in the program.	Frequent is vague and subjective Families should decide how often communication needs to happen	Staff communicates clear updates to families about how youth are doing in the program. The communication's timing (e.g., daily, weekly) is decided in consultation with families.

people working within RT settings. Recruitment included both in-person and online attendees who were staff and volunteers working in the RT setting. Recruitment strategies included print and video advertisements shown to conference attendees. To be eligible to participate in the study, the potential participant had to be an adult currently employed or volunteering at a psychiatric RT facility that served children and youth. Recruitment materials directed interested individuals to complete an eligibility questionnaire in Qualtrics. If eligible, they were provided an informed consent document, demographic questions, and the Family Engagement in Residential Care Measure.

Measure overview

Demographics include questions about the individual (e.g., sex, race) and the organization (e.g., referral source, role). The Family Engagement in Residential Care Measure begins by presenting key definitions (e.g., residential care, family, discharge) used throughout the measure to cultivate a shared understanding of terms. Participants then completed 75 Likert-style questions related to family engagement, organized into three sections: before admission, during stay, and after discharge. Each item included four response options: 0-Strongly Disagree, 1-Disagree, 2-Agree, 3-Srongly Agree. To participate, individuals were encouraged to use their personal device (e.g., tablet, cell-phone) to access the survey. After completing the survey, participants had the option to be entered into a raffle for one of thirty $50 gift cards. Participants interested in entering the raffle were directed to a separate Qualtrics where they provided their name and e-mail address should they be chosen for the raffle.

The measure was originally conceptualized as a staff-completed, agency-level assessment designed to evaluate how family engagement practices are

supported and implemented across families with a RT setting. Its primary purpose is to capture program-wide efforts to engage families through the trajectory of care from admission through discharge and aftercare, rather than to document individual services or assess general staff competencies. However, we recognize the potential for the measure to be adapted for individual-level use, allowing staff to reflect on the experience of a specific family. This flexibility broadens the utility of the measure and supports its future application as a potential organizational assessment and individualized evaluation.

Analysis plan

As the Family Engagement in Residential Care Measure is still in development, the current analyses aim to examine the first wave of pilot data with the goals of (1) identifying items to shorten the measure from the current total of 75 items and (2) describing the evidence of an internal structure of subscales for later testing of a revised measure.

To address the first goal, identifying items to remove, the study team first conducted an iterative process examining item distributions, within subscale correlations, and internal consistency estimates to determine a list of potential items to remove. Next, potential items identified for removal were then reviewed by the study team to confirm or reject item removal. This decision was based on how important the item was rated during the group concept mapping exercise. To do this, each potential item was reviewed against families' input regarding whether the family engagement strategy was feasible and important. Thus, both quantitative and qualitative data were assessed before confirming the removal of an item.

Once a set of items was removed, the second goal of examining the internal structure of a revised version of the measures was addressed. To accomplish this, the remaining items were re-grouped thematically by the study team into potential factors for testing. Next, the internal structure of each potential factor was tested using exploratory factor analysis to determine the fit of items within a proposed factor. All items were grouped into multiple potential factors and of those, factors were tested until the best fitting set of factors was identified. This process was conducted with no a priori hypothesis about how many factors would be present within the measure. When a final set of factors is determined, we conduct a confirmatory factor analysis to determine the overall fit of the multifactor model. We plan to use this revised measure in the next phase of pilot testing. All analyses were conducted using R 4.3.1 with naniar (Tierney & Cook, 2023), psych (Revelle, 2024), and lavaan (Rosseel, 2012) packages.

Results

Of the total 107 individuals who initiated the survey, thirty-eight responders (36%) skipped at least one item. Of note, the study team observed several patterns where responders skipped entire sections. Specifically, four responders skipped the first section (before admission), ten responders the second section (during stay), and fifteen responders the third section (after discharge).

