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## **FACTORS ASSOCIATED WITH INTERAGENCY COORDINATION IN A CHILD MENTAL HEALTH SERVICE SYSTEM DEMONSTRATION**

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**ABSTRACT:** Understanding the determinants of coordination between agencies in children's mental health service systems is important for program planning and evaluation. This article reports on the findings of a multiple regression analysis that examined factors associated with coordination between 63 agencies during a child mental health service demonstration. Greater coordination of activities was significantly associated with dyads that (a) helped each other attain individual agency goals ( $p < .001$ ), (b) were influential in shaping mental health policy and programs ( $p < .01$ ), (c) maintained resource linkages over time ( $p < .001$ ), and (d) operated in the same service sector ( $p = .01$ ). From a resource dependency perspective, findings suggest that coordination is facilitated when interorganizational relationships fulfill both the internal agency needs for goal attainment and the external needs for exerting control over the larger policy and program environment.

**KEY WORDS:** children's service systems; interagency coordination; interorganizational relationships; North Carolina; youth.

For nearly two decades, numerous initiatives in the children's services arena have been undertaken to reduce the historical fragmentation in service delivery among mental health, child welfare, juvenile justice, schools, and other health and social services. The goal has been to more effectively identify and comprehensively meet the complex needs of children and their families (Stroul & Friedman, 1986). Most states now receive federal funding under the Substance Abuse and Mental Health Services Adminis-

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tration's Comprehensive Community Mental Health Services for Children and Their Families Program to demonstrate coordinated systems of care for youth with emotional and behavioral disturbances (Burns, 2001). These demonstrations aim to improve service delivery and child outcomes by expanding the array of community-based services, and by developing innovative ways to coordinate service delivery at community and individual levels.

The overall effectiveness of the "service system" model is dependent on many interrelated factors, including these: the implementation of policy and funding mechanisms to support service development and integration initiatives; the extent to which organizations work together to develop and sustain joint funding and service delivery initiatives; the availability and effectiveness of needed services and treatments; and the actual use of services and treatments by youths and families. The research presented here focuses on interorganizational relationships as one of the core elements of service system infrastructure, and presents findings from an analysis of factors associated with interagency coordination during the course of a service system demonstration.

Establishing productive interorganizational relationships that can be sustained over time presents many challenges. For example, interagency relationships are often accompanied by high transaction costs (Williamson, 1975), such as the personnel time required for interagency meetings, outreach, networking, and negotiating the terms of new relationships. Therefore, the benefits received by organizations must outweigh the costs of collaboration, and possible threats to an organization's own autonomy and authority (Gray, 1985; Pfeffer & Salancik, 1978; Williamson, 1975). In children's service systems, collaborating across diverse service sectors presents particular barriers related to categorical funding, multiple jurisdictions and entry points into service systems, incompatible client eligibility, varying structural and operational boundaries, and differing philosophical and professional values (Glisson & James, 1992; Hodges, Nesman, & Hernandez, 1999; Kagan, 1993; Meyers, 1993; U.S. Congress Office of Technology Assessment, 1991).

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The challenges in overcoming these organizational and sectoral barriers can be seen in the results of a recent evaluation of 27 sites participating in the Comprehensive Community Mental Health Services for Children and Their Families Program (Vinson, Brannan, Baughman, Wilces, & Gawron, 2001). Although service system initiatives facilitated collaboration, improved communication, and promoted the development of policies and

procedures to support joint service delivery, only a few sites were able to implement system-wide reforms (Vinson et al., 2001). Other analyses examining the extent to which developing child services systems are becoming more integrated (Heflinger, 1993; Heflinger & Northrup, 2000; Johnsen, Morrissey, & Calloway, 1996; Morrissey, 1992, Morrissey, Johnsen, & Calloway, 1997; Pandiani, Banks, and Schacht, 1999) have similarly found progress indicating greater service system integration and/or system performance. However, differential findings across regions (i.e., rural vs. urban, or various regions within one state) or over time suggest that further work is needed to identify underlying factors that may be influencing variations in the extent to which child and other human service organizations work together.

