Chapter Twelve

Instrumentation and Methodology

Psychometric Analysis of the Pediatric Symptom Checklist with Children Enrolled in Medicaid

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Background

The President's New Freedom Commission on Mental Health identified early mental health screening, assessment, and referral to services as one of the six goals for transforming mental health care in America (New Freedom Commission on Mental Health, 2003). The Commission report identified a number of settings where mental health screening for children should occur, and specifically recommended that screenings take place in primary health care facilities. Since 1965, the Medicaid program has made available screening for children for both physical and behavioral health problems through its Early and Periodic Screening, Diagnosis and Treatment (EPSDT) program. A growing body of research offers evidence that early identification, assessment, and intervention for mental health problems for young children can help prevent more serious problems, such as academic failure, substance abuse, involvement in the criminal justice system, or suicide. In August 2005, the Substance Abuse and Mental Health Services Administration issued a background statement on Screening and Early Detection of Mental Health problems in Children and Adolescents. This document includes as one of its principles and standards, that screening instruments must be shown to be valid and reliable in their ability to identify children in need of further assessment. The purpose of this study was to examine the psychometric properties of the Pediatric Symptom Checklist for children enrolled in Florida's Medicaid program.

Methods

Sample

The results presented in this paper reflect a sample of children ages 6-21 who were enrolled in Florida's Medicaid program in one of six areas in the state (i.e., Jacksonville, Orlando, Pensacola, Sarasota, St. Petersburg, Tampa) and whose caregivers participated in the Florida Health Services Survey at least once between 1997 and 2004. The caregivers of 13,495 children were surveyed during this period and 5,012 completed questionnaires were returned for an unadjusted response rate of 37.2%. When adjusted for incorrect addresses and children who were deceased, the adjusted response rate was 44.6%.

Pediatric Symptom Checklist

Children's mental health status was assessed using the Pediatric Symptom Checklist (PSC: Jellinek, Murphy, & Burns, 1986), a 35-item caregiver self-report psychosocial screening measure. Caregivers report the frequency that their children exhibit specific behaviors such as "being irritable or angry," "having trouble concentrating," "feeling sad or unhappy," "getting in fights with other children," and "not listening to rules" on a three-point scale ranging from 0 = *Never* to 2 = *Often*. Studies have documented high levels of agreement between parents' and professionals' PSC ratings (Jellinek, et al., 1988; Murphy, Jellinek & Milinsky, 1989; Murphy, Reede, Jellinek, & Bishop, 1992), good internal consistency (.89) and test-retest reliability (.86) (Jellinek, et al., 1988), and acceptable validity (Jellinek & Murphy, 1990). Normative data suggest that PSC scores of 28 or above reflect a need for further psychosocial evaluation and that 10% to 13% of children in a general pediatric sample exceed this threshold (Jellnick & Murphy, 1990; Jellinek, Murphy, & Burns, 1986; Jellnick, et al., 1999). The measure has good sensitivity (87 to 95) and specificity (68 to 100) (Jellinek, et al., 1988; Murphy, Reede, Jellinek, & Bishop, 1992; Walker, Lagrone&Atkinson, 1989).

Mailing Procedures

As previously noted, data were collected as part of a larger population-based study examining the effects of managed care on Florida children's access to and quality of health and behavioral health services.

A highly systematic and structured mail survey methodology was used similar to that recommended by Dillman (1978) and Salant and Dillman (1994). In total, five separate mailings were conducted.[1] These mailing procedures were based on the findings of a feasibility study conducted to assess the validity of using mail survey procedures with a Medicaid population. The findings from this feasibility study are summarized in Boothroyd and Shern (1998). Telephone coverage was available weekdays until 8:30 pm so that caregivers not able to call during the day could call during the evening.

Results

Characteristics of the Children

The characteristics of the children whose caregivers' responded to the survey are summarized in Table 1. With respect to gender, 57.2% of the children were boys and 42.8% were girls. Approximately, 38% of the children were Caucasian, 39.5% were Black/African American, and 22.0% were categorized as "other" but the group was largely comprised of Hispanic children. Approximately 44% of the children were enrolled on Medicaid because they had a disability and were receiving Supplemental Security Income (SSI) while 42.0% were children living in families receiving Temporary Aid to Needy Families (TANF). The remaining 14.1% of the children either had another Medicaid eligibility status or it was unknown. The majority of the children were currently enrolled in school (91.1%). The children averaged 12.6 years old (*SD* = 3.98) and ranged in age from 6 to 21 years old.

Table 1
Children Characteristics

	Respondents (N =5,012)		*Non-Respondents (8,447)*		
Characteristic	*N*	*%*	*N*	*%*	*p <*
Gender					NS
Male	2865	57.2	4734	56.0	
Female	2147	42.8	3713	44.0	
Race/Ethnicity					.001
White	1927	38.4	2650	31.4	
Black/African American	1980	39.5	4104	48.6	
Other (mostly Hispanic)	1105	22.0	1692	22.0	
Medicaid Eligibility					.001
TANF	2107	42.0	3900	46.2	
SSI	2200	43.9	3395	40.2	
Unknown/Other	705	14.1	1152	13.6	
School Status:					NA
In school	4377	91.1	NA	NA	
Not in school	430	8.9	NA	NA	
Age					.001
Mean	12.54		12.94		
SD	3.85		4.05		
Range	6-21		6-21		

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[1] *Description of specific procedures used for this mailing are available from first author.*

Comparison of Respondents and Non-respondents

To provide insight on possible mail survey response bias, the characteristics of the children whose caregivers completed and returned the questionnaire were compared to those of the children whose caregivers did not respond. This comparison was possible because the Florida Medicaid eligibility file, from which this sample was selected, contained selected demographic information (*i.e.*, date of birth, race/ethnicity, gender) on each recipient and therefore this information was also available on non-respondents. Significant differences were found among respondents and non-respondents with respect to the children's age $t\,(13936.95) = 5.77$, $p < .001$ and race/ethnicity $\chi^2\,(2, N = 13458) = 109.83$, $p < .001$. The average age of the children among survey respondents was slightly younger compared to non-respondents ($M = 12.54$ years old, $SD = 3.85$ years versus $M = 12.95$, $SD = 4.05$, respectively). Respondents under represented Black and African American children in the original sample (39.5% versus 45.2%, respectively) and over-represented Caucasian children (38.4% versus 34.0%, respectively). Responses from caregivers of children from other cultural and ethnic groups were similar to those in the original sample. No significant difference was found in the gender of the children between respondents (57.2% male) and non-respondents (56.0% male) in the sample.

Reliability

Cronbach's alpha was calculated for the 35-item measure to assess the internal consistency of caregivers' responses to the PSC. Overall consistency was high as the alpha was .944. Separated internal consistency estimates were calculated for caregivers of boys and girls within the TANF and SSI subgroups. These reliability estimates are summarized in Table 2. The four alphas ranged between .93 and .94, indicating high levels of internal consistency among children in each subgroup.

The stability of caregivers' PSC assessments of their children over time was also examined. There were 1,893 caregivers who completed the PSC on their child at two points in time separated by an average of approximately 302 days. Although this is a much longer period of time than one would ordinarily use to examine the test/retest reliability of a measure, it does provide an opportunity to assess the PSC's stability. The Pearson Product-Moment correlation between the first and second administrations and the Kappa associated with the classification of children as either above or below the criterion score are summarized in Table 3. PSC scores from the two administrations were significantly correlated $r = .802$, suggestion than the PSC has good stability even over such a long timeframe. The stability was examined separately for both the TANF and SSI subgroups and both had good stability ($r = .810$ and $r = .794$, respectively). The PSC was equally reliable for both boys and girls ($r = .801$ and $r = .803$, respectively). The Cohen's Kappas calculated to examine the consistency of the categorization of children as either above or below the criterion score on the PSC were generally in the .575 to .696 range suggesting the PSC agreement in classifying these children was in the fair to good range (Juurlink & Detsky, 2005).

