Infants & Young Children
Vol. 21, No. 3, pp. 176–185

Factors Related to the Scope of Early Intervention Service Coordinator Practices

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Results from a study investigating the factors associated with variations in the reported use of service coordinator practices are presented. The study participants were parents and other primary caregivers of infants and toddlers with identified disabilities or developmental delays in Individuals with Disabilities Education Act Part C early intervention programs. Finding showed that different service coordination structural and process variables, but not child, parent, or family background variables, accounted for differences in the reported use of service coordinator practices. Among 3 sets of service coordination measures, the use of family-centered helpgiving practices accounted for the largest percentage of variance in the dependent measures. **Key words:** *early intervention*, *infants and toddlers*, *service coordination*

SERVICE COORDINATION is a mandated service that must be provided to infants and toddlers and their families as part of their participation in Individuals with Disabilities Education Act (IDEA) Part C early intervention programs. The practice encompasses "activities carried out by a service coordinator to assist and enable a child eligible under [IDEA] and the child's family to receive the rights, procedural safeguards, and services authorized by the State's early intervention program" (34 C.F.R. § 303.22 (A) (1)). According to Bruder (2005), this includes "coordinating services across agency lines and serving as the single point of contact to help families obtain the services and assistance they need" (p. 35).

Various attempts have been made to describe the different models and approaches to service coordination (eg, Cormany, 1993; Harbin et al., 2004; Harbin & McNulty, 1990; Hurth, 1998), the roles and responsibilities of service coordinators (Bruder, 2005; Zipper, Weil, & Rounds, 1993), the kinds and scope of service coordination practices valued and desired by both parents and practitioners (Dunst & Bruder, 2006), the barriers and facilitators to service coordination (eg, Dinnebeil, Hale, & Rule, 1996; Nolan, Young, Hebert, & Wilding, 2005; Park & Turnbull, 2003), and the valued and desired benefits of service coordination (Bruder & Dunst, 2006; Bruder et al., 2005; Dunst & Bruder, 2002). A considerable amount of effort has been expended examining the factors accounting for variations in service coordination models, practices, and outcomes (eg, Dinnebeil & Rule, 1994; Dinnebeil, Fox, & Rule, 1998; Jung & Baird, 2003; Park & Turnbull, 2003), and these include political factors (eg, locality), funding, and personnel competence.

In a review of the service coordination and integration literature, Park and Turnbull (2003) organized determinants of successful

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This study was supported through a cooperative agreement with the US Department of Education, Office of Special Education Programs (H324L990002). The opinions expressed, however, are solely those of the investigators and do not necessarily reflect the official position of the Department.

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(and unsuccessful) coordination into 2 categories: interpersonal and structural factors. Interpersonal factors include the characteristics of relationships that enhance and encourage collaboration. The service coordinator characteristics found to be associated with successful service coordination that included, but were not limited to, communication skills, openness, honesty, and family-centered helpgiving. Structural factors include the nature of relationships among agencies and how service coordination is conceptualized and practiced. The structural factors associated with successful service coordination include, but are not limited to, blended service provision, service coordinator flexibility, fluid interagency and intra-agency communication, and a broad-based approach to service provision.

Available research on factors influencing service coordination is rich and varied. A host of interpersonal and structural factors has been implicated as important determinants of successful and unsuccessful service coordination. Notwithstanding the complexity of factors influencing service coordination, no studies have attempted to isolate which factors are most important in terms of explaining successful service coordination. In those cases where an attempt has been made to identify factors deemed most important by parents and practitioners (eg, Dinnebeil & Rule, 1994; Dunst, Johanson, Rounds, Trivette, & Hamby, 1992), the presence of these factors was not empirically related to any service coordination outcomes (see Roberts Behl, Goetze, Johnson, & Nordfelt, 2005, for an exception). The latter was the focus of the study described in this article.

The study described in this article was conducted as part of the Research and Training Center (RTC) on Service Coordination (Bruder, 2005). The purpose of the RTC was to study and describe current models of service coordination, identify the practices and outcomes that are associated with different service coordination models, and promote adoption of the service coordination models that optimize positive benefits to infants and toddlers and their families. The purpose of this investigation was to identify those child, parent, family, and service coordination variables that were associated with reported variations of different service coordinator practices.

