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ORIGINAL PAPER

A Survey of the Infrastructure for Children's Mental Health Services: Implications for the Implementation of Empirically Supported Treatments (ESTs)

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Abstract A structured interview survey of directors of a large national sample ($n = 200$) of mental health service organizations treating children examined the governance, financing, staffing, services, and implementation practices of these organizations; and, director ratings of factors important to implementation of new treatments and services. Descriptive analyses showed private organizations financing services with public (particularly Medicaid) funds are prevalent and that employment of professional staff, clinical supervision and training, productivity requirements, and outcomes monitoring are common. Results of random effects regression models (RRMs) evaluating associations between governance, financing, and organizational characteristics and the use of new treatments and services showed for-profit organizations more likely to implement such treatments, and organizations with more licensed clinical staff and weekly clinical supervision in place less likely to do so. Results of RRMs evaluating relations between director ratings of the importance to new treatment and service implementation of three factors—fit with existing implementation practices, infrastructure support, and organizational mission and support—suggest greater importance to public than private organizations of these factors. Implications for EST implementation and future research are described.

Keywords Children's mental health services · Service system infrastructure · Clinics and systems · Research network on youth mental health

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The implementation of effective mental health treatments and services in community settings are public health priorities (Department of Health and Human Services 2006). As reflected in the conceptual model guiding the child STEPs initiative (see Fig. 1), dynamic influences on the implementation of effective treatments likely reside at the level of the service system, implementing organization, individual practitioner, consumer (i.e., families or youth), and treatment or service itself (Compton et al. 2005; Ferlie and Shortell 2001; Grol and Grimshaw 1999). National studies of such influences on the implementation of empirically supported treatments (ESTs) in the substance abuse service

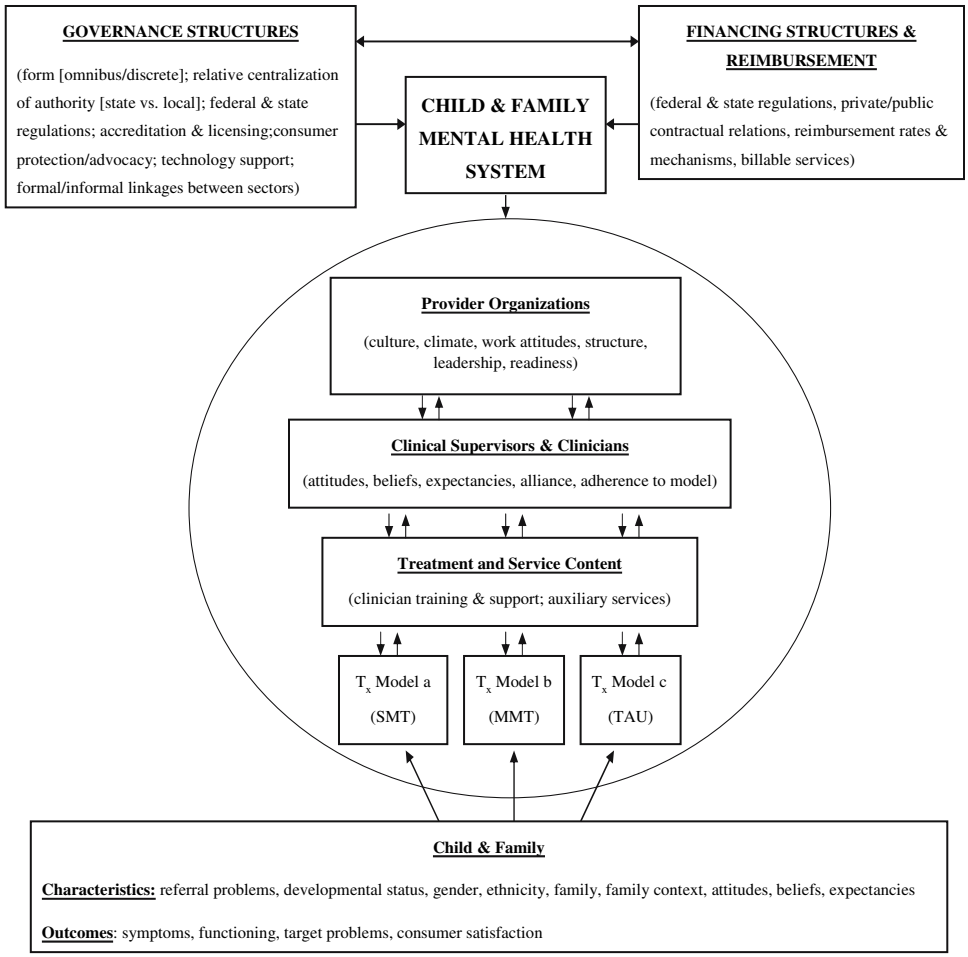

Fig. 1 Conceptual model for the MacArthur research network on youth mental health child STEPs initiative on evidence based practice in clinics and systems

*Adapted from Bernfield, Blasé, & Fixsen, 1990; Hohmann, 1999, Schoenwald, & Hoagwood, 2001.

sector are underway (see, e.g., Heinrich and Fournier 2005; Knudsen and Roman 2004; Roman and Johnson 2002), but similar studies are lacking in the mental health service sector. Thus, little is known about the nation's infrastructure for children's mental health services (CMHS), the capacity of that infrastructure to support the implementation of (ESTs), and factors affecting that capacity.