Table 2
Internal Consistency Reliability Estimates by Subgroup

	TANF	*SSI*	*Overall*
Boys	.940	.932	.944
Girls	.931	.937	.940
Overall	.936	.934	.944

Table 3
Test/Retest Reliability Estimates and Kappas by Subgroup[1]

	TANF	*SSI*	*Overall*
Boys	.842/.696	.769/.489	.801/.627
Girls	.782/.606	.829/.650	.803/.575
Overall	.810/.649	.794/558	.802/.600

[1] Correlation/Kappa

Norms

Percentile ranks were calculated separately for boys and girls within the TANF and SSI subgroups. These results are summarized in Table 4. As noted in this table PSC scores for boys in both the TANF and SSI subgroups are consistently higher at each percentile compared to the PSC scores for girls. As would be expected, PSC scores for both girls and boys in the SSI subgroups are consistently higher at each percentile compared to the TANF subgroups.

Table 4
Normative Date for the PSC by Subgroup

	TANF		*SSI*	
Percentile	*Boys (N = 975)*	*Girls (N = 1,106)*	*Boys (N = 1,441)*	*Girls (N = 718)*
5th	3	3	11	10
10th	6	5	15	13
15th	9	8	19	16
20th	11	9	21	18
25th	13	11	23	20
30th	15	13	26	21
35th	16	14	27	23
40th	18	16	29	25
45th	20	17	31	27
50th	21	19	32	28
55th	24	20	34	30
60th	25	22	36	32
65th	27	24	38	34
70th	30	25	40	35
75th	31	27	42	37
80th	34	29	44	39
85th	37	33	47	44
90th	41	37	51	47
95th	48	42	56	54
100th	68	67	69	67
Mean	22.89	20.05	32.79	29.23
SD	13.26	11.98	13.41	13.00

Validity of the PSC

Several sources of evidence were found supporting the validity of the PSC for use in screening children for mental health problems. First, the mean score of children living in families receiving TANF was compared to the mean scores of children who were receiving SSI. It was hypothesized that poor children who had disabilities would on average, have higher scores on the PSC (i.e., exhibit more mental health symptoms) compared to children who were only poor. It was further hypothesized that children receiving SSI for emotional behavioral problems would have significantly higher scores on the PSC compared to children receiving SSI for physical health reasons. The results of a one-way analysis of variance were significant, supporting the discriminant validity of the PSC $F(2, 2104) = 386.77$, $p < .001$. Children receiving SSI for mental health reasons had a significantly higher average score on the PSC ($M = 36.82$, $SD = 12.75$, $p < .001$) compared to children who were receiving SSI for physical health reasons ($M = 28.82$, $SD = 12.50$) who in turn had a significantly higher average PSC score ($p < .001$) compared to children living in families receiving TANF ($M = 19.97$, $SD = 12.48$). This perfect ordering effect supports the excellent discriminate validity of the PSC.

The validity was also examined by assessing the relationship between caregivers' responses on a separate survey question about their perception of their children's need for mental health services with whether their children scored above or below the PSC criterion score of 28. The result of this chi-square analysis was significant χ^2 (1, $N = 4,003$) = 814.83, $p < .001$. Nearly 76% of the caregivers of children scoring above the criterion score on the PSC reported their children needed mental health services during the previous six months compared to 27.2% of caregivers whose children scored below the criterion score. Caregivers of children above the criterion scores on the PSC were 8.3 times more likely to report their children needed mental health services compared to caregivers of children below the criterion score.

Conclusions

This analysis of the psychometric properties of the PSC suggests it has both good internal consistency and stability over time. The PSC demonstrated excellent discriminate validity in terms of it ability to differentiate among children who had no disabilities compared to children having either a physical health or mental health disabilities. Its continued use for assessing the psychosocial needs of children enrolled in Medicaid was supported.

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Revising the Restrictiveness of Living Environment Scale (ROLES): Re-Conceptualizing the Restrictiveness of Living Environments

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Introduction

The Restrictiveness of Living Environment Scale (ROLES; Hawkins, Almeida, Fabry, & Reitz, 1992) has served for many years as the primary way of conceptualizing the restrictiveness of a child's living situation. The ROLES, or some form of it, has been used in several Substance Abuse and Mental Health Services Administration (SAMHSA) national studies of child outcomes and it is often included in agency clinical information systems. The ROLES was created by a group of practitioner-researchers working at Pressley Ridge in the early 1990s (Hawkins, et al, 1992), and the intent of the ROLES was to describe settings along a continuum of restrictiveness. With the changes in health care policy and financing as well as the continued maturation of systems of care, there is a pressing need to revise the ROLES because new programs have been created and environmental restrictiveness has become a critical outcome in determining effectiveness of care. In response, three groups of practitioner-researchers from Casey Family Programs, Girls and Boys Town, and Pressley Ridge are collaborating to re-conceptualize and revise the ROLES. The intent of the revised ROLES is that it remain a practical measure of youth movement, thereby keeping the simplicity of the original ROLES, while providing greater discrimination between programs and settings through the addition of secondary scales.

Goals of the ROLES Revision Project

A problem with the current ROLES scale is that the list of placements is neither mutually exclusive nor exhaustive (Thomlison & Krysik, 1992). The lack of mutual exclusivity creates a measure that does not always function as a continuum, as there are variations in the degree of restrictiveness within each placement. For example, there are wide variations of restrictiveness between foster homes (e.g., some foster children are treated as full family members while others aren't allowed into many parts of the home). Not being exhaustive creates a problem in that the scale is not as flexible as it needs to be. Adding new programs (e.g., military service[1], specialized treatment foster care), each with distinctive ranges of restrictiveness, is not easy. Many providers, based on unique needs, have idiosyncratically added programs to the scale, further complicating the issue of measuring restrictiveness.

Disregard for individual variation within treatment settings can potentially obscure outcomes of restrictiveness in research (Handwerk, 2002). The level of restrictiveness for any type of treatment setting is going to vary widely from program to program. In other words, program types have overlapping distributions of restrictiveness.

For example, some youth in foster care have more freedom than they had at home, or some youth may live at home but be electronically monitored to restrict them from leaving designated areas during certain times of day (e.g. home detention for youth offenders). For this reason, at times, the continuum seems arbitrary (Scott Fields, personal communication, July 18, 2005). The revision of the ROLES is intended to add greater precision to the measurement of restrictiveness of living environment. It is anticipated that this effort will benefit the research and outcome tracking of the wide range of organizations that use the current ROLES scale.

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[1] *The least restrictive setting on the ROLES is* Independent living. *Youth from some programs are encouraged to consider military service when they reach adulthood, as previous research has shown that youth who serve in the military after departure often have superior long-term outcomes (Elder, 1986). Because the restrictions and structure inherent in military service are substantively different than independent living, some agencies have added Military service to organization specific ROLES measures.*

Strategy for a Revised ROLES

The conceptual definition of restrictiveness used in this project is: *Restrictiveness reflects the ways in which adults in a child's or youth's life have anticipated the limits that need to be made for the child's safety, developmental, and therapeutic needs*. Rather than focus on rankings of program types (e.g. with parents, foster care, residential treatment centers), we started by developing a theoretically derived Restrictiveness Evaluation Measure (REM-Y). Our plan is to then have service providers rank their programs on these scales. Statistical analysis will be used to identify a short list of General Environment Types (GET). These general environment types will fall along a continuum from most restrictive to least restrictive just as did the initial ROLES list of program types, but the categories will hopefully be more reliable and based on aggregate ratings of actual programs. The GET approach will also allow for new program types to be added in the future.