### **FACTORS PROMOTING INTERAGENCY COORDINATION**

Much of the research on interorganizational relationships stems from resource dependence theory, which assumes that agencies become interdependent as they rely on other agencies in their environment for resources necessary to achieve organizational objectives (Aldrich, 1976; Pfeffer & Salancik, 1978). In human services these resources refer to clients, equipment, expertise, funds, and information (Levine & White, 1961). To reduce uncertainty in the environment, organizations attempt to control strategic resource interdependencies (Pfeffer & Salancik, 1978) and to exert power through alliances with influential organizations (Boje & Whetten, 1981). Standardizing the basis of exchange through formal procedures and agreements facilitates the success of collaborative efforts (Gans & Horton, 1975; Litwak & Hylton, 1962), but the type of formalization (i.e., mandated or voluntary) has varying influences on resource exchange and coordination (Aldrich, 1976; Hall, Clark, Giordano, Johnson, & Van Roekel, 1977; Van de Ven & Walker, 1984; Van de Ven, Walker, and Liston, 1979; Larson, 1992).

Most of the empirical work investigating factors related to interagency coordination within various types of child service systems was conducted in the 1980s. Contemporary interorganizational research (Heflinger, 1993; Johnsen et al., 1996; Morrissey et al., 1997) has focused more on the structural features of service systems, using network analysis techniques, rather than the relational aspects of network development. However, the earlier relational research showed that interorganizational relationships were influenced by the extent of resource dependence between agencies (Mulford, 1984; Van de Ven & Walker, 1984), the extent of goal similarity (Mulford, 1984), the frequency of communication and interactions (Hall et al., 1977; Mulford, 1984; Van de Ven & Walker, 1984), the similarity of treat-

ment ideologies (Lincoln & McBride, 1985), the extent of satisfaction between agencies (Hall et al., 1977), and informal relationships (Schott, 1992).

More recently, an in-depth qualitative study of nine sites, funded by the Comprehensive Community Mental Health Services for Children and Their Families Program (Hodges et al., 1999), found that successful collaboration was promoted by structuring interagency relationships, forming strategic alliances with willing and committed partners, developing trust among agencies, understanding each other's assets and limitations, encouraging partners to recognize the value of collaboration for their individual agencies, and creating opportunities for regular communication. Progress was inhibited by uneven commitment of partners, turf issues, and resistance to change. One of the major themes emerging from this study was that collaboration is a developmental process that evolves through stages toward eventual interdependence and shared responsibility among partners (Hodges et al., 1999). The developmental nature of collaboration has also been highlighted by other researchers (Alter & Hage, 1993; Ring & Van de Ven, 1994; Van de Ven & Ferry, 1980).

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*Working together is beneficial when the interagency relationships further the goals of individual agencies.*

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In the present analysis we examine the interorganizational relationships of agencies participating in the North Carolina Children's Initiative. The project was funded by the Robert Wood Johnson Foundation's Mental Health Services Program for Youth to demonstrate the feasibility and effectiveness of integrating services across public child service agencies (Morrissey, 1992). During the initial implementation phase of the project, several structural features were put in place to facilitate coordination and integration of service delivery (North Carolina Department of Human Resources, Division of Mental Health, Developmental Disabilities and Substance Abuse Services, 1990, 1993). For example, interagency forums were structured to provide opportunities for agencies to work together at state, regional, county, and client levels in the form of a state-level oversight committee, a regional project management team, county interagency councils, and child-specific intervention teams. Conflict negotiation functions were built into this governance structure to promote problem resolution at the local level before referring it to higher administrative committees. By the end of the first planning year, interagency agreements had been established and policy manuals had been written to guide the interagency team structure and activities.