The structured interview survey study described here provides a snapshot of the community-based CMHS infrastructure—provider organizations and the service systems within which they are embedded—across the country. That infrastructure is pertinent to the design and testing of strategies to facilitate the implementation of empirically supported treatments (ESTs) for children, because, to be successful, such strategies will likely have to both accommodate and change aspects of both the organizational and extra-organizational context (Schoenwald and Hoagwood 2001; Van de Ven 1986).

This article first presents descriptive data on variables within three of the domains represented in the conceptual model guiding the child STEPs initiative: governance structures; financing structures and reimbursement; and provider organization. New treatments and services deemed by directors to be successfully implemented within the past 5 years are also described. Then, results are presented of random effects regression models (RRMs) of relations among new treatment and service implementation and governance, financing, and organizational variables. Next, a description is provided of directors' perspectives on factors important to the successful implementation of new treatments, assessed using a 21-item measure. Rasch modeling of the data obtained using this measure identified three such factors: fit with existing implementation practices; infrastructure support; and, fit with organizational mission and internal support. Among findings of RRMs of relations among governance, financing, and provider organization variables and these factors are that directors of public organizations rate the importance of infrastructure support and prevailing practices to implementation success more highly than directors of private organizations. Implications of study findings for the implementation of evidence-based practices for children and their families in community-based clinics are considered, as are study limitations.

Method

Procedures

The clinic systems project (CSP) sampled the three largest community mental health centers caring for children in each of 92 primary sampling units (PSUs)—a combination of individual counties, small clusters of rural counties, and parts of large counties—for a potential total of 276 organizations across 38 states. The 92 PSUs constituted the nationally representative sample of county child protective services agencies that had previously participated in two studies, the national survey of child and adolescent well-being and caring for children in child welfare (Burns et al. 2004; Leslie et al. 2003). The 92 PSUs identified in these studies represented a total of 36 states. The Director interviews were conducted between May of 2004 and July of 2005, with re-sampling of clinics undertaken under one of two circumstances: (1) The clinic had an insufficient number of clinical staff to render a valid organizational assessment (a minimum of six clinicians were required); (2) the director refused to participate in the survey or refused to allow the clinic staff to participate in the organizational assessment. A total of 200 directors from 88 PSUs participated in the study, a number that represents 72% of the eligible (sufficiently sized) clinics in 96% of the PSUs. The survey was exempt from the Institutional Review Board procedures of the San Diego State University. No personal information was obtained from the directors or about staff or clientele; thus, demographic data are not reported. In exchange for the directors' time and effort, agencies received $25 for the purposes of buying reading material for child waiting rooms.

Measures

The CSP Director Survey (Schoenwald et al. 2003) was designed to obtain information from provider organization directors about the following domains identified in the child STEPs conceptual model: governance structures, financing structures and reimbursement, and provider organization. Survey content was also selected from similar surveys in the child welfare (Burns et al. 2004; Leslie et al. 2003), managed health care (e.g., Ridgely et al. 2002), and substance abuse service sectors (McClellan et al. 2003); and from measures used in studies of the transport of empirically supported treatments to usual care settings (e.g., Becker et al. 2006; Guydish et al. 2005; McFarlane et al. 2001; Schoenwald et al. 2003). The interview included both forced-choice and open-ended items.

A Program Change interview module assessed a domain not expressly depicted on the child STEPs conceptual model, but that is the focus of that model, namely the use of new clinical treatments. This module contained several forced-choice and several open-ended questions about treatments and services the organization had implemented within the previous 5 years, duration of implementation, and continuation or cessation of implementation. In addition, directors were asked to describe, for the most successful treatment or service implementation—success being defined by the directors—the nature of the treatment or service, motivations for pursuing its use, perceptions of the success or failure of the implementation efforts, and factors thought to support or detract from implementation success. Responses conducive to quantitative analyses (i.e., forced-choice) are included in the current report, with coding and analyses of the director narratives planned for future publication. In addition, the dimensions of organizational readiness-revised (DOOR-R; K. Hoagwood et al. 2003) scale assessed Directors' perspectives on intra- and extra-organizational variables important to the successful implementation of a new mental health treatment or service. This 21-item measure was adapted for national use from a similar scale used previously in New York state to index domains important to mental health stakeholder groups adopting or implementing a new treatment or service (Department of Health and Human Services [DHHS] Report, DOOR 2005).

Data Analyses

Descriptive Analyses

Descriptive analyses were conducted on the variables within each infrastructure domain examined in subsequent predictive regression analyses. The variables examined, organized by domain, are identified in Table 1.

DOOR-R Measurement Model

To obtain DOOR-R scores for use in random regression models, the psychometric functioning of the 21-item scale was further evaluated using a Rasch rating scale model. Rasch modeling, increasingly used in treatment transport and implementation studies (Saldana et al. 2007), is a special case of an item response theory (IRT) model. The Rasch model overcomes psychometric limitations of classical test theory (e.g., item information and sample information are intertwined) by providing person estimates (i.e., person ability) that are independent of the distributional properties of the items in question, as well as item estimates (i.e., item difficulty) that are independent of the distributional properties of the people providing responses.