Demographics

The study included a sample of 107 participants who answered demographic questions at the individual and organizational levels. In terms of gender, most participants identified as female, constituting 51.4% (55) of the total sample. Males represented 9.3% (10), while individuals identifying as "Other" comprised 2.8% (2.8). The largest age group was those aged 25–34 at 17.8% (19), closely followed by the 45–54 age group at the same percentage. Individuals aged 35–44 represented 16.8% (18), while those who were 55–64 contributed 5.6% (6). Participants aged 18–24 and over 65 constituted 3.7% (4) and 1.9% (2), respectively. Most participants identified as White (51.4%, 55), followed by African American (3.7%, 4), Latino (1.9%, 2), and 4.7% (5) participants selected more than one race. A small percentage opted not to disclose their ethnic background (0.9%, 1). Educational attainment varied among respondents, with 43.9% (47) holding graduate degrees, 15% (16) attaining a bachelor's degree, and 1.9% (2) completing high school or obtaining a GED. A fraction of respondents pursued some college (1.9%, 2), while 0.9% (1) chose not to disclose their educational background. Additional demographic data for demographics about the organizations are included in Table 4.

Initial item review

To begin our item review, we started by testing the three sections that divided the survey as administered (before admission, during stay, and after discharge). We found this to be a poor model fit. Before we tested new models we sought to reduce the number of items. To determine candidates for item reduction the study team examined three criteria. First, the study team examined item distributions to determine the range of responses and skew of item distributions. All but one item was heavily skewed. Although the skew was likely related to only using a four-point Likert scale in the pilot test, we determined that 13 items should be flagged for review based on having a median response score of three, the highest possible score (no items had a median score of zero). Such lack of variation in response indicated that the

Table 4. Individual and Organizational Demographics N = 107.

	n	%
Gender		
Female	55	51.4
Male	10	9.3
Other	3	2.8
Missing	39	36.4
Age		
18–24	4	3.7
25–34	19	17.8
35–44	18	16.8
45–54	19	17.8
55–64	6	5.6
> 65 Years	2	1.9
Missing	39	36.4
Ethnic background		
African American	4	3.7
Hispanic	2	1.9
White/Caucasian	55	51.4
More Than One Race*	5	4.7
Prefer not to Answer	1	0.9
Other	1	0.9
Missing	39	36.4
Educational level		
High School Diploma or GED	2	1.9
Some College	2	1.9
Bachelor's Degree	16	15
Graduate Degree	47	43.9
Prefer not to Answer	1	0.9
Missing	39	36.4
Individuals' role in organization		
Administrative Staff	3	2.8
Clinical Staff	13	12.1
Direct Care Staff	2	1.9
Management	54	50.5
Parent-Peer Support Provider	3	2.8
Youth Peer Support Provider	1	0.9
Other	1	0.9
Missing	30	28
Individuals' years of experience in residential care		
Less Than One Year	1	0.9
1–3 Years	11	10.3
4–7 Years	16	15
7–10 Years	8	7.5
11–15 Years	7	6.5
16–20 Years	12	11.2
20–25 Years	6	5.6
More Than 25 Years	11	10.3
Missing	35	32.7
Region of the US organization located		
Midwest	56	52.3
Northeast	29	27.1
South	15	14
West	7	6.5
Missing	0	0
Length of time organization has provided residential care		
Less Than One Year	1	0.9
1–5 Years	3	2.8
5–15 Years	7	6.5
15–30 Years	9	8.4
31–50 Years	24	22.4
51–100 Years	30	28
Great Than 100 Years	32	29.9
I Don't Know	1	0.9

(*Continued*)

Table 4. (Continued).

	n	%
Missing	0	0
Organization's primary referral source		
Child Welfare	41	38.3
Juvenile Justice	8	7.5
Mental Health	26	24.3
Public Schools	6	5.6
Private Sources	4	3.7
I Don't Know	1	0.9
Other	4	3.7
Missing	17	15.9

**Participants were able to select more than one race and these have been combined into "more than one race".*

item was demonstrating a ceiling effect and likely not contributing to the measure.