The question posed in the current analysis concerns factors that promoted coordination of activities over time, after the initial opportunities

and structures were created to stimulate organizations to work together. It is hypothesized that greater coordination will be associated with greater resource exchange and greater interdependence between organizations. The research is guided by resource dependence theory and builds on the qualitative findings of Hodges and colleagues (1999).

## METHODS

### Data Source

The data for this analysis are drawn from the Accessing Coordinated Care Study, funded by the National Institute of Mental Health (Morrissey, 1992). This study was designed to assess changes over time in service system structure and performance within a rural county and an urban county participating in the North Carolina Children's Initiative. The sampling and data collection methods used in this study have been described in detail elsewhere (Johnsen et al., 1996; Morrissey, 1992; Morrissey et al., 1997). A brief summary is presented here. Each service network included organizations and organizational units of mental health centers, child welfare agencies, juvenile justice agencies, schools, law enforcement agencies, hospitals, residential programs, family service centers, and health departments. Network membership was determined through consulting with key informants in each county. Sixty-three organizations were determined to be part of both networks at Wave 1 of data collection (1991), and 74 at Wave 2 (1993). One respondent from each organization was surveyed. These individuals were identified by agency administrators as having knowledge of their organizations' connections with other agencies, and tended to be program directors or supervisors. Data were collected through in-person interviews and self-reports. A 98% response rate was obtained.

### Dyads as the Unit of Analysis

In earlier reports, the *interagency network* was used as the unit of analysis to assess change in the level of integration of the two county service systems (Johnsen et al., 1996; Morrissey et al., 1997). Here, these data are analyzed with *dyads* as the unit of analysis. A dyadic analysis allows for the examination of relationships between all pairs of organizations within the networks (Morrissey, Johnsen, & Calloway, 1998). Although the urban and rural counties are primarily county-based service systems (Morrissey et al., 1997), agencies in both counties are included in the present analysis to account for the existence of some cross-county interagency linkages. The current analysis is based on 978 dyads representing the total number of pairwise relationships among the 63 agencies from the two counties that had client referral or information linkages at either Wave 1 or Wave 2.

The 978 dyads mean that about 50% of the total possible dyads [ $1,953 = (N^2 - N)/2$ ] (Wasserman & Faust, 1994) that could exist among the 63 organizations were actually present in this data set. The high proportion of null dyads (i.e., pairs of organizations that do not interact) is due to the high frequency of dyads that did not interact across county lines, and agencies within counties that did not have working relationships with each other.

### **Measures**

Using a Likert-type scale ranging from 0="none" to 4="a lot," the respondent from each agency reported on the extent to which the respondent's agency (1) exchanged resources with each of the other 62 agencies (i.e., client referrals and information), (2) was aware of the goals and services of these other agencies, (3) was satisfied with their relationships with these other agencies, (4) had formalized their relationships with these other agencies, (5) whether the relationships with these other agencies facilitated goal attainment in the respondent's own agency, (6) whether these other agencies were influential in shaping mental health policies and programs for children and youth, and (7) whether their agency's relationship with each of the other 62 agencies was well coordinated.

The present analysis uses independent variables measured at both waves of data collection to predict the extent of coordination at Wave 2. For example, client referral and information exchange measured at both waves of data collection are used in new variables that reflect whether dyads had stable referral or information linkages over time, formed new linkages by Wave 2 of data collection, or lost linkages by Wave 2. The variables measuring awareness of other agencies' goals and services, satisfaction with interagency relationships, and formalization of interagency relationships were measured at Wave 1 only, but are included in this analysis to assess the influence of these baseline characteristics on coordination at Wave 2. Helpfulness in goal attainment, and influence in shaping mental health policy were measured at both waves of data collection, but only the Wave 2 data for these variables are used in the present analysis to coincide with measurement of the dependent variable, coordination, at Wave 2.