Table 1 Child mental health services infrastructure domains and variables

Domain	Indicators
Governance structures	Public or private
	Profit or non-profit
	Entity operating the organization (If public, sector and jurisdiction)
	Organizational internal structure
Financing structures and reimbursement	Annual budget in previous year
	Deficit status in 2000, 2001, 2002
	Revenue sources
	Reimbursement mechanisms
Provider organization	Treatments and services offered (types, service settings)
	Children and families served in past year
	Clinicians
	(Number, number full-time, profession, education, licensure)
Clinical implementation support practices	Clinical supervision
	(Requirements, frequency, use and type of work samples)
	Training
	(Formal training programs, attendance requirements)
	Evaluation
	(Use of standardized outcomes data collection, purposes of evaluation, use and type of productivity requirements)
Program change	Implementation of new clinical treatments or services in past 5 years (type, time sustained)
	Dimensions of organizational readiness—revised (DOOR-R)
	Dimension I: fit with existing implementation practices
	Dimension II: infrastructure support
	Dimension III: fit with organizational
	Mission and internal support

The Rasch model produces true interval level scores through its use of the log-odds unit of measurement (i.e., logit) placing items and people on the same scale of measurement and allows evaluation of rating scale performance. Rasch calibrations for this study were performed using WINSTEPS software (Version 3.63, Linacre 2006) to evaluate dimensionality, rating scale functioning, and item fit of the DOOR-R. A technical report detailing these analyses is available from the authors (Chapman and Schoenwald 2007).

Regression Models

An important feature of the present data is the nesting of clinics ($n_i \approx 200$) within PSUs ($n_j \approx 88$). The nested data structure potentially violates the assumption of independence of observations, as a portion of the outcome variance is attributable to the PSU with which the responding clinic is associated. Thus, the appropriate statistical model for each outcome based on the magnitude of this dependency was identified using unconditional random-effects regression models for each outcome, partitioning the outcome variance between PSU and clinic, and computing the intracluster correlation coefficient (ICC) (Raudenbush and Bryk 2002). This model does not, however, produce a level-1 variance component estimate for dichotomous outcomes, and the variable, "Use of New Treatments and Services" was dichotomous. (Directors answered yes or no to the question, "In the past 5 years, has your clinic site started a new clinical program, service, or treatment model.) The ICC for this outcome was thus computed using 3.29 (i.e., the variance of the logistic distribution) as the level-1 variance component (Snijders and Bosker 1999). The ICC for the dichotomous outcome was trivial (defined for this report as values <0.01), and analyses for this outcome were based on single-level logistic regression models. The data for this outcome were also tested for over-dispersion, because 83% of clinic directors responded affirmatively. (Note, however, event probabilities ranging from 20% and 80% are not considered overly rare or common Raudenbush and Bryk 2002). The over-dispersion scalar variance component value of 1.004 did not significantly depart from the expected value of 1.000, indicating that the outcome is not over-dispersed. The ICCs for two of the three DOOR-R dimensions (described in the Results

section) were substantial, necessitating the use of random-effects regression models (RRMs). To be conservative, the decision was made to use RRMs when modeling each of the three DOOR-R dimensions as outcomes. In each of these RRMs, clinics (level-1) were nested within PSUs (level-2). RRMs were performed using hierarchical linear and nonlinear modeling software (HLM Version 6.02; Raudenbush et al. 2004) with restricted maximum likelihood estimation. Specification of fixed and random effects was guided by the likelihood ratio test (Snijders and Bosker 1999), and due to the relatively small number of PSUs and the small cluster size per PSU, asymptotic standard errors were used for the computation of test statistics (Maas and Hox 2005).

Results

Descriptive Data: The Infrastructure for CMHS

Governance Structures

Most of the provider organizations (157 or 78.5) were privately held and run. Of the 43 public organizations in the sample, county and state governments operated 47% and 21%, respectively, with other governmental jurisdictions such as multi-county regions and municipalities operating 33% of the public organizations. Over half (54%) of the public organizations were operated by the public mental health sector, with considerably fewer operated by omnibus agencies (21%) departments of health (7%), other service sectors (5%) and behavioral health care companies (2%). Nearly three-quarters (70%) of the 157 private organizations operated on a non-profit basis. Across the entire sample, the majority (85%) of organizations were part of a larger privately held or governmental entity operating multiple sites, with only 15% of the organizations free standing. Over three-quarters (79%) of the organizations served children and adults; 35% of these had a discrete unit for children's services. The community-based mental health service organizations in this sample, then, were largely privately owned, operated by larger entities providing services in multiple sites rather than being free-standing, and administratively structured such that adult and children's services operated out of the same, undifferentiated, organizational unit.

Financing Structures and Reimbursement

While annual budget data were provided by 183 (91%) of the 200 directors, 40 directors had such data only for the entire multi-site entity operating the clinic, leaving 143 directors with budget data for their particular clinic site. The annual budgets of these clinics ranged considerably, from $60,000 for organizations serving fewer children to $27 million for those serving larger numbers of children. The average annual budget was over $2.5 million ($M$ = $2,631,952, SD = $3,899,209), with an average of almost 80% of that budget dedicated to services for children (M $1,954,310, SD = $3,141,477). Because the provision of services to children was a selection criterion for study participation, the finding that 80% of clinic budgets supported children's services is not surprising. (Because data on adult services and consumers were not obtained, it was not possible to assess budget size relative to the number of children and adults served.) Roughly one-third of directors with site-specific budget data reported finishing each of the three fiscal years prior to the survey in deficit status, with the number reporting deficits rising slightly over the years, from an average of 33% of providers (SD = 47%) in 2000 to a mean of 41% (SD = 49%) in 2002. Both privately held and public agencies reported such deficits.