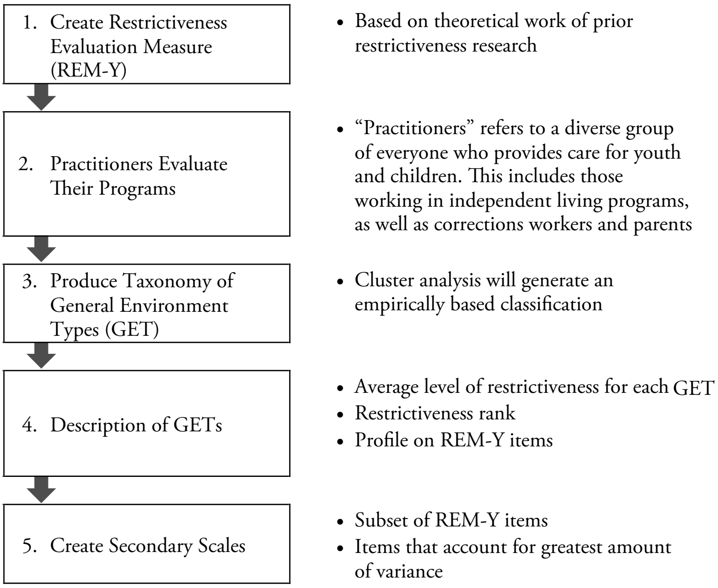
While the average level of restrictiveness for the GET based on empirically derived and actual practice based data will be useful, the average alone still doesn't overcome the overlapping distributions of restrictiveness problem. Because of this, we also propose that the REM-Y items that account for the greatest amount of variance in the original analysis be used by researchers and practitioners to rate actual programs and settings. The set of restrictiveness domains might include items such as "limits the frequency, variety and quality of interpersonal family relationships" and "limits personal choices," and would be based on the research on environmental restrictiveness. For example, the REM-Y items will allow us to differentiate the level of restrictiveness between different foster care programs. Similarly, this approach would be used to distinguish levels of restrictiveness within family settings (e.g., electronic detention and enforced curfews to conventional levels of youth autonomy), or jail settings (e.g., incarceration versus diversion programs). The average level of restrictiveness for each general environment description combined with the secondary measures will provide a far more comprehensive and accurate measure of the restrictiveness of the youth's environment.

We envision that the revised ROLES can be used in three important ways:

1. Youth movement from one level of restrictiveness to another can be tracked using GET values and rankings.
2. Restrictiveness Evaluation Measure (REM-Y) will provide greater discrimination between specific programs and settings.
3. The combination of the GET and REM-Y can be used to create a new and flexible taxonomy of program restrictiveness.

The first use for the revised ROLES will be as the current scale is widely used, which is to track youths' movement to more or less restrictive settings. This use reflects the common treatment goal of preparing youth for placement in a less restrictive environment. The empirically derived GET, because it is based on actual practice, will allow for greater accuracy in assessing major changes in restrictiveness when using restrictiveness of placement as an outcome. The second use comes through being able to accurately access a specific program's level of restrictiveness through the use of the REM-Y. This information can be used to compare the restrictiveness of a specific program to the average of the GET in which it falls, or to compare the level of restrictiveness for different programs within or between GET categories. This information can also be used to examine the relationship between restrictiveness and other important outcomes. The third use will be the ability to place new treatment approaches and living environments within a restrictiveness taxonomy through the use of the full REM-Y scale. Basically, this will entail taking the REM-Y profile for the new program and matching it to the closest cluster profile. Figure I shows the basic steps for the ROLES revision project. It outlines the temporal sequence of the project and how each step of the project builds upon the previous work.

Figure 1
Steps



Discussion

Participants provided feedback on the conceptual framework, the strategy, and the REM-Y. One identified concern was that individuals might view the less-restrictive response options for each REM-Y item as more socially desirable and therefore not approach the REM-Y as a purely descriptive instrument. In response to this we added a paragraph in the instructions stating that, in the REM-Y, there is no correct answer for any item and that programs should determine the appropriate level of restrictiveness based on policy and best practice standards. The participants also identified some additional areas for inclusion in the REM-Y such as distance from home/community and the degree to which time is structured. How age is considered in determining restriction and how restrictiveness changes over time were additional considerations raised by the participants. Individuals working in community based settings expressed the concern that the variety of home situations may make it difficult for community based workers to describe a "typical" home. Based on this issue, we have modified the REM-Y instructions to have respondents think about a specific youth in a typical family, and respond to the items as they relate to that particular individual. Based on these issues, we added a cognitive interviewing study of the REM-Y to the ROLES revision project plan. The goal of the cognitive interviewing study was to have approximately 20 practitioners form various treatment milieus complete the REM-Y and interview them on how they understood the items, used the response options, and if they felt any important issues had been omitted. In the next phase of the project, we will conduct a pilot study of the revised REM-Y and a preliminary analysis of the data.

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Measuring Relationship Quality in Systems of Care

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Introduction

Walker, Koroloff, & Schutte (2003) identified effective, collaborative relationships at the team, organizational and system levels as necessary conditions for high quality collaborative individualized service/support planning. Additionally, Pires (2002) emphasized the importance of relationships and effective collaboration in building systems of care. Understanding the quality of the relationships that exist among multiple systems, providers, family members, and community representatives is therefore critical to the success of local systems of care. The purpose of this paper is to describe the development and implementation of a survey process to measure relationship quality within the system of care in Marion County (Indianapolis), Indiana.

The Dawn Project was formed in 1997 to serve children with serious emotional disorders and their families. Since its inception, the Dawn Project has served nearly 1000 children and families by blending state and local funds and successfully implementing a Comprehensive Community Mental Health Services for Children and their Families Program grant from the Center for Mental Health Services (CMHS) that was awarded in 1999. Choices Inc., which is the care management organization that administers the Dawn Project, depends on its relationships with four local mental health centers, major child-serving agencies (e.g., child welfare, juvenile justice, education), and over 100 providers, staff, and family members to sustain the services provided through the Dawn Project.

Given the importance of the relationships that Choices and the Dawn Project have with partners, providers, and families, the Dawn Project identified a need to more fully understand and assess the quality of these relationships. Specifically, Dawn Project leaders believed that in order to continue to improve and to promote sustainability, they needed to understand which relationships they were managing effectively and which relationships needed further development. Thus, in 2002, Choices Inc. contracted with the Kensington Group, Inc. to develop a survey process to measure relationship quality.

The Kensington Group is a marketing research company that specializes in customer relationships. The president of the Kensington Group worked closely with Choices to create a model that captures relationship quality variables at both macro and micro system levels and links these variables to relationship decisions. As conceptualized in this model, relationship quality is related to individual-level satisfaction with the services received from and the interactions they have with the Dawn Project. Specifically, it is theorized that individuals who are more satisfied with their relationship(s) with the Dawn Project will rate the quality of those relationships more highly. The focus of the model and the survey process is on assessing those relationships that are essential to the overall administration of the system of care, rather than just on the clinical aspects of the system.

Method

Survey Development

Between May and August 2003, the Kensington Group conducted eleven individual qualitative interviews and two group interviews with key representatives of the system of care (i.e., individuals representing mental health, child welfare, juvenile justice, families, Dawn Project management and staff, and providers). These interviews were designed to identify the specific variables that contributed to the quality of relationships between the Dawn Project and its many system-level and service-delivery level partners.

Information obtained from the qualitative interviews was used to construct a survey that addressed both macro issues (i.e., issues that were common across system of care components) and micro issues (i.e., issues that were specific to the relationship between one aspect of the system and the Dawn Project) as defined in the model. The Dawn Project management team reviewed the survey to validate its overall structure and the macro and micro variables identified. Survey items used a 5-point Likert-type scale with strongly agree/strongly disagree, excellent/poor, and other anchors as appropriate for each question.

Implementation

The survey was programmed for administration via the Internet by Marketing Research Technologies. The Internet programming allowed the specific survey items viewed by each respondent to be customized to his/her level of involvement with specific components of the Dawn Project. The survey's Internet link was sent via email by the Choices CEO to 164 people in October, 2005. Respondents were given 14 days to complete the survey and received one email reminder after 7 days.