Other demographic variables in the data set are used to describe (a) the geographic proximity of agencies in each dyad; (b) whether agencies in each dyad represented the same service sector (e.g., two agencies in the mental health service sector vs. one agency in mental health and the other in child welfare, etc.); and (c) whether agencies in each dyad provided services primarily in the urban county, the rural county, or on a regional basis (e.g., two agencies providing services in the urban area vs. one agency serving the urban area and the other serving the rural area, etc.).

To reflect joint relational perspectives of each dyad, the values of vari-

ables measured on an ordinal or continuous scale were averaged between pairs. Table 1 summarizes how dyadic measures of these variables were defined, operationalized, and scored.

Table 2 presents the characteristics of all variables. The distribution of the dependent variable, coordination, was normal, with a mean of 1.89 on the 0–4 scale. With respect to the independent variables, the measure, representing the extent to which agencies were aware of the goals and services of other agencies, was somewhat skewed toward the higher end of the 0–4 scale (*Mean*=2.72). Fairly normal distributions were observed on the measures of satisfaction with interagency relationships (*Mean*=2.37) and influence in shaping mental health policy and programs (*Mean*=1.99). The distributions of variables measuring the extent of helpfulness in goal attainment (*Mean*=1.55) and formalization were skewed toward the lower end of the scale (.66). Distances between dyad members ranged from 0 to 104 miles (*Mean*=12.32, *Median*=3.50), but most dyads were located in close proximity (65% of dyads were located within 10 miles of each other).

Slightly more than half of the dyads had stable referral or information linkages at both waves of data collection. Roughly one third of the dyads gained new linkages by Wave 2, and one third lost linkages. The totals of the three variables measuring stable, new, and lost linkages are greater than the total number of dyads (*N*=978) because some dyads might have had stable information linkages over time, but gained or lost referral linkages at Wave 2. Only 15% of dyads were in the same service sector (e.g., dyad composed of two mental health agencies), thus indicating that the vast majority of dyads represent different sectors (e.g., mental health agency and a child welfare agency). With regard to primary service area, 41% of the dyads were composed of two urban providers (i.e., urban/urban), whereas only 18% were composed of two rural providers. Seventeen percent were composed of one urban and one rural provider, and 24% were composed of a regional provider and any other (i.e., another regional provider, an urban provider, or rural provider).

### Statistical Analyses

Multiple regression is used to test hypotheses that dyads with a higher degree of coordination at Wave 2 would be those dyads, *at Wave 1*, that (a) were more aware of each other's goals and services, (b) were more satisfied in their relationships, and (c) had more formalized relationships; and those dyads, *at Wave 2*, that (a) were more helpful in attaining individual agency goals, (b) were more influential in shaping mental health policies and programs for children and youth, (c) maintained or formed new client referral or information linkages, (d) were in closer geographic proximity to one another, (e) were in the same service sector, and (f) provided services in the same area.

**TABLE 1**  
**Measurement of Variables**

<i>Variable</i>	<i>Definition and Measurement</i>	<i>Dyadic Composite Score</i>
<i>Dependent Variable</i>		
Coordination of activities	The extent to which activities are well coordinated between one agency and another. Measured on a 0-4 Likert-type scale at Wave 2.	The scores for each organizational member were averaged to compute the dyad score.
<i>Independent Variables</i>		
Awareness of the goals and services of other agencies	The extent of knowledge an agency possesses about the goals and services of another agency. Measured on a 0-4 Likert-type scale at Wave 1.	The scores for each organizational member were averaged to compute the dyad score.
Satisfaction with other agencies	The extent of satisfaction an agency has in its relationship with another agency. Measured on a 0-4 Likert-type scale at Wave 1.	The scores for each organizational member were averaged to compute the dyad score.
Formalization of inter-agency arrangements	Formalized arrangements that act as a coordination mechanism. Types of formalization included written agreements; uniform rules, records, or procedures; formally designated contact persons; and/or legal mandates. "Type" of formalization was measured as a dichotomous variable (yes or no). Measured at Wave 1.	"Yes" responses, across types of formalization, were counted and transformed into a simple count of the number of types of formalization that existed between agencies at Wave 1, ranging from 0-4. Counts for each member of a dyad were then averaged.