Queried about the proportion of annual revenue emanating from a comprehensive array of sources, the directors reported three primary sources of revenue: Medicaid (M = 44.4%, SD = 31.1%), the public mental health authority (M = 14.3%, SD = 21.9%), and private insurance (M = 13.0%, SD = 18.5%). Other service sectors (e.g., child welfare, juvenile justice, health, education), the state child health insurance program (S-CHIP), special program, charity, and foundation funds, and consumers or their private insurance contributed from less than one percent (SCHIP) to a maximum of 8.7% (program, charitable, foundation) of annual revenues. Asked to estimate the proportion of revenue accrued using different reimbursement mechanisms, directors reported fee-for-service arrangements were used to recoup the largest proportion of revenue (M = 62%, SD = 39.4%); with fixed program funding accounting for 19%, (SD = 28.1%), and bundled or case rates and capitation each used to recoup less than 10% of revenue.

These data suggest that, despite the predominantly private ownership and operation of community mental health organizations serving children, services are largely publicly funded, with traditional fee-for-service arrangements dominating service payment strategies, and budget deficits recurring annually for one-third to nearly one-half of the organizations.

Provider Organizations

Information is presented next about the array of treatments and services, clinicians, and implementation support

practices—including training, clinical supervision, and use of accountability measures such as client outcomes, consumer satisfaction, and productivity requirements—characterizing the organizations.

Treatments and Services

Consistent with the relatively traditional governance and financing picture emerging from the survey data, just over two-thirds (67.6%) of child mental health services are provided in the clinic setting, with 31.7% provided in community settings. Diversification of the service profile is evident, however. Nearly all (98%) of the organizations provided family therapy and individual therapy (98%), with over three-quarters (76%) providing group therapy, and case management (79%) services. Over two-thirds of the organizations provided family support services, and just over half of them provided family preservation services (54%), and school based services (55%). Wraparound services were provided by 44% and substance abuse treatment by 43% of the organizations. Very few organizations provided treatment foster care (8%) or routine medical services (7%). The organizations served on average 902 children in the year prior to the survey (SD = 1,231). An average of 5% of children required services in a language other than English (SD = 9.6%); and, of children requiring services in another language, 67% were Spanish-speaking. The organizations reported meeting the language needs of children in two ways: via the employment of bilingual therapists (64% of clinics) and utilization of translator or interpreter services (81% of clinics) (some clinics use both approaches, hence the total exceeds 100%).

Clinicians

The organizations employed on average 25 clinicians (SD = 26), 93% of them on a full-time basis (i.e., % FTE was 100). Clinicians were predominantly college graduates (81%), and almost two-thirds (61%) had completed a master's or higher degree, and were licensed (60%). Just over one-third of clinical staff (37%) was unlicensed therapists, and 3% were therapist interns. Relative to other clinicians, a smaller percentage of psychiatrists (55%) were employed full-time by the organizations, with two to three psychiatrists ($M = 2.7$, SD = 3.0) serving each organization.

Clinical Implementation Support

Nearly all (90%) organizations reported providing weekly clinical supervision to clinicians, with over half (58%) of the organizations including live observation of sessions, just over one-quarter (26%) including review of videotaped sessions, and 18% including review of audio taped sessions in supervision. Almost all organizations (92%) provided a formal clinical training program, with 54% of these organizations requiring clinician attendance at such training. Virtually all organizations (98%) allowed staff to attend continuing education unit (CEU) training during work hours, with two-thirds of the organizations providing CEU training, and three-quarters providing reimbursement or paying directly for training provided by others.

Evaluation of service outcomes was prevalent among these organizations, with nearly three-quarters (74%) of them reporting the collection of standardized outcome data. In over three-quarters of the organizations (78%), data collection was motivated by clinical implementation factors such as treatment planning, clinical supervision, and quality improvement. External influences such as government mandates (57%) and reimbursement requirements (43%) were also identified as motivators for outcomes data collection. (Because directors could endorse multiple uses of outcomes data, the total exceeds 100%.) Productivity requirements for clinicians were in place in 83% of the organizations, with 32% using volume (number of clients served), 27% charges and collections, and 20% some other, unspecified, indicator of productivity.

Program Change

As noted in the Methods section, directors were asked to identify up to three new treatments and services implemented by the organization within the 5 years prior to the survey, and the interview instructions noted our particular interest in director identification of programs that required change in the clinical activity of frontline staff, additional training, and/or changes in management practices. Directors were asked, for each treatment or service they identified, whether the program was still ongoing; and, whether ongoing or not, length of program implementation. Results of descriptive analyses of the data from these forced-choice items are presented here. In addition, directors were asked to describe what they considered to be the most successful program—providing his/her own definition of success—and to describe the motivations for undertaking the new program and factors facilitating and detracting from its success. Coding of the narrative descriptions of program success, motivations for adoption, and factors facilitating and detracting from implementation is beyond the scope of this report, but will be undertaken and reported in the future.