Data Analysis

The Kensington Group analyzed the survey data using Quantum (SPSS, Inc., 2004). Quantum is a survey tabulation tool used to summarize, analyze and present survey data. *T*-tests were conducted to examine differences in the percent of respondents responding with the top two response categories (e.g., strongly agree/agree, excellent/very good, extremely likely/very likely) of each item and the difference in mean items scores between respondent categories.

Results

A total of 75 completed surveys (out of 164 invitations) were received for a response rate of 45.7%. The majority of responses (56%) came from internal respondents (i.e., Dawn Project service coordinators, supervisors, management and Choices staff). Responses from external respondents (i.e., referral agencies, Dawn Project partners, consortium members, and the local family support organization) represented 44% of the responses received.

To illustrate the type of data available from the survey, responses given to the loyalty, image and success items are summarized in this paper. Responses to survey items that asked respondents to rate the quality of the processes (e.g., training, child and family team meetings, team meeting minutes, consortium meetings, and communications) and people (e.g., Dawn management team, supervisors, service coordinators, and providers) that make up the Dawn Project have revealed several strengths and areas for improvement for the Dawn Project and have been presented to Dawn Project partners (Sprague Effland, 2006).

One of the key components of the relationship quality model is the amount of loyalty respondents have to the Dawn Project. As illustrated in Table 1, respondents indicated that they were very likely or likely to recommend (84.9%), continue to support (93.2%) and increase support of (84.5%) the Dawn Project. The survey also asked respondents to rate items related to the overall image and success of the Dawn Project. The results suggest that the Dawn Project has an overall good image (see the image items listed in Table 1) and that the Dawn Project is successful overall and, specifically, in enhancing the quality of life for clients and for their families (see the success items in Table 1).

Table 1
Summary of Survey Responses on Loyalty, Image and Success Items

	Survey Item	*N*	%*
Loyalty Items	Likely to recommend the Dawn Project	62	84.9
	Likely to continue to support the Dawn Project	69	93.2
	Likely to increase Support of the Dawn Project	60	84.5
Image Items	Dawn is well funded	53	70.7
	Dawn is a strength-based project	69	93.2
	Dawn is innovative	66	88.0
	Dawn is a team-oriented project	71	94.7
	Dawn has knowledgeable people associated with the project	70	93.3
	Dawn understands client needs	61	82.4
	Dawn holds clients responsible	41	54.7
	Dawn is trustworthy	60	80.0
	Dawn recognizes the contribution of all team members	62	82.7
	Dawn is a good value for those who fund the program	62	82.7
	Dawn empowers all team members to act on the clients' behalf	56	74.7
	Everyone at the Dawn Project cares about the clients	56	75.7
	Dawn is a cost-effective project	59	79.7
Success Items	Enhancing quality of life for clients	55	78.6
	Enhancing quality of life for families	57	81.4
	Supporting clients in becoming self-sufficient	39	56.5
	Supporting families in becoming self-sufficient	41	59.4
	Making efficient use of resources	41	59.4
	Overall success of the Dawn Project	54	76.1

*The data in these columns represent the percent of respondents who responded with one of the top two response categories for that item (i.e., extremely likely or very likely for the loyalty items; strongly agreed or agreed for the image items and excellent or very good for the people and process items).

Conclusion

The ability to assess the quality of the relationships that are central to the success of local systems of care is important to effectively managing a large, community-wide collaborative process. The survey process discussed in this paper has provided the Dawn Project with a wealth of data to inform internal quality improvements, training, contracting with providers, relationship management, communication strategies and other activities. Lessons learned from the development and implementation of the relationship quality survey can be used by other communities as they work to build and sustain their local systems of care.

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Measuring the Quality of the Relationship Between Youth and Treatment Parents in Therapeutic Foster Care: Understanding the Role of the Therapeutic Relationship in Community-Based Services

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Introduction

Therapeutic Foster Care (TFC), a community based mental health treatment intervention for children with severe emotional and behavioral disorders, is emerging as an important and widely disseminated evidence-based practice (Chamberlain, 2002). A key feature of TFC is specially trained foster parents, called treatment parents, who provide care and treatment for troubled youth in their home on a 24/7 basis (Farmer, Burns, Dubs, & Thompson, 2002). The treatment parent in TFC fulfills dual roles: (1) the parent role of nurturing and taking care of the child's basic needs; and (2) the treatment role, directly implementing treatment interventions with the youth (Wells, Farmer, Richards, & Burns, 2004).

The therapeutic relationship is increasingly recognized as important to understanding how process variables in child treatments contribute to treatment outcomes. Recent empirical evidence demonstrates that the relationship between youth and their treatment providers predict treatment outcomes. Shirk and Karver (2003), in a meta-analysis of 23 studies, show that the association between relationship variables and treatment outcomes are "robust and consistent." An underlying assumption of TFC is that the relationship between the treatment parent and child is a therapeutic one. Given the distinct role of the treatment parent in TFC, the therapeutic relationship is a critical process factor in this treatment setting that needs closer examination.

Little of the research on the therapeutic relationship, however, is based on community treatments, such as Therapeutic Foster Care. Likewise, the literature on parent-child relationships, which has clearly demonstrated the importance of a quality relationship to positive emotional, psychosocial and academic functioning, does not address the therapeutic role of the relationship between treatment parent and troubled youth.

The research presented here provides a unique perspective on the relationship between children in Therapeutic Foster Care (TFC) and their treatment parents and begins to bridge work on parent-child relationships and therapeutic alliance. We present research on findings from a promising measure of the therapeutic relationship in community based settings, called the Trusting Relationship Questionnaire, which was used in a large, randomized controlled trial of Therapeutic Foster Care. We report on the association of the quality of the parent-child relationship as measured by the TRQ with child outcome measures in a Therapeutic Foster Care setting.

Methods

Instrument

The Trusting Relationship Questionnaire (TRQ) consists of 18 items on the adult version and 16 items on the child version that assesses the quality of the relationship between the youth and the professionals or paraprofessionals involved in their care. Respondents indicate on a 5-point continuum (1 = *never* to 5 = *very frequently*) how each item characterizes their relationship with the target individual. Previous psychometric analysis of the TRQ, reported elsewhere (Mustillo, Dorsey, & Farmer, 2005) is briefly summarized here.

Reliability was gauged by internal consistency (e.g. Cronbach's alpha) and inter-rater agreement. Construct validity was assessed by the degree of association between TRQ and Conflict Behavior Questionnaire (CBQ) scores. The short form of the (CBQ) was administered to assess communication and conflict behavior; adequate internal consistency and discriminate validity for the CBQ has been reported (Robin & Weiss, 1980). Concurrent validity was assessed by the degree of association between adult reported TRQ scores and child functioning, as measured by the BERS (see description below). Tests of reliability suggest that the TRQ possess acceptable levels of internal consistency and inter-rater reliability. Construct and concurrent validity was demonstrated with significant correlations. Factor analysis identified two factors within the adult-administered TRQ, which is used in the study reported here. The first factor measures the parent's perception of the child's feelings about their relationship, and the second factor measures the parent's own perception of or feelings about the relationship.

Sample

Data are from an NIMH-funded study of Therapeutic Foster Care (TFC) in North Carolina (Farmer, Wagner, Burns, & Richards, 2003). The sample for testing the association between the TRQ and child functioning was drawn from youth with psychiatric disorders and aggressive behavior who resided in TFC from June 1999 through May 2001 ($N = 184$). In-person interviews were completed with youth and TFC parents at study entry and near the time of discharge from placement.

Measures

Child functioning, the outcome variable reported here, was measured with the Behavioral and Emotional Rating Scale (BERS). The BERS is a structured instrument that measures child and adolescent emotional and behavioral strengths, through parent or caregiver report (Epstein, Mooney, Ryser, & Pierce, 2004). The BERS consists of 53 items and includes five subscales: interpersonal strengths, family involvement, intrapersonal strengths, school functioning, and affective strengths. Higher scores on the BERS represented better functioning. Research has shown the reliability and validity of the BERS to be sound (Epstein, et al, 2004).