Helpfulness in goal attainment	The extent to which another agency is helpful in attaining one's own agency goals. Measured on a 0-4 Likert-type scale at Wave 2.	The scores for each organizational member were averaged to compute the dyad score.
Influence in shaping mental health policy	The extent to which an agency is perceived by another agency to be influential in shaping mental health policies and programs for children and youth. Measured on a 0-4 Likert-type scale at Wave 2.	The scores for each organizational member were averaged to compute the dyad score.
Geographic proximity	"Nearness" of one organization to the other (Garson & Biggs, 1992). <sup>1</sup>	Dyad values equal the distance in miles between two organizations.
Client referral or information exchange	Two separate variables defined as the extent to which an agency sends to and/or receives clients from another agency; and the extent to which an agency sends to and/or receives information from another agency for coordination, control, planning, or evaluation purposes. <sup>2</sup> Raw data were measured on a 0-4 Likert-type scale; but data were dichotomized in order to analyze presence or absence of these types of linkages at Wave 1 and Wave 2.	Client referral and information exchange variables were transformed into three new variables for the present analysis where: <ul style="list-style-type: none"> <li>• New Linkages=1, if new referral or information linkages were formed at Wave 2; 0 if not.</li> <li>• Stable Linkages=1, if referral or information linkages were present at Wave 1 and Wave 2; 0 if not.</li> <li>• Lost Linkages=1, if referral or information linkages, that were present at Wave 1, were lost at Wave 2; 0 if not.</li> </ul>

TABLE 1 (continued)

Variable	Definition and Measurement	Dyadic Composite Score
Same service sector	The service sector to which each organizational member belonged (i.e., mental health, child welfare, juvenile justice, special education, hospital, residential)	A dichotomous variable was created where: 1=Dyads belonging to same sector 0=Dyads belonging to different sectors
Primary service area	Demonstration sites examined in this study were located in an urban and a rural county. Some agencies served both counties; these were coded separately as regional organizations. All dyads were classified as falling into one of four mutually exclusive categories.	Categorical variables were created to reflect the primary service area of each member of dyads, where: • Urban/Urban=1; 0 if not • Urban/Rural=1; 0 if not • Rural/Rural=1; 0 if not • Regional/Any other=1; 0 if not

<sup>1</sup>Addresses of organizations were plotted on regional maps using a MapInfo Corp. (1994) software program.

<sup>2</sup>Differences in reported sending and receiving relations were confirmed using standard procedures developed by Morrissey and colleagues (1997). If one organization reported sending resources (e.g., client referral or information) to another agency, but this was not acknowledged by the other agency as being received, that response was scored as a 0 value.

**TABLE 2**  
**Distribution and Frequency of Variables**

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>
<b>Dependent Variable</b>			
Coordination of activities	978	1.89	1.06
<b>Independent Variables (ordinal or continuous)</b>			
Awareness of goals and services of other agencies	978	2.72	.97
Satisfaction in interagency relationship	949	2.37	.97
Formalization of interagency relationship	978	.66	.54
Helpfulness in goal attainment	978	1.55	1.17
Influence in shaping policy and programs	978	1.99	.96
Geographic proximity (miles)	978	12.32	17.06
<b>Independent Variables (dichotomous)</b>			
	<i>N</i>	<i>Percentage</i> ( <i>N</i> =978)	
New referral or information linkages at Wave 2	329	34	
Stable referral or information linkages at Waves 1 and 2	548	56	
Lost referral or information linkages at Wave 2	297	30	
Same sector	144	15	
Primary service area:			
Urban/urban	398	41	
Urban/rural	170	17	
Rural/rural	173	18	
Regional/any other	237	24	

To control for the non-independence of dyads (i.e., unmeasured characteristics of each organization that could exert an effect across all the dyads in which it was paired), the "svyreg" command in Stata was used with a categorical variable denoting each agency. The "svyreg" function uses robust estimators that increase standard errors in the presence of dependent observations (StataCorp., 1997).