Directors in 83% of the organizations reported having implemented at least one clinical treatment or service

within the 5 years prior to the survey, with most having implemented more than one. The directors identified a total of 268 treatments and services. An average of 93% of the new treatments or services were still ongoing at the time of the interview, and had been sustained for an average of 32 months (SD = 18 months) at that time. Among child and family services identified relatively frequently were school-based services, wraparound services, case management services, parenting programs, family-based services, and early childhood and infant and toddler mental health services. Among treatments identified relatively frequently were cognitive-behavioral treatment, individual and group treatments for ADHD, group treatment for anger management, and individual treatment for child trauma, and child sexual abuse. Several directors named a specific treatment model, some of which have been identified in peer-reviewed publications as promising or effective for specific youth target populations, including Functional Family Therapy, Multisystemic Therapy, and The Incredible Years. Independent review and nomination of treatments as empirically supported undertaken by two authors of this report suggested up to 10% might be classified as evidence-based (e.g., identified as effective in peer-reviewed published meta-analytic and qualitative reviews). Because directors often used idiosyncratic labels for the treatments and rarely specified the target populations with which the treatments were implemented, however, the nomination process for evidence-based practice was imprecise, at best. The analyses undertaken for the current report thus focused on relations between infrastructure variables and the use of new treatments and services in general, rather than on the use of evidence-based practices specifically.

Rasch Scaling Model: Dimensions of Organizational Readiness—Revised (DOOR-R)

Rasch-based evaluation of the DOOR-R proceeded in accordance with established guidelines (see, e.g., Bond and Fox 2007; Linacre 2002; Raiche 2005; Tennant and Pallant 2006) and is detailed in a technical report available from the authors (Chapman and Schoenwald, 2007). Fit with existing implementation practices; infrastructure support; and, fit with organizational mission and support were the three non-trivial dimensions identified by directors as important to the implementation of new treatments. The items within each dimension are presented in Table 2. The first dimension, fit with implementation practices, indexes the compatibility of a new treatment with the treatments, clinical supervision, and clinical and administrative training already in place in an organization. The second dimension, infrastructure support, reflects the importance of both external (e.g., public agency, contract agency, consumer advocacy group, political pressure) and internal (e.g., administrative burden, compatibility with management information systems, existing equipment and technology, and fiscal benefits) sources of infrastructure support to the successful implementation of a new treatment or service. Finally, fit with organizational mission & support reflects the importance to successful implementation of the compatibility of a new treatment with the mission and philosophy of the organization and clinical needs of the client populations served, and of the support for the treatment from clients, clinical, and management staff.

Regression Models: Relations among Infrastructure Indicators, DOOR-R Dimensions, and Implementation of New Treatments and Services

Implementation of New Treatments and Services

The first set of RRMs evaluated variables in the governance structures, financing and reimbursement structures, and provider organization domains (see Table 1), and the three factors important to the implementation of new treatments and services (i.e., DOOR-R dimensions) as predictors of clinic implementation of new treatments and services. Table 3 summarizes the significant associations found. In the governance structures domain, only the profit status variable was associated with the implementation of new treatments or services. For-profit organizations had higher log-odds of implementing new treatments relative to non-profit organizations. No variable in the financing structure domain was associated with the implementation of new treatments or services.

In the provider organization domain, the number of different service types offered was positively associated with past implementation of new treatments or services. Organizations with a higher proportion of licensed professional staff had lower log-odds of implementing new treatments and services relative to those with a lower proportion of such staff. One implementation support practice, the provision of weekly clinical supervision, was significantly negatively related to the implementation of new treatments. The negative relations between the licensure of staff and new treatment implementation is, on the one hand, consistent with observations made by others suggesting regulatory mechanisms established with the aim of ensuring mental health professionals deliver high quality service may fall short of doing so (Bickman 1999, 2000). This finding contrasts with evidence from organizational research in general, and in substance abuse services specifically, suggesting positive relations exist between greater professionalism of staff and innovation implementation

Table 2 Dimensions of organizational readiness—revised: Rasch modeling dimensions and items

Dimension I: fit with implementation practices

14. Fit or match of it with the techniques or therapies already used by your staff
15. Fit or match of it with the clinical supervision practices already in place
16. Fit or match of it with the clinical training practices already in place
17. Fit or match of it with the administrative training already in place

Dimension II: infrastructure support

4. Support for it by the relevant public agency (i.e., mental health, child welfare, health, juvenile justice, education)
6. Support for it by consumer groups in your county
9. Support for it by agencies with which your organization has contracts
11. Fiscal benefits from adoption of it (e.g. ability to bill Medicaid for new program)
18. Level of administrative burden
19. Compatibility with current management information system (MIS)
20. Compatibility with existing equipment and technology
21. Political pressure

Dimension III: organizational mission and support

1. Description of the treatments/services that implied they were "evidence based" or "scientifically tested"
5. Support for it by clients of your clinical site
7. Support for it by your clinical staff (therapists, psychiatrists, psychologists)
8. Support for it by your management staff
12. Fit or match between the clinical needs of the populations served by your clinical site and the target population served by the new clinical program
13. Fit or match of it with the philosophy or mission of your organization

Items removed due to poor fit with any dimension

2. Leadership support from you as director for the new treatment or service
3. Support for the new treatment or service by particular individuals in the agency (other than the director) who are respected by others within the agency
10. Support for it by accreditation agencies

Table 3 Infrastructure characteristics associated with implementation of new treatments and Services

Characteristic	β	SE	p	OR[a]
Governance structures				
For profit organization	1.442	0.564	0.011	4.23
Provider organization				
Proportion of professional clinical staff	−1.587	0.838	0.058	0.20
Proportion of licensed clinical staff	−2.110	0.961	0.028	0.12
Weekly clinical supervision provided	−1.182	0.519	0.023	0.31
Formal training program	−1.256	0.676	0.063	0.29
Number of service types	0.257	0.086	0.003	1.29

Note: The Wald test statistic (omitted) was computed as $(\beta/\mathrm{SE})^2$. DF = 1 for all models

[a] Odds ratio

(Knudsen and Roman 2004). It may be, however, that directors of mental health organizations with a greater proportion of licensed clinical staff equate licensure with effectiveness (i.e., perceive licensed staff as providing effective services, and not needing clinical supervision), thus obviating the need for new treatments and services. Limitations in the survey methodology, however, prohibit testing the direction of relations between professional status and new treatment and service implementation. Specifically, directors reported retrospectively on new treatment and service use, while workforce and clinical supervision data reflected organizations when the survey was conducted.