Measures of both child and adult demographic characteristics and child pre-treatment characteristics are included. Child demographic measures were race (Black or White) and age. The only treatment parent demographic measured was race (Black or White). Additionally, we controlled for child mental health status at intake, child length of time in TFC, and whether the parents see themselves more as a parent or a treatment professional in their relationship with the child.

Analyses. Association between the therapeutic relationship and child functioning as measured by the BERS was assessed with a multivariate regression model, controlling for child and treatment parent characteristics, and other related variables. Because the BERS was a continuous variable with an approximately normal distribution, we used OLS regression for these analyses.

Findings

Descriptive statistics of study variables are provided in Table 1. Forty percent of the entire youth sample was Black and over three-quarters were male. About half the TFC parents were Black. Ages of the entire youth sample ranged from 4 to 19, with the majority of children in the 13-15 and 16-19 age groups. The mean time spent in TFC at the time of the interview was 546 days or about 18 months. The mean pre-treatment Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1988) score was 66. The majority of treatment parents viewed their role as closer to that of a parent rather than a professional.

Results of the regression analysis are shown in Table 2. None of the child and parent demographics was significant. The treatment parents' perception of their role significantly predicted child functioning outcomes. Children in TFC families where the treatment parents viewed their role as predominantly parenting-oriented, as opposed to viewing themselves as predominantly treatment providers, had higher BERS scores. Finally, the first factor of the relationship scale (i.e., the parent's perception of the child's feelings about their relationship) predicted improved child functioning. Children who were viewed as having a more positive relationship with their treatment parent had significantly better BERS scores.

Table 1
Descriptive Statistics of Study Variables

Client Pre-Treatment Characteristics	*% or m*
Black	40.98
Male	74.32
Age	
4-12	23.50
13-15	39.34
16-19	37.16
Time in TFC (days)	545.69 (557.36)
Proxy BPRS	66.27 (17.67)
Parent Characteristics	
Parent race = Black	51.10
Previous TFC experience	26.52
Any training	93.92
Mtgs with supervisor	75.56
Satisfaction with supervisor	
Not at all Satisfied 0	2.79
1	5.03
2	4.47
3	20.11
Very Satisfied 4	67.60
Perception of Role	
Primarily Professional Role 1	5.36
2	8.33
3	36.90
4	26.79
Primarily Parent Role 5	22.62
Parent-Child Relationship	
TRQ - F1	3.47 (0.77)
TRQ - F2	3.84 (0.62)

Table 2
Association of Study Variables with Child Functioning

Client Characteristics	*b*	*se*
Black	4.48	4.96
Male	-2.15	3.77
Age		
13-15	-1.40	4.18
16-19	3.78	4.30
Time in TFC	0.001	0.003
BPRS	-0.104	0.97
Parent Characteristics		
Parent race - black	3.93	4.93
Training/Adherence		
Previous TFC experience	0.51	3.58
Any training	-5.81	4.01
Mtgs with supervisor	0.42	6.73
Satisfaction w/ supervision	3.03	1.63
Relationship		
Parent or professional	4.30	1.52*
TRQ - F1	17.05	3.09**
TRQ - F2	-0.23	4.14

* = ≤ .01 ** = ≤ .001

Conclusions

The TRQ appears to be a psychometrically sound measure of the quality of the therapeutic relationship between youth with behavioral and emotional disorders and their community-based care providers. The TRQ appears to capture the quality of the relationship between treatment parents and youth in their care, and is at least moderately associated with child treatment outcomes, thus providing an important measure to bridge the gap in the literature on the role of the therapeutic relationship in TFC.

Further research is needed to ascertain if there are other mediating factors that explain the effect of the relationship processes on the outcomes. Also, this study needs to be replicated with a larger sample that provides longitudinal data on the effect of the relationship on outcomes over time.

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Use of a Strengths-Based Measure of Parenting Skills to Promote Collaborative Treatment Planning

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Introduction

The Caregiver Wish List is a self-report, strength-based measure that was designed to help caregivers assess their skills across six domains of parenting functioning: providing direction and following up, encouraging desirable behavior, discouraging undesirable behavior, monitoring activities, connecting positively with the child, and problem solving. The purpose is to foster a therapeutic alliance between the caregiver and practitioner, facilitate clarification of treatment goals, and frame treatment as coaching by a knowledgeable mentor. Data from families who were referred to child protection services are presented.

Background

Impairment in the youth's caregiving environment was found to be a significant predictor of poor outcome with treatment-as-usual for youths with behavioral problems who were served in Michigan's public mental health system (Xue, Hodges, & Wotring, 2004). Another significant predictor was cross-setting behavioral problems (e.g., in the home and at school) (Xue et al., 2004). Additionally, approximately 54% of the Michigan's youths with serious emotional disturbance could be described as having behavioral problems (Hodges, Xue, & Wotring, 2004). The rates of successful outcomes for these youths ranged from 38% to 59%, depending on the outcome indicator used, despite an average 11 months of services (Hodges et al., 2004).

These findings are consistent with the literature, in which it has been shown that cross-setting behavioral problems predict continued antisocial behavior and that serious behavioral problems are fairly stable from childhood to adolescence (Dishion, 2000; Loeber & Dishion 1984). Furthermore, studies on the efficacy of parent management training have demonstrated that improvement in parenting practices is associated with reduced noncompliance in the home (Forgatch, DeGarmo, & Beldavs, 2005; Martinez & Forgatch, 2001) and reduced teacher-reported behavior problems in school (Forgatch & DeGarmo, 1999; Forgatch et al, 2005).

Although changing parenting skills is known to be paramount to reducing behavioral impairment in youths, there is a paucity of measures to assess parents' skills at managing difficult behavior in youths. In this paper, the Caregiver Wish List (Hodges, 2002; Hull, 2005), a recently developed measure for assessing parenting skills, is described and preliminary data are presented.

The Caregiver Wish List is a strengths-based measure that asks the parent to report on skills identified as critical to changing the behavior of youths with serious emotional disturbance. The intent is to encourage parents to regard themselves as the main agents of change for their child and to view parenting skills as behaviors that can be learned from a knowledgeable coach.

Furthermore, the procedures for administering the measure and sharing the results with parents are intended to promote a collaborative relationship between parent and practitioner. The aim is to empower parents while maximizing their genuine "buy in" for addressing the treatment goals identified.

Method

Subjects

Data were collected from 36 families participating in treatment as a part of reunification services after their children were returned following court-ordered out-of-home placement due to neglect or abuse. All subjects were recruited through KVC Behavioral Health, a non-profit agency serving 22 counties in Kansas. KVC provides all of the foster care/reintegration services to families that require immediate out-of-home placement for their children due to child abuse or neglect. Part of the reunification process was participation in a home-based treatment program where parent management training was a focus.

The ethnic makeup of the sample was as follows: 47.2% Caucasian, 38.9% African American, 8.3% Hispanic, and 5.6% Multi-Racial. Caregivers were predominantly mother-figures (80.6%) and over half of the families consisted of a single parent (61.1%). Twenty-one of the caregivers had a high school diploma or GED and 18 of the caregivers had a history of out-of-home placement as youths.

Measures

The Caregiver Wish List (Hodges, 2002; 2005) is comprised of two sections: The Wish List for Your Child, and The Wish List for You. The Wish List for Your Child includes 14 items inquiring about the child's behavior and the Wish List for You has 53 items, inquiring about parenting behaviors. In the analysis in this study, a higher score on the measure for the child indicated more problems, and for the measure of parenting, a higher score indicated more skillful parenting.

The Caregiver Wish List is designed so that caregivers can see how their answers "map" onto the parenting skills. The parents' answers transfer onto an "answer key," which specifies the skill that was assessed by each question, enabling the parent to see exactly which of the behaviors they reported are considered areas of strength versus which need improvement.

In addition, after answering all of the items on the Caregiver Wish List, the caregivers are asked to identify their three "top wishes or goals." This provides the caregivers an opportunity to determine the skills they are most interested in improving or acquiring.