## RESULTS

### Correlations

Table 3 shows that most of the independent variables have low-to-moderate correlations with the dependent variable, coordination, and with each other. The highest correlation was between coordination and helpful-

TABLE 3  
Correlations Between all Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Coordination	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Awareness	.45	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—
3. Satisfaction	.46	.58	1.00	—	—	—	—	—	—	—	—	—	—	—	—
4. Formalization	.34	.43	.40	1.00	—	—	—	—	—	—	—	—	—	—	—
5. Helpful in goal attainment	.81	.47	.47	.37	1.00	—	—	—	—	—	—	—	—	—	—
6. Influential	.53	.29	.36	.21	.55	1.00	—	—	—	—	—	—	—	—	—
7. Geographic proximity	-.35	-.29	-.29	<b>-.10</b>	-.36	-.32	1.00	—	—	—	—	—	—	—	—
8. New linkages	<b>-.07</b>	-.26	-.29	-.23	-.14	-.11	<b>.03</b>	1.00	—	—	—	—	—	—	—
9. Stable linkages	.49	.39	.37	.26	.42	.27	-.29	-.34	1.00	—	—	—	—	—	—
10. Lost linkages	-.40	-.12	-.12	<b>-.03</b>	-.31	-.21	.24	-.40	-.42	1.00	—	—	—	—	—
11. Same sector	.19	.21	.20	.17	.13	.11	<b>.02</b>	<b>.01</b>	<b>.05</b>	<b>-.04</b>	1.00	—	—	—	—
12. Urban/Urban	.20	.16	.12	.12	.22	.26	-.42	-.11	.14	<b>-.02</b>	<b>-.03</b>	1.00	—	—	—
13. Urban/Rural	-.15	-.26	-.19	-.15	-.18	-.19	.39	.14	-.13	<b>-.02</b>	.14	-.38	1.00	—	—
14. Rural/Rural	.20	.30	.25	.16	.20	.13	-.20	<b>-.06</b>	.15	-.13	<b>.02</b>	-.38	-.21	1.00	—
15. Regional/Other	-.26	-.22	-.19	-.15	-.27	-.24	.31	<b>.06</b>	-.18	.16	-.11	-.47	-.26	-.26	1.00

Note. Most correlations are significant at  $p \leq .001$ , with the exception of correlations where  $r < .10$  (bold face).  $N=978$ , except for correlations with the Awareness variable where  $N=949$  due to missing data on the Awareness variable.

ness in goal attainment ( $r=.81$ ). Although a correlation above  $r=.80$  is quite high and indicates multicollinearity, a diagnostic test for multicollinearity showed no serious problem (Tolerance=.50, VIF=1.97. A tolerance value of 1 shows no correlations, whereas a tolerance of 0 shows perfect correlations. A variance-inflation factor (VIF) greater than 10.0 indicates that a variable is highly collinear [Gujarati, 1995].). The predominantly negative correlations on geographic proximity reveal that greater distance between dyad members is associated with lower coordination and with lower ratings on the other independent variables. New client referral and information linkages tended to be less well coordinated ( $r=-.07$ ), as were lost linkages ( $r=-.40$ ). Both new linkages and lost linkages were also negatively correlated with most other independent variables. Negative correlations were also found between coordination and urban/rural dyads, and dyads with regional providers.

### Multivariate Analysis

Table 4 presents results of the multiple regression analysis examining factors associated with coordination of activities. The  $R^2$  of .72 indicates that this model explained 72% of the variance in coordination. None of the variables measured at Wave 1 were significantly associated with greater coordination at Wave 2, although formalization was close to statistical significance at  $p=.07$ . However, significant positive associations were found between dyads that perceived their activities to be well coordinated and dyads that (a) facilitated goal attainment in each other's agency ( $p<.001$ ); (b) perceived each other as influential in shaping policies and programs for children and youth ( $p<.01$ ); (c) maintained referral and information linkages over time ( $p<.001$ ); and (d) operated in the same service sector ( $p=.01$ ). As expected, lost linkages were negatively associated with stronger coordination ( $p<.01$ ).