The DOOR-R dimensions were not significantly associated with new treatment and service implementation.

Factors Considered Important to the Implementation of New Treatments and Services

Variables in the governance structures, financing structures and reimbursement, and provider organization domains

were next evaluated as predictors of each of the three DOOR-R dimensions—fit with existing implementation practices, infrastructure support, and organizational mission and support—as the outcome. Table 4 summarizes the significant associations found in these analyses. Several variables in the governance and financing and reimbursement structures, and fewer variables in the provider organization domain, were associated with director ratings of the importance of the DOOR-R dimensions to new treatment and service implementation.

Directors of public mental health agencies rated the importance of new treatment or service fit with existing implementation practices more highly than directors of other public agencies. Directors of public agencies, and particularly of county-run agencies and public mental health agencies, rated more highly the importance of infrastructure support to new treatment and service implementation than directors of private organizations. Directors of state-run agencies rated the importance of organizational mission and internal support to new treatment and service implementation more highly than directors of agencies run by counties and other government entities (e.g., regions, municipalities) and of private organizations. Taken together, these findings suggest it is more important to directors of public agencies than to private organizations that new treatments align with prevailing practices, infrastructure support, and organizational mission and internal support. Attention by public mental health organization directors to prevailing clinical practice and infrastructure suggests both the responsible (and perhaps conservative) stewardship of staff and government trust and resources, and potential constraints on the successful implementation of new treatments not aligned with current practice and infrastructure. Finally, there was a significant negative association between Medicaid funding and the importance of new treatment or service fit with existing implementation practices, and receipt of such funding was not related to either infrastructure support or fit with organizational mission and internal support. These findings suggest Medicaid funding may be associated with greater latitude in the types of new treatments and services organizations can implement.

Within the provider organization domain, use of productivity requirements was negatively associated with director ratings of the importance to successful implementation of treatment fit with implementation practices, and the use of volume-based productivity requirements was negatively associated with the importance to successful implementation of Infrastructure Support for new treatments. This pair of findings suggests that relative to organizations without

Table 4 Infrastructure characteristics associated with dimensions important to implementation of new treatments and services

Infrastructure domain predictors	Fit with existing implementation practices				Infrastructure support				Organizational mission and support			
	γ	SE	DF	p	γ	SE	DF	p	γ	SE	DF	p
Financing and reimbursement structures												
Medicaid	−1.178	0.304	159	0.001**	0.032	0.276	159	0.244	−0.012	0.286	159	0.966
Public (non-Medicaid)	−0.054	0.199	159	0.786	0.345	0.179	159	0.054	−0.237	0.185	159	0.202
Governance structures												
Profit/not or non-profit	1.302	0.690	124	0.061	−0.084	0.401	124	0.835	0.517	0.519	124	0.321
Public agency	0.499	0.361	164	0.169	0.678	0.228	164	0.004**	0.198	0.262	164	0.452
State public agency	1.037	0.766	162	0.178	0.875	0.486	162	0.073	1.343	0.546	162	0.015*
County public agency	0.046	0.497	162	0.927	0.748	0.319	162	0.020*	0.320	0.359	162	0.374
Other public agency	0.806	0.556	162	0.149	0.497	0.353	162	0.160	−0.467	0.397	162	0.241
Mental health agency	1.132	0.432	163	0.010*	0.611	0.281	163	0.031*	0.157	0.324	163	0.629
Other service sector	−0.514	0.514	163	0.334	0.779	0.339	163	0.023*	0.256	0.389	163	0.511
Provider organization												
Number of service types	0.020	0.062	164	0.742	0.111	0.039	164	0.006**	0.003	0.045	164	0.954
Formal training program	0.147	0.826	164	0.859	0.953	0.531	164	0.074	1.235	0.594	164	0.039*
Training required	0.219	0.342	147	0.523	−0.051	0.218	147	0.815	−0.432	0.236	147	0.069
Clinical supervision includes review of observational data	−0.073	0.321	163	0.820	−0.061	0.209	163	0.772	−0.436	0.231	163	0.060
Standardized outcome data	−0.310	0.360	163	0.389	0.359	0.227	163	0.116	0.513	0.255	163	0.045*
Productivity requirements	−1.114	0.415	164	0.008*	−0.422	0.273	164	0.123	−0.519	0.305	164	0.091
Volume	−0.427	0.351	137	0.226	−0.590	0.218	137	0.008**	0.222	0.251	137	0.377

Note: *T*-ratio test statistic (omitted) computed as (γ/SE)

* $p < 0.05$, ** $p < 0.01$

productivity requirements, organizations with productivity requirements approach implementation efforts with less emphasis on aligning new treatments and services with existing practices. In addition, relative to organizations without volume-based productivity requirements, infrastructure support may be less pertinent to the successful implementation of new treatments and services in organizations with such requirements. The importance of organizational mission and support to the successful implementation of new treatments and services was rated highly by directors of organizations with formal clinical training programs, and by directors of organizations using standardized outcome data.