Procedures

Caregivers in each family completed the Caregiver Wish List at the outset of services. Practitioners read the questions to caregivers, who marked their responses on their copy of the form. In addition to scores on the Caregiver Wish List, data on specific risk factors were collected. Risk factors included: the number of out-of-home placements for the child, parental history of out-of-home placement, unstable parental employment history, and parental education.

Results

To examine internal consistency, Chronbach's Alpha was computed for both the Wish List for You ($\alpha = .914$) and the Wish List for Your Child ($\alpha = .833$). There was a significant correlation between the Wish List for You and the Wish List for Your Child, with more skillful caregivers reporting fewer problems with their children ($r = -.516$, $p < .001$, $n = 36$).

No significant relationships were found between the Wish List and demographic factors including caregiver gender, age, or ethnicity. Significantly poorer parenting skills were reported by parents who had more out-of-home placements as children ($r = -.48$, $p < .005$, $n = 33$); had an unstable employment history ($r = -.49$, $p < .005$, $n = 33$); or had lower educational attainment (i.e., did not complete high school diploma or GED; $r = .42$, $p < .025$, $n = 28$). On the Skill Wish List for Your Child, parents reported more behavioral problems for children who experienced more out-of-home placements ($r = .45$, $p < .005$, $n = 36$).

On the Wish List for Your Child, parents reported noncompliance to parental commands and poor response to correction as the most common behavioral challenges that they experience with their children (see Figure 1). On the Skill Wish List for You, parents reported the most difficulty with discouraging undesirable behavior, while they believed they were most successful in connecting with their kids (see Figure 2).

Figure 1
Results from Wish List for Your Child

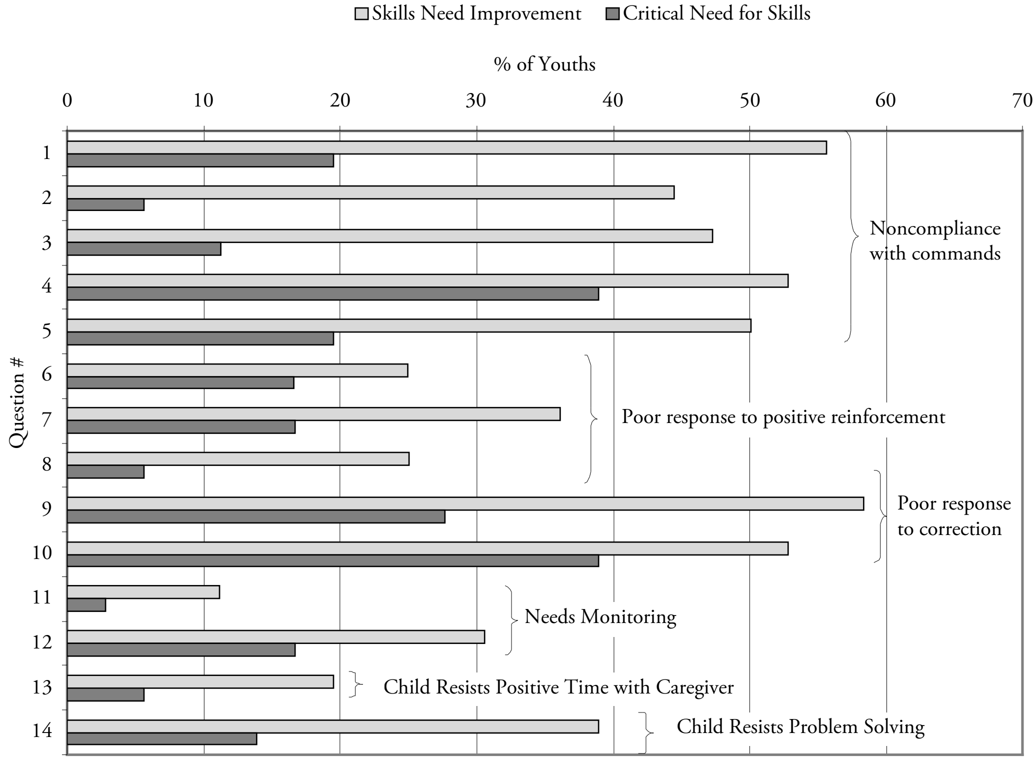
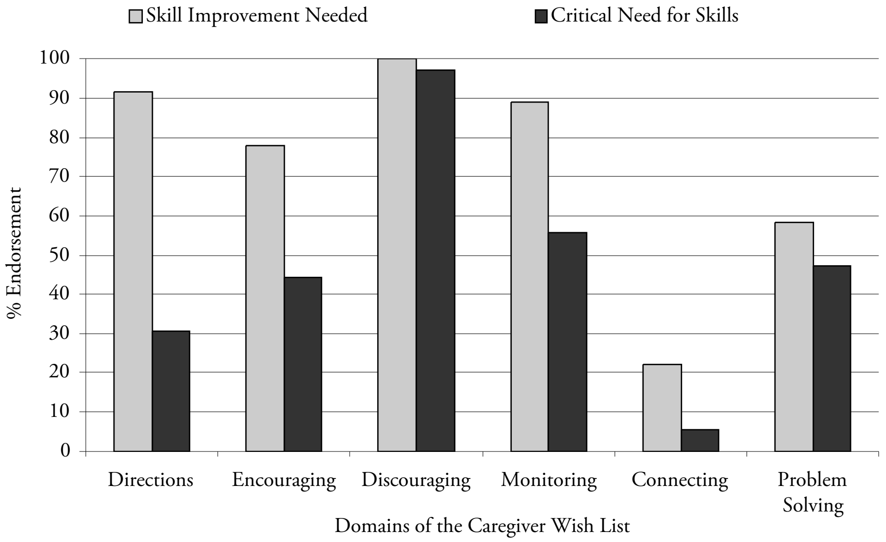


Figure 2
Results from Wish List For You

Percent of Caregivers Endorsing One or More Items at the Midpoint or Below (i.e., Skill Improvement Needed) and Below the Midpoint (i.e., Critical Need for Skills) for the Caregiver Wish List Domains



Discussion

The caregivers in this study reported on their perception of their parenting strengths and deficits as well as on problems they were having with their children. It is encouraging that the parents reported a high level of problems and need for skill improvement, given that assuming a defensive posture would have been understandable given their circumstances. These parents likely need to be mentored by a highly skilled practitioner who is able to teach them "advanced child management skills" (Hodges, 2004), given the challenges presented by the children and the harsh contexts in which many of them live. In the hands of skillful and strengths-based practitioners, the Caregivers Wish List may have been helpful in reframing their view of therapy as a mentor-apprentice relationship.

The Caregiver Wish List empowers parents by providing a mechanism for parents to identify treatment goals and to give direction to practitioners regarding their needs for coaching and mentoring. Improving their skills in managing their children's difficult behavior enables parents to keep their children in their own home while not sacrificing the quality of life of other family members. It can also help practitioners to focus on strengths in the context of a working partnership with parents.

The results presented here should be interpreted within the context of the study's limitations, particularly the small sample size. Given the encouraging results of this pilot study, study with a broader range of both clinical and non-clinical subjects is warranted.

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The Service Process Adherence to Needs and Strengths (SPANS): Extending the CANS

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Introduction

The Service Process Adherence to Needs and Strengths (SPANS) was designed to be used in conjunction with the Child and Adolescent Needs and Strengths (CANS; Lyons, Sokol, & Lee, 1999) to determine the degree to which needs and strengths identified in the CANS were being addressed or used in service planning and delivery. This paper describes the development of the SPANS in Alaska, a pilot study conducted in Pennsylvania, and its application in Florida. Recommendations for further development of the instrument and discussion of future applications are also addressed.

The CANS is a tool that can be used prospectively for planning and retrospectively to review treatment decisions. The CANS assesses child and family needs and strengths across life domains. Used alone, the CANS can be administered at admission and periodically thereafter to determine if needs are decreasing and strengths are increasing.