Greater distance between dyad members was negatively associated with coordination, but not to a significant degree. With respect to primary service area, no associations were found between coordination and composition of dyads (compared with urban/urban dyads).

### DISCUSSION

The question posed in the current analysis concerned factors that promoted coordination of activities over time, following the initial opportunities and structures established to facilitate agencies working together. It was hypothesized that greater coordination of activities would be associated with greater interdependencies in interagency relationships. In examining factors associated with greater coordination, after two years of project im-

**TABLE 4**  
**Factors Associated with Coordination (N=949)**

<i>Independent Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>t</i>
Awareness	.02	.03	.47
Satisfaction	.04	.03	1.45
Formalization	.09	.05	1.82
Helpful in goal attainment	.57	.03	16.84***
Influential	.11	.03	3.18**
Geographic proximity	-.002	.002	-1.00
New linkages	.12	.07	1.87
Stable linkages	.29	.06	4.77***
Lost linkages	-.21	.07	-3.12**
Same sector	.20	.08	2.61**
Urban/Rural	.02	.07	.23
Rural/Rural	.005	.08	.06
Regional/Any other	.03	.09	.35
Constant	.43	.13	3.22**

*Note:* For the indicator variable, Primary Service Area, all dyads were coded as falling into one of four categories according to their primary area of service: Urban/Urban, Urban/Rural, Rural/Rural, and Regional/Any Other. The code for Regional/Any Other means that a regional provider is at least one member of the dyad, and the other member can be an urban, rural, or another regional provider. The reference category is Urban/Urban.  
 $R^2 = .72$ . \* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

plementation, the strongest associations were found in dyads with stable referral or information linkages ( $p < .001$ ), which perceived their relationships as facilitating their own agency's goal attainment ( $p < .001$ ) and influencing the direction of policy and programming for children's mental health ( $p < .01$ ). Results suggest that agencies coordinate their efforts in the presence of on-going exchange relationships, and when the interorganizational relationship fits with an agency's own internal needs for goal attainment and with its external needs to exert control over the larger policy and program environment.

***Greater interagency coordination is associated with partners that perceive themselves as influencing child mental health policy and programming.***

These findings are consistent with Alter and Hage's theory (1993) that collaborative relationships evolve in stages toward "systemic networks," with organizations becoming more interdependent as goal attainment is shifted

from satisfying individual organizational goals, to joint organizational and system goals. Our findings suggest that after two years of project implementation, dyads that coordinated in stronger ways were becoming more interdependent, and were beginning the shift from individual goal attainment to systemic goal attainment. At this point in time, partnerships served a dual purpose in facilitating goal attainment for individual agencies and helping to determine the direction of service system initiatives. These results also support Hodges and colleagues' findings (1999) from their qualitative analysis of "promising practices in building collaboration," which emphasized the developmental nature of collaboration and identified interdependence as an important marker of "true collaboration."

A persistent theme in the literature on interorganizational relationships concerns the need for organizations to derive benefits from collaboration to offset the transaction costs and threats to autonomy. Results of the present analysis suggest that working together has inherent benefits when interagency relationships further the goals of individual agencies and help them to influence the course of service system development. No generalizations can be made from findings of this single developing service system, which was a funded demonstration designed specifically to improve service delivery through cross-sectoral collaboration. However, results suggest that further attention should be given to deliberately fostering interdependencies when developing collaboration models.