Discussion

The conceptual model guiding the child STEPS initiative proposes that select service system (financing and reimbursement, governance) and provider organization factors constrain and facilitate the implementation of new treatments and services for children and their families in community mental health service organizations. Theory and research on organizational innovation and the implementation of innovation (for reviews, see Damanpour 1996, 1991; Real and Poole 2005; Van de Ven 1986) provide pertinent lenses through which to understand these findings. We begin with the finding that the majority of the organizations in this sample were privately held and operated. On the basis of meta-analytic and qualitative reviews of research on organizational innovation (Damanpour 1996, 1991), one would expect these privately held organizations to be subjected to limited external control relative to public organizations, and thus favorably disposed to risk-taking and specialization, two attributes associated with innovation in the broader organizational literature. Accordingly, one might expect the likelihood of implementing new treatments and services to be higher among privately held organizations relative to public organizations in the current survey. There was, however, no association between the private or public status of organizations and new treatment and service implementation.

Here, the documented importance to organizational innovation of another variable—profit status—comes into play. The privately held organizations in the current sample were largely non-profit organizations providing services reimbursed by public dollars. Non-profit organizations have been found less likely to generate, adopt, and implement innovations—in part because they are characterized by considerable external control, which limits risk taking and specialization and is associated with centralization of authority, which has mixed effects on innovation (Damanpour 1996, 1991). The RRM findings that for-profit status related positively to director reports of new treatment and service use is consistent with this body of research. Similarly, the greater importance of infrastructure support to the successful implementation of new treatments reported by directors of public organizations in general, and of county—operated organizations specifically, is consistent with the proposition that innovation implementation may be influenced more by external factors in public than in privately held organizations. Because the survey did not assess directors' perceptions of the level of risk or specialization associated with the use of new treatments and services, however, and because reports of successful treatment and service implementation were retrospective, hypotheses regarding the influence of public, private, profit, and non-profit status on organizational risk taking and specialization and subsequent implementation of new treatments and services could not be tested in the current study.

The descriptive data suggested several promising indicators of the capacity to implement new treatments and services reside within community-based mental health service organizations. Specifically, clinical implementation support practices, in the form of training and clinical supervision reported by directors bore some resemblance to the training and supervision practices used in EST effectiveness trials. Weekly supervision was widespread and included observation of treatment sessions (audio, video, or live observation of sessions), and nearly all organizations offered formal clinical training and financially supported CEU training. The training content, methods, and media used in these organizations will be examined when qualitative data coding has been completed, thus allowing examination of similarities between current practices and those used to support EST implementation.

The fact that the majority of the clinicians in this sample were reported to be full time and highly—educated professionals also bodes well given emerging findings relating workforce variables to service outcomes and to the adoption of evidence-based practices in other sectors. Although generic clinician factors such as education, training, and profession have not been linked with the outcomes of mental health services, evidence from some adult depression psychotherapy clinical trials suggest past experience conducting therapy bodes well for client outcomes (Blatt et al. 1996; Huppert et al. 2001). In addition, substance abuse services research has found use of full-time clinical staff (rather than part-time contract staff) to predict better client outcomes for adults (Heinrich and Fournier 2005). Workforce professionalism has also been associated with the use of new treatments in studies evaluating the role of organizational absorptive capacity in the adoption and implementation of evidence-based substance abuse

treatments (Knudsen and Roman 2004). Absorptive capacity, the ability of an organization to seek and utilize information, has been associated with the generation, adoption, and implementation of innovations in other fields (Cohen and Levinthal 1990; Zahra and George 2002). Indicators of absorptive capacity examined in such research include organizational resources (including profit status and solvency, provision of education and training), professionalism of staff, and use of methods to assess both customer and contractor satisfaction and organizational outcomes.

In the current study, however, results of RRMs of relations between indicators of absorptive capacity and director reports of the implementation of new treatments were mixed. The proportion of professional clinicians in organizations was not associated with such implementation ($p = 0.58$), while the proportion of licensed clinicians was negatively associated with the implementation of new treatments, as was the provision of weekly clinical supervision. As noted in the Results section, the negative licensure finding could be interpreted as consistent with previous suggestions that professional regulatory mechanisms are inadequate proxies for service quality or effectiveness (Bickman 1999, 2000). Alternate interpretations emanate from a recent study of service sector, organizational, and professional characteristics associated with the early implementation of an evidence-based substance abuse treatment (contingency management) for adolescents in outpatient settings (Henggeler et al. 2007). In that study, clinical staff with more experience in the substance abuse treatment—whether evidence-based or not—were less likely to implement an evidence-based practice relative to staff with less experience in this domain. In the current study, directors of organizations with a greater proportion of licensed clinicians may perceive the staff as better equipped to address client needs and therefore less in need of new clinical tools relative to directors of organizations with fewer licensed staff. Alternately, directors of organizations with more licensed staff may anticipate the implementation of new treatments as threatening a comfortable status quo with respect to current clinical supervision and training practices (Hoge 2002). Because the current survey obtained data on staff professional and licensure status at a single point in time while data regarding new treatment implementation were obtained retrospectively, further testing of these hypotheses with the current data is not possible.