Second, we examined within section item correlations to identify items that did not correlate as strongly with other items within the section. To determine this, we used the corrected item-total correlation output from the alpha() function in the psych package. This reports the item's total correlation within the section while correcting for that item's contribution to the total correlation. Correlations $r < .65$ (28 items total) were selected for review as the mean correlation across items was $r = .65$ and items with lower correlations are considered to less related to the measure (Gharaibeh et al., 2017). Third, a review of the three originally proposed sections (all 75 items) showed that all three sections achieved strong internal consistency ranging from $\alpha = .85$ (Subscale 1; Before Admission) to $\alpha = .97$ (Subscale 2; During Stay). The high alphas were likely due to the large number of items in each section. Section 2 (During Stay), which included 54 items, was particularly problematic. However, even with strong internal consistency four items were indicated as improving the internal consistency if removed. These items were flagged for possible removal. In total 38 items of the original 75 (51%) were flagged for qualitative review and possible removal from the measure. Finally, all three original sections had multiple factor structures with large cross loadings indicating poor internal structure.

Considering each of the metrics listed in Table 5, a review of the items was conducted by the study team to determine whether the item should be removed before further testing of the internal structure. For example, if an item was considered a priority based on the group concept mapping exercises (i.e., rated > 4 on importance and feasibility ratings), it was retained for further testing regardless of the quantitative findings. However, during this process the study team found additional items that overlapped in content essentially asking the same question with slightly different wording. These items were removed yielding a total of 42 items of the initial 75 that were removed. The revised set of 33 items was then thematically grouped into potential factors

Table 5. Exemplar candidate removal items review process.

Item	Min	Max	Mean	Median	Alpha change if removed	r.cor	Alpha if removed	Group concept mapping priority
Families are provided written contact information for state or county representatives to report concerns.	0	3	1.93	2	0.02	0.36	0.85	Rated as important but not feasible
Staff conveys consistent messages to families about the rules and expectations of the program.	1	3	2.07	2	−0.01	0.61	0.82	Rated as feasible and important
Staff provides training to families on stress reduction.	0	3	1.60	2	0	0.6	0.97	Rated as not feasible or important

structures to act as competing models. The retained 33 items were grouped into three models based on proposed sets of thematic factors; one with four factors, a second with five factors, and the third with six factors. All items will be considered in future tests.

Revised measure

Of the three sets of proposed models, we found that the five-factor measure was the best fit. The five factors were, C*entering the Family, Positive Communication (validating/respectful), Effective Communication (informative, clear), Education and Skill Building Opportunities for the Family, and Discharge/Aftercare Plan*. These five factors all demonstrated strong total item correlations ($r > 0.7$), strong standardized factor loadings (> 0.7), and high internal consistency ($\alpha > 0.8$) within the factors. Further, while the Root Mean Square Residual (RMSR) and Tucker Lewis Index (TFI) were not ideal for all factors (Centering the Family, Positive Communication RMSR = 0.05, TFI = 0.951; Effective Communication RMSR = 0.06, TFI = 0.893; Education and Skill Building Opportunities for the Family RMSR = 0.06, TFI = 0.909, and Discharge/Aftercare Plan RMSR = 0.06, TFI = 0.872), they were stronger than the other tested models.

However, four items were problematic across all the purposed models. These items were identified by parents as important to family engagement during group concept mapping; however, they did not load well to any factors (all loadings < 0.4) and removing them improved the overall model fit, internal consistency, and total item correlation. Upon reviewing the content of these items, the study team determined that they may not be reflective of current practice within RT settings. The four items were: *(1) the program supports families to attend meetings and appointments (e.g., transportation, childcare or sibling groups, reimbursement for costs associated with attending, including food and transportation); (2) families can*

contact the youth at any time; (3) if needed, families are provided with reliable interpretation services; (4) parents are provided with a parent-peer support provider. As such, we determined that we should retest the five-factor version, moving the four items from the factors they were originally placed in and to a new subscale that was representative of *Excellence in Practice* and retested.

Retesting improved the fit of the five-factor model, but we found no evidence that the additional factor, *Excellence in Practice*, worked as its own factor (the items did not load together all < 0.5 and were weakly correlated). Thus, the four items were removed from the measure. The remaining 29 items in the five-factor model were retained for the final confirmatory analysis.