While the CANS is designed to monitor the progress of children and families, it does not provide insight into *why* a child and family are not making progress. A measure was needed to examine the fidelity of service delivery to the assessment and planning processes. Like the CANS, the SPANS can be used to monitor the services of an individual child and family or can be aggregated at the agency or system levels for quality improvement. Thus, SPANS findings could be used to design training programs for individual service providers, to help programs and agencies prioritize budget allocations for services, and for communities working to identify priority areas for building infrastructure and implementing a philosophy of care.

Method

Two groups in Alaska and Pennsylvania, who were already using the CANS, worked to develop a tool that could reliably guide treatment, monitor service quality, and assess the development of their systems of care. To fill this gap, the two communities decided that an enhancement to the CANS was needed to better understand why children and their families were not making the progress anticipated. The question of interest was whether and how the CANS could be modified or extended to measure the fidelity of service delivery to assessment and planning. The drive to answer this question resulted in the development of the Service Process Adherence to Needs and Strengths (SPANS). The SPANS was subsequently refined and used in an evaluation of behavioral health overlay services provided to youth in child welfare group homes and moderate level juvenile justice facilities.

Instrument Description – Service Process Adherence to Needs and Strengths

The items in the CANS needs domains are scored from 0 = *No intervention necessary*, to 3 = *Immediate or intensive intervention is needed.* Items in the strengths domains are also rated on a scale of zero to three but are scored in the opposite direction with “0” indicating *The presence of a strength that can be used at the center of a service or treatment plan* to 3 = *The absence of a strength* in this area. The item scores from the CANS are then recorded on the SPANS. All “2”s and “3”s in the needs domains and all “0”s and “1”s in the strengths domains are considered the “target domains” that should be addressed in plans and in service delivery. Records are reviewed to see how these target need areas are being addressed or how strengths are being used in services. At the conclusion of the record review, the rater assigns a score of 1-5 with 1 = *reflecting low levels of implementation* and 5 = *reflecting high levels of implementation.* An outcome score is assigned to each item reflecting whether the child and family had made progress in that area while receiving services. This outcome summary uses a three point scale scored 0 = *Services rarely/never contributed to positive outcomes*, 1= *Services partially contributed to positive outcomes*, or 2 = *Services mostly/fully contributed to positive outcomes*.

Results

Pilot results

Once the instrument's design was determined, the SPANS was used to review the files of children and families enrolled in the Alaska Youth Initiative. Two raters reviewed seven cases. Reliability was examined using the Cohen's kappa and *memoing*, a qualitative technique, to describe the process of arriving at a SPANS score. Throughout the pilot, the SPANS was adapted, reflecting input from raters and group discussion. It was simplified in content and a common language was formed that was clearly demonstrated through the resolution process at the end of each case where both raters exchanged their reasons for choices. In all but a few occasions the raters agreed on a common outcome for each answer. Staff were able to attain reliable ratings of 0.8 after review of three to four cases (Slieffert, 2001). This study, though limited in scope, took a solid step towards the creation of a useful, effective SPANS tool.

The refined SPANS was then used in Pennsylvania as part of a records audit. Audit results showed that the array of services available to children and families was not adequate to address their identified needs. These data were shared with the local managed care company to advocate for expansion of the service array and greater access. Results also indicated that, while identified, strengths were not being used consistently in implementing service plans.

The SPANS was next applied to a larger sample in a statewide evaluation of behavioral health services for children and youth in child welfare group homes and juvenile correctional facilities in Florida. As part of this evaluation (Dollard, Dailey, & Dhont, 2004), 198 case record reviews were conducted. The purpose of the review was to determine the amount and types of services youth received, who was providing these services, appropriateness of these services, consistency of services with the youth's treatment plan, and outcomes for youth served.

The large amount of information gathered for these youth necessitated summary ratings for each of the needs and strengths domains to reflect whether services could be described as *mostly or fully implemented*; *partially implemented*; or *low or not implemented* for an individual youth and family.

Select Findings – Substance Abuse Complications

Chi square analyses were used to investigate the relationship between the presence of youth strengths, as identified through the CANS administered at baseline, and the degree to which these strengths were addressed in service plans and case documentation, measured in the SPANS. Significant differences between youth served in child welfare and juvenile justice were observed for all items in the CANS Substance Abuse Complications Subscale (see Table 1). Summary scores were then calculated for the subscale. This summary score was then used in chi square analyses to assess whether substance abuse problems identified in the admission CANS were addressed in treatment plans and other case documentation. Significant differences ($\chi^2 = 27.07$; $p < .001$) were observed in how well identified substance abuse needs were addressed in treatment (see Table 2). Youth in juvenile justice with identified substance abuse issues ($n = 73$) were more likely to have their issues addressed in treatment with moderate to high degrees (56.2%, $n = 41$) than their counterparts in child welfare (6.3%, $n = 2$). Confirming findings in the Pennsylvania pilot, findings from these analyses also suggest that lower levels of implementation appear to be associated with lower degrees of progress towards treatment goal attainment ($\chi^2 = 88.26$; $p < .0001$) in the Substance Abuse Complications Domain (see Table 3).

Table 1
Substance Abuse Complications–Percent of Youth with CANS Scores of Moderate or Severe Need

	JJ (*n = 101*)	*CW* (*n = 97*)	*Significance*
Severity of Abuse	57%	10%	χ^2= 75.8; $p < .01$
Duration of Abuse	50%	7%	χ^2= 103.5; $p < .01$
Stage of Recovery	55%	10%	χ^2= 32.9; $p < .01$
Peer Involvement in Substance Use	50%	9%	χ^2= 50.7; $p < .01$
Parental Involvement in Substance Use	53%	41%	χ^2= 8.0; $p < .05$

Table 2
Substance Abuse Complications Fidelity

	CW (n=32)		*JJ (n=73)*	
	N	*%*	*N*	*%*
No fidelity	19	59.4%	13	17.8%
Low fidelity	3	9.4%	6	8.2%
Partial fidelity	8	25.0%	13	17.8%
Moderate fidelity	0	0	18	24.7%
High fidelity	2	6.3%	23	31.5%

χ^2 = 27.07; $p < .001$

Table 3
Relationship of Outcomes and Fidelity in the Substance Abuse Domain (*n* = 103)

	Substance Abuse Treatment Fidelity				
Outcome	*None*	*Low*	*Partial*	*Moderate*	*High*
Services rarely contributed to positive outcomes	28 (27.2%)	4 (3.9%)	5 (4.9%)	1 (1.0%)	0
Services partially contributed to positive outcomes	4 (3.9%)	5 (4.9%)	11 (10.7%)	6 (5.8%)	2 (1.9%)
Services mostly contributed to positive outcomes	0	0	5 (4.9%)	11 (10.7%)	21 (22.3%)

χ^2 = 83.3; $p < .001$

Conclusion

Based on the experience in Florida, there are possibilities for enhancing the SPANS. The addition of SPANS measures for caregivers in the areas of parental mental illness and substance abuse, particularly for child welfare populations, is suggested. As observed both in Pennsylvania and Florida, youth appeared to be making progress, but unaddressed issues among their caregivers likely mitigated against the youth's ability to make maximum progress, and for children involved with child welfare, their ability to return to their caregivers.

A second suggestion is to add implementation codes to determine whether services were provided with the recommended frequency and intensity and, where services were discontinued prior to discharge, the reasons why services were discontinued. Information could also be recorded to identify whether discontinuation was due to family factors such as caregiver request, agency factors such as staff turnover, or system factors like changes in funding. This addition is recommended so that barriers to implementation can be systematically captured and reported to either an individual staff member, so that their work with families might improve, at the agency level so that staff development efforts can be tailored to the specific needs and strengths of personnel, or to system managers who need to be aware of when needed services are not in sufficient supply.

Further work is planned to investigate the relationship between outcomes and fidelity by using more rigorous outcome measures than those used in the Florida study. Next steps include using the CANS, the SPANS and the Child Behavior Checklist (Achenbach & Rescorla, 2001) in a future study of residential treatment options in Florida. Further work is also planned to identify empirically derived cutoff scores for low, partial, and high levels of implementation using the SPANS.