For example, in designing collaborative projects it might be advantageous to introduce a dual focus aimed at facilitating both individual agency goal attainment and collective or system goal attainment. New emphasis might be placed on clarifying the interrelatedness of agencies' goals and exploring ways that the goals of individual agencies can be facilitated by partner agencies. Organizations that are vital to the success of new service system initiatives, but which tend toward little interaction, might benefit from outreach activities aimed at creating mutual interdependencies and exploring how collaborating agencies can assist them in meeting their agency's goals. A strategic needs assessment could be conducted, in which both the resources and needs of individual agencies are identified. Focused discussions about this type of assessment could promote new resource exchange among agencies, which in turn could lead to greater interdependencies. Hodges and colleagues (1999) found that this type of strategy, in the form of an agency asset assessment, was helpful in clarifying resources that could be brought to the partnership. Absent these types of interdependencies, efforts to promote interagency coordination will flounder.

The association found between greater coordination and influence in shaping child mental health policy and programming underscores the importance of empowering agencies to determine the course of service system initiatives. Vinson and colleagues' study (2001) of 27 sites participating in

the Comprehensive Community Mental Health Services for Children and Their Families Program showed that interagency structures composed of non-profit providers had less authority to influence service system changes than structures governed by public agencies. Several authors have noted that successful collaboration among human service agencies is fostered by including key stakeholders at multiple levels in decision-making, and by encouraging ownership in the process and the outcomes of collaboration (Gray, 1985; Hodges et al., 1999; Mattessich & Monsey, 1992).

#### **IMPLICATIONS FOR FUTURE RESEARCH**

This study illustrates how research focusing on the developmental, relational processes of interorganizational relationships can supplement findings of studies focused on the structural features of network development (Larson, 1992; Ring & Van de Ven, 1994). Future research focused on the developmental processes of collaboration might include explicit measures of constructs such as trust and reciprocity to more precisely assess the influence of these social-psychological factors on relationship growth. For example, to what extent can other agencies be relied on to deliver planned services, or to what extent is there reciprocity in resource exchanges? In addition, variables should be added to address the "street-level" (Meyers, 1993) concerns of service providers. Providers may be influenced differentially by factors such as the extent to which agencies actively participate in client-specific treatment meetings, or the extent of flexibility in adapting service provision to meet individual child and family needs. In addition, for respondents at various levels (directors, service providers, financial managers), variables that further examine information exchange and knowledge transfer (Larsson, Bengtsson, Henriksson, & Sparks, 1998) by type and level of helpfulness might tap more directly the importance of this resource as a facilitator.

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*It is important to empower agencies to determine the course of service system initiatives.*

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To progress further in understanding how to manage interdependencies once they are developed, it would be beneficial to identify the various types of interdependencies that develop between agencies (e.g., financial, referral sources, information, expertise, influence) and to assess strategies for managing the dynamic tensions that inherently arise (Mizrahi & Rosenthal, 1993).

Skepticism has arisen in children's mental health services research about

the importance of organizational and service system interventions following research findings showing no comparative improvement in child outcomes for enhanced systems over standard care conditions (Bickman et al., 1995; Bickman, Noser, & Summerfelt, 1999). However, the same studies found positive system-level effects in the form of greater access to services, less restrictive care, and greater continuity of care. In combination, these findings suggest that different interventions are needed to promote clinical outcomes as distinct from service system improvements (also see Goldman et al., 2002). At present, much more is known about improving service systems than is known about treatment interventions that improve child outcomes. Consequently, there is a critical need to direct future research efforts at improving the effectiveness of child mental health treatments and services (Bickman et al., 1999; Hoagwood, 1997; Burns & Hoagwood, 2002).

As new knowledge emerges at the child and family levels about the effectiveness of treatment interventions, service system research will still be needed to identify which coordination strategies (e.g., joint planning, joint funding, interagency case management) are successful in promoting access to, and receipt of, these treatments. The evidence-base for organizing mental health services for children in optimum ways can be enhanced by multi-level studies that focus on the delivery of effective treatment interventions within a variety of service system arrangements.

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