Model fit

Before testing the measure as a five-factor model, we checked the factor adequacy using the Kaiser-Meyer-Olkin test and found that the sample size of ($n = 82$) was sufficient (KMO = 0.9). Further, Bartlett's test of sphericity found correlation among the variables significant ($p < .001$). As such we proceeded with testing the five-factor model. However, the confirmatory factor analysis on the five-factor model resulted in poor model fit. The five factors explain 63% of the variance in the data. The comparative fit index was 0.811. The Tucker Lewis Index was 0.791 and the root mean square error of approximation was 0.104. Finally, the standardized root mean square residual was 0.077. Such model fit statistics indicate that the measure is not ready for use but instead requires further testing and development.

Discussion

RT settings for children and youth have historically focused on the identified child, often overlooking the critical role of parents and family. However, there has been a notable shift toward family-centered care, recognizing the importance of family engagement throughout treatment (Affronti & Levison-Johnson, 2009; Nickerson et al., 2004). Measurement methods for family engagement in RT settings include administrative data, surveys, interviews, and direct observation (Herbell et al., 2023). Despite these efforts, the field lacks psychometrically validated, population-specific measures. This gap hinders researchers and agencies from quantifying the impact of interventions and evaluating the association between family engagement and outcomes. The present study aimed to address this gap by developing and pilot testing the Family Engagement in Residential Care Measure. While items were identified for removal and model fit testing was conducted, additional testing and refinement are needed and are currently underway.

Measure development and content validity

The Family Engagement in Residential Care Measure was developed using a rigorous, stakeholder-driven, multi-stage process. Item generation began with group concept mapping, a flexible mixed-methods approach that integrates qualitative and quantitative data to organize stakeholder perspectives (Kane & Trochim, 2007). GCM is widely recognized as a robust method for establishing content validity, providing a clear conceptual framework that aids in defining constructs, selecting content, and refining items (Rosas & Ridings, 2017).

This framework guided decisions throughout the development process, including item selection, construct definition, and item reduction. The initial version of the measure included 75 items. Given the goal of practical implementation and concerns of response fatigue, we employed a mixed methods approach to reduce the item count. Quantitative analyses examined item distributions, correlations, and internal consistency, while qualitative input from stakeholders prioritized items for retention. This rigorous process ensured that content validity was preserved while refining the measure for usability.

Excellence in practice items

During data analysis, four items did not load onto any subscales despite being highly prioritized by families. This discrepancy suggests potential differences in how staff and families conceptualize family engagement, consistent with prior research indicating that families often desire more intensive engagement than is typically offered in RT settings (Allen et al., 2010). Although these four "excellence in practice" items were removed from the final version due to lack of subscale fit, they represent aspirational practices associated with better outcomes in RT (Huefner et al., 2015; Nickerson et al., 2006; Sharrock et al., 2013). Given resource constraints in RT, these practices may be difficult to implement universally. Nonetheless, we plan to include these items in future pilot testing to explore their relevance and feasibility. Importantly, our long-term goal is to develop a complementary parent version of the measure, recognizing that each group may interpret the experience of family engagement differently.

Structure and reliability of the revised measure

The revised 29-item measure demonstrated admirable internal consistency with Cronbach's alpha ranging from .84 to .91 across subscales. However, internal consistency alone is insufficient without evidence that the measure accurately captures the intended domains. We identified five subscales for

further testing, though confirmatory factor analysis indicated that the model fit was not yet acceptable. To address this, we plan to expand the response scale from four to five points by adding a neutral option, which may increase response variability and improved model fit. Additional testing may also lead to further item reduction. At present, we are confident that the remaining 29 items remaining offer a solid foundation for assessing family engagement in RT settings.