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Multilevel Analysis of Interagency Collaboration of Children's Mental Health Agencies

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Introduction

Recent reforms in mental health service delivery have emphasized interagency collaboration as an important element in providing services to children with serious emotional disturbance. In the past two decades, the call for collaboration among organizations has increased as recognition has grown that many important problems associated with children being served by multiple agencies (e.g., service fragmentation, gaps, barriers) cannot be resolved effectively by a single entity working alone (Salmon, 2004).

One approach to the study of interagency collaboration has been to operationally define this construct using organizational practices and activities as indicators of interagency collaboration. With this approach, several issues related to research design emerge. These include how researchers should collect data about these activities and how these data should be analyzed. A common strategy has been to survey multiple informants within an organization to obtain information about what the organization is doing.

Data collected using this strategy frequently has been analyzed using two different methods. The first method focuses on the individual and ignores clustering of individuals within the organization. The second method assumes that there is sufficient intersubjective agreement among individuals within the organization to aggregate individuals' responses to provide a descriptive measure of the organization.

Each method is problematic. The first method ignores the nesting of individuals within organizations, thus violating the statistical assumption of independence. This violation leads to underestimated standard errors and inflated type I errors (i.e., concluding that there are statistical effects that in fact do not exist). The second method also is problematic because it ignores the potential variability that may exist within organizations. If this within-organization variability is systematically related to characteristics of individuals within the organization and is not taken into account, estimates of relationships between organizational characteristics will be biased.

With recent advances in statistical theory and computational algorithms, these problems can be overcome using statistical techniques referred to as multilevel modeling. Multilevel modeling used in this study provides a methodology for investigating two or more levels of analysis, and partitioning the total variability of scores into within- and between-unit components.

Method

Sample of Agencies and Respondents

Thirty-two child-serving mental health agencies, recruited at a national conference and through personal contacts, agreed to participate in the study, with 23 from California, 6 from Michigan, and 3 from Ohio. Once agencies were selected, employees of the agencies were recruited with the assistance of a site coordinator, who received instructions for delivering, administering, collecting, and returning the surveys.

Three hundred and seventy eight adult professionals agreed to participate. The 104 administrators, 201 service providers, and 73 case managers were primarily female (74%) and White (60%; Hispanic, 27%, African American, 5%; Asian American, 4%; Native American, 1%, Mixed, 1%; Other, 3%), with a mean age of 41.18 years (*SD* = 11.13). The mean length of employment was 65.74 months (*SD* = 70.94).

The sample consisted of 4% with less than a bachelor's degree, 14% with a bachelor's degree, 74% with a master's degree, and 8% with a post-master's degree (e.g., doctorate). The distribution of participants at the various agencies ranged from 1 to 53, with the mean number by agency equal to 11.81.

Instruments

Interagency Collaboration Activities Scale** (IACAS; Greenbaum, Lipien, & Dedrick, 2004)**. Interagency collaborative activities in the areas of Financial and Physical Resources, Program Development and Evaluation, Client Services, and Collaborative Policies were measured with 17 items. All items were measured on a five-point scale ranging from *Not at all*, 1, to *Very much*, 5. Attitudes Toward Interagency Collaboration were measured with five items. Items were scaled from *Strongly disagree*, 1, to *Strongly agree*, 5. Items covered the perceived benefits and barriers to collaboration and were averaged to form an overall attitude score.

***System of Care Practice Review-Self-Report** Form (SOCPR-SR).* Based on Hernandez et al. (2001), the System of Care Practice Review-Self-Report Form (SOCPR-SR), consisting of 11 items, measured an organization's adherence to the core principles of systems of care at the level of practice. All items were measured on a five-point scale ranging from *Strongly disagree*, 1, to *Strongly agree*, 5.

Characteristics of the agency. Four agency characteristics were examined. The first characteristic was the agency's attitude toward collaboration. This organizational climate variable was created by averaging individuals' personal attitudes toward interagency collaboration into an agency-level variable. The next two characteristics were similarly constructed organizational measures of the extent to which the agency's practices were: (a) child-centered, family-focused and community-based, and (b) culturally competent. These variables were created by averaging the scores from the SOCPR-SR for individuals within each agency. The fourth agency level variable was the state where the agency was located.

Multilevel Analyses of Interagency Collaboration Activities. All multilevel analyses were conducted using HLM 6 software (Raudenbush, Bryk, Cheong, & Congdon, 2004). These analyses were done in stages. In the first stage, an unconditional model was specified in which no predictors were used. From these analyses, the intraclass coefficient (ICC) was computed by examining the variability *between agencies* relative to the total variability. In the next stage, characteristics of the individual respondents were entered into the model as level-1 predictors. In the final analysis stage, level-2 predictors were added to the existing models.

Results

Research Question 1: Within-Agency Variability in Interagency Collaborative Activities and Individual Characteristics

Results from the unconditional multilevel models were used to obtain the estimates of the intraclass correlation coefficients (ICC) for each activity scale. Higher ICC values indicate greater dependence or agency clustering of responses (maximum ICC = 1.0). Clustering effects were greatest for Collaborative Policies (ICC = .204), followed by Financial and Physical Resources (.196), Program Development and Evaluation (.106), and Client Services (.083). These ICC values indicated that there was substantial variability in participants' responses within agencies and also significant (*ps* < .05) variability among agencies.

Within-agency variability was examined using a level-1 model for each of the interagency collaboration activity scales and included the following individual-level predictor variables: (a) age, (b) length of time in the organization, (c) job role (administrator, case manager, and service provider), (d) gender, and (e) educational level.

Multilevel analyses at level-1 were done in two stages. First, each predictor was entered by itself as a level-1 predictor. Subsequently, a final model that included all level-1 predictors was examined.

Results of the series of single predictor models indicated that older respondents reported significantly lower levels of Financial and Physical Resources and Program Development and Evaluation, and those with more education reported less Program Development and Evaluation. The results of Model 1 that included all level-1 predictors indicated that when the other level-1 variables were statistically controlled, age and education were no longer significantly related. These results illustrate that as with traditional multiple regression techniques, effects of predictor variables may change as a result of what variables are in the model and are statistically controlled.

Research Question 2: Between-Agency Variability in Interagency Collaborative Activities and Agency Characteristics

To address this question, the level-2 predictors were added to the models that also included the level-1 predictors. Results of Model 2 indicated that agencies that had positive attitudes toward interagency collaboration had significantly higher levels of interagency collaboration in all four areas of collaboration. For the two system of care variables, Child-Family-Community was significantly related only to Program Development and Evaluation and Cultural Competence was not significantly related to any of the activities.

Discussion

Results from the multilevel analyses revealed substantial within-agency variability in employees' reports of the interagency collaborative activities within their agencies. Participants' age and educational level accounted for significant amounts of the within-agency variability. Notwithstanding these significant relationships, there still remained substantial unexplained within-agency variance. Future research will need to consider other employee variables that may account for this variance.

Results of the level-2 analyses indicated significant variability across agencies, with some activities exhibiting greater between-agency variability (Collaborative Policies and Financial and Physical Resources) than others (Program Development and Client Services). A key explanatory variable was the agency's attitude toward interagency collaboration. Agencies that had more positive attitudes were more actively involved in collaborative activities. While the system of care variable Child-Family-Community was positively related to all four types of collaboration and Cultural Competence was positively related to all except Collaborative Policies, greater adherence to these practices was significantly related to only one type of activity—Program Development and Evaluation.

The results of the present study need to be viewed as preliminary given limitations in the study design. One limitation was that neither agencies nor employees were randomly selected. Therefore, generalizability of the results will need to be viewed with caution. Finally, the multilevel approach used in this study can be expanded to incorporate outcome measures. This approach would connect process and outcomes and provide the evidence-base to inform interagency collaborative practices and policies.

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