Descriptive findings from the survey suggested another feature of absorptive capacity—scanning the environment to evaluate the satisfaction of customers and contractors (in this case, consumers, funding agencies)—is common among community-based provider organizations. Nearly three-quarters of the organizations reported collecting standardized outcomes data, and most used these data to improve clinical practices and monitor quality assurance, while about half also used these data to meet mandated or reimbursement requirements. The reported prevalence of outcomes data collection seems high, but is consistent with policies implemented within the last few years by federal agencies that fund mental health services. For example, the SAMHSA Data Infrastructure Grants (DIG) program stipulates annual reporting of family and youth satisfaction with services and state-defined outcome tracking (Center for Mental Health Services 2006).

Conceptually related to organizational scanning, but not evaluated in previous research on absorptive capacity, is the use of accountability indices such as productivity requirements, also common in this sample of organizations. The interplay of such requirements and director perspectives on factors important to the successful implementation of new treatments and services was examined using RRMs. As noted in the Results section, relative to directors of organizations not using productivity requirements, directors of organizations using productivity requirements, and of volume-based productivity requirements found less important to successful implementation the fit of new treatments and services with existing practices, and with infrastructure support, respectively. To the extent that the form taken by productivity requirements mirrors the demand characteristics of new treatments and services, one might anticipate positive associations between their use and the successful treatment implementation. The negative findings may thus suggest a potential mismatch between productivity indicators and the demand characteristics of services offered (i.e., number of patients treated weekly may be an appropriate indicator for treatments requiring weekly, office-based sessions, but not for family preservation models of service delivery that require low caseloads and treatment to occur in homes and other community settings). Alternatively, the negative associations may suggest that productivity requirements facilitate successful implementation of new treatments and services regardless of their compatibility with existing practices and infrastructure support.

Finally, the lack of association between successful implementation of new treatments and services and the three dimensions rated by directors as important to such implementation was disappointing, but not altogether unexpected. The as-yet unrequited search for simple indicators that reliably predict the adoption and implementation of innovations (i.e., new products, services, or processes) in general, and of one or more specific innovations, has a long history in organizational research and a shorter one in services research (Simpson 2002; Saldana et al. 2007). Recent results of a qualitative study of five evidence-based mental health practices for adults being

used in eight states suggest, as well, that the configuration of service system infrastructure (i.e., financing, regulations) and implementation support (i.e., training) differs in accordance with demand characteristics of specific evidence-based practices (Isett et al. 2007). The current survey asked directors to consider the importance of the DOOR-R factors to implementation success collectively across the several new treatments and services attempted by their organizations, and thus may have obscured relations between these factors and a specific treatment or service. In addition, it was not possible in the context of the current cross sectional survey to evaluate the predictive capacity of the DOOR-R with respect to the future adoption and implementation of new treatments, and there remains the possibility that associations may yet be found between one or more of the dimensions and such implementation in longitudinal studies. Currently, the value of the DOOR-R lies in its capture of distinctive attributes of treatments and practice contexts considered important by the directors of community-based mental health organizations to the successful implementation of new treatments or services. To the extent that director perspectives on the importance of these dimensions influence the adoption decisions and implementation support provided within organizations, individuals and organizations interested in taking specific evidence-based practices to scale may find that assessing them to be useful.

Limitations

The major limitations of this study of the community-based infrastructure for CMHS are one-time collection of data, the reliance on retrospective accounts of directors for program change information (i.e., number and types of new treatments and services implemented in the past 5 years), and the exploratory nature of the data analyses. In addition, the sampling procedure yielded a sample of the three largest mental health clinics within a nationally representative sample of child welfare systems; thus, the sample does not qualify as nationally representative of mental health provider organizations. To our knowledge, however, it is the largest sample with the greatest national representation of any survey of community mental health providers in general, and of such providers serving children and families.

Because the quantitative data on infrastructure indicators was obtained at a single point in time, and director reports of the implementation of new treatments and services were retrospective, the predictive value of the infrastructure indicators with respect to future implementation of new treatments could not be addressed. A similar limitation characterizes the predictive validity of the infrastructure indicators with respect to director assessments of treatment and practice context characteristics important to the successful implementation of new treatments and services.

Despite these limitations, this first report on the CSP Director Survey data provides a snapshot of the infrastructure for community based mental health provider organizations in general, and those serving children and families specifically, the experiences of such organizations with clinical program change, and characteristics of treatments and practice contexts deemed important to the implementation of new treatments by the directors of these organizations. The child STEPS model of new treatment and service implementation postulated an array of external factors including payment sources and mechanisms, locus of public agency control, and organizational factors such as legal structure (public, private, profit, non-profit) and organizational staffing, service, and implementation practices (supervision, training, outcomes monitoring) would be associated the implementation of innovative treatments and services. The Director Survey results suggest only profit status, staff licensure, and clinical supervision practices correlate with an organization's past record of new treatment and service implementation. Director perceptions of what is important to the successful implementation of new treatments and services did not relate to such implementation, but did vary as a function of public or private status, locus of control of public agencies, and use of productivity requirements. Prospective research evaluating relations among these infrastructure and organizational characteristics and the implementation of innovative treatments and services for children are needed to inform strategies to take evidence-based practices to scale, and is being planned by the child STEPS initiative.

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