Future research and practice implications

The intended purpose of the Family Engagement in Residential Care Measure is to evaluate family engagement practices and supports provided to families across the trajectory of RT from admission through discharge and aftercare. It is not designed to document individual services or assess general staff competencies, but rather to capture how well programs implement family engagement strategies in practice. We initially envisioned the measure as an agency-level assessment, completed by staff to evaluate family engagement practices across families within an RT setting. This version is designed to provide a broad view of how family engagement is supported and implemented program-wide. However, we also believe the measure has strong potential to be adapted for individual-level assessment, where staff could reflect on the experience of a specific family. This flexibility expands the utility of the measure and supports its use in both organizational evaluation and individualized care planning.

Future research will focus on continued psychometric evaluation of the staff version, including construct validity testing and triangulation with external data sources such as administrative records (e.g., family participation rates in meetings or visits). Additionally, we plan to examine how scores on the Family Engagement in Residential Care Measure are associated with other validated instruments assessing family engagement in services. This will allow us to evaluate convergent and predictive validity, and determine whether our measure captures dimensions of engagement that are associated with other meaningful outcomes, such as family satisfaction, involvement intensity, or perceived partnership with providers.

To further strengthen the measure's psychometric properties, we are exploring refinements to the response process. For example, future versions may prompt staff to reflect on a specific family or on cases from a defined time frame (e.g., the past month), which could enhance response consistency and interpretability. Additionally, we plan to expand the response scale from four to five points by adding a neutral option, which may improve model fit and increase variability in responses. We are also actively developing and testing a family-report version of the measure, which will allow families to assess their own engagement experiences. While families were deeply involved in the

initial item generation through concept mapping, we have not yet returned the finalized staff version to families for review. Reengaging families to provide feedback on the staff version is a critical next step to ensure the measure continues to reflect family priorities and language. Having complementary staff and family forms will enable researchers and practitioners to assess family engagement from multiple perspectives, identify gaps, and inform practice improvements.

In practice, we envision that RT providers' self-ratings on the staff version will primarily be used for internal evaluation and quality improvement, helping programs identify strengths and areas for development. While the tool could eventually support external evaluations – such as accreditation reviews or funding applications – further development and validation is needed before using the measure for high-stakes decisions. Ultimately, using multiple data sources and linking the measure with other instruments will strengthen its validity evidence and expand its application for both research and practice.

Limitations

This study has several limitations. The study sample consisted of RT staff and volunteers who were recruited from one professional RT-focused conference which may reduce representativeness, introduce the risk of selection bias, and limit the generalizability of the results. While the conference setting allowed us to reach a relevant audience, many participants only opened the survey without completing it, and a moderate amount of missing data suggests survey fatigue. This was observed particularly amongst those who completed demographic questions but did not proceed to the measure itself. Additionally, most respondents were based in the United States, and there may be important differences in RT practices and family engagement approaches across international contexts (Blankestein et al., 2022; Broekhoven et al., 2023). Future research should include more geographically diverse samples to assess cross-culture relevance and fit.

Another limitation is that all analyses were conducted on a single sample. Future studies with varied and independent samples are need to confirm the measure's reliability and validity. Moreover, while families were involved in the initial item generation, they have not yet reviewed the finalized staff version. Returning the measure to families for feedback is a critical next step to ensure continued alignment with family priorities and perspectives. Finally, the current version of the measure asks staff to rate family engagement practices in general. Future research should explore whether prompting staff to reflect on a specific family or on cases from a defined time period (e.g., the past month) improves response accuracy and psychometric performance. These refinements, along with expanding the response scale to five points, may enhance the measure's reliability and validity.

Conclusion

The development and initial pilot testing of the Family Engagement in Residential Care Measure represent a step forward in addressing the need for validated instruments to measure family engagement in RT settings. The importance of family engagement in RT settings cannot be overstated, as it directly impacts the well-being and outcomes of children and youth receiving care. However, the lack of standardized measurement tools has been a significant barrier to accurately quantifying the impact of interventions and evaluating the relationship between family engagement and outcomes. Moving forward, future research will focus on further validating the measure with diverse samples of RT staff and families. The development of companion parent and staff versions will provide a comprehensive understanding of family engagement from both perspectives, driving practice change and improving outcomes for children and youth in RT settings.

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