The study differed from previous investigations in 2 important ways. First, the practices constituting the focus of investigation were ones deemed important by both parents and professionals identified as part of research at the RTC on Service Coordination (Bruder et al., 2005. Focus groups, Delphi surveys, and interviews with parents, service coordinators, early intervention practitioners and providers, and program administrators throughout the United States were used to identify those service coordinator practices considered most important (see Bruder et al., 2005). Sixty-seven practices were identified that were subsequently organized into 9 categories: (1) Individual Family Service Plan (IFSP) development and oversight, (2) oversight and monitoring of early intervention service provision, (3) coordination and provision of early intervention services, (4) family participation and decision making regarding IFSPs and service provision, (5) provision of information to families about early intervention and related services, (6) provision of information to families about child learning opportunities, (7) planning for and assistance with the transition from early intervention to preschool services, (8) information about and assistance in obtaining child healthcare, and (9) information about and assistance in obtaining child care. The extent to which different person, structural, and process variables (Bronfenbrenner, 1992) accounted for variations in service coordinator use of these practices was the focus of investigation.

Second, we used an approach to data analysis (hierarchical multiple regression analysis) that permitted isolation of the factors that best explained variations in the use of the practices constituting the focus of investigation. The analytic method permitted us to discern the relative importance of several structural and process service coordination measures

in terms of explaining differences in service coordinator practices. More specifically, we examined the influence of service coordination model (Bruder, 2005), the length and frequency of contact between service coordinators and both Part C program participants and providers, and service coordinators' family-centered helpgiving practices (Dunst, 1997; Dunst & Trivette, 1996) on the service coordinator practices deemed important by parents and professionals (Bruder et al., 2005). The inclusion of multiple service coordination variables allowed us to identify which variables were most important in explaining differences in service coordinator practices.

METHOD

Participants

Parents and other caregivers were recruited by early intervention providers and programs, using mailing lists obtained from State Infant/Toddler Program Coordinators. Invitations were sent to randomly selected programs in those states ($N = 46$) where the Part C program coordinators provided mailing lists. Interested providers distributed surveys to program participants who returned the surveys to the investigators in postage-paid envelopes. Surveys were returned from parents and other caregivers in all the states where the surveys were sent. A precise return rate is unavailable because we have no knowledge that all surveys were distributed. Approximately 2000 surveys were distributed.

The sample included 346 parents and other primary caregivers of IDEA Part C early intervention program participants. Table 1 shows the background characteristics of the study participants. The parents were aged, on average, about 33 years and had completed an average of about 14 years of formal schooling. Most parents were either married or living with a partner, and about half of the survey respondents reported that they worked outside the home either full time or part time.

The parents' children were aged, on average, about 2 years at the time the respondents

Table 1. Background characteristics of the study participants

Background characteristics	*n* (%)
Respondent	
Biological mother	322 (93)
Biological father	8 (2)
Foster mother	7 (2)
Grandmother	5 (1)
Other	4 (2)
Respondent age, y	
<20	8 (2)
21–30	104 (44)
31–40	185 (53)
41–50	44 (13)
>50	4 (1)
Respondent education	
Elementary school	5 (1)
Middle school	15 (9)
High school	59 (23)
Some college	107 (31)
College graduate	94 (27)
Masters/doctorate degree	66 (19)
Marital status	
Married/living with partner	318 (92)
Single/separated/divorced	28 (8)
Employment status	
Not working	196 (57)
Working part time	92 (27)
Working full time	58 (17)
Ethnicity	
Caucasian/white	301 (87)
Latino/Hispanic	16 (5)
African American	10 (3)
Biracial	7 (2)
Asian	5 (1)
American Indian	3 (1)
Other	3 (1)
Child age, mo	
0–12	31 (9)
12–24	112 (32)
24–36	177 (51)
>36	26 (8)
Child diagnosis	
Established disability	235 (67)
Developmentally delayed/ at risk	108 (31)

completed the surveys. On the basis of the aggregate information provided by the parents on the surveys, the majority (70%) of the children had identified disabilities (chromosomal aberrations, physical disabilities, brain damage, autism or pervasive developmental disorders, health-related problems, sensory impairments, or multiple disabilities), and the other children had global developmental delays, delays in only one developmental domain or were at risk for delays (30%).

Survey

The participants completed an investigator-developed survey that included both closed-ended and open-ended questions. The survey included a section asking for information about the background characteristics of the study participants, a section for discerning child disability status, questions for ascertaining service coordination model, length and frequency of contact between the service coordinator and both the family and early intervention staff, a section asking respondents to rate the service coordinators' family-centered practices, and a section asking respondents to indicate the extent to which service coordinators provided different services to their family and children. Information provided by the survey respondents in each of these areas was used to construct the independent and dependent measures described next.

Independent variables

Background characteristics

Respondent age and education were coded in years and by highest grade completed, respectively. Respondent work status was coded as not working (0) or working part or full time (1). Marital status was coded as single/separated/divorced (0) or married/living with a partner (1). Child age was coded in months and child diagnosis was coded as identified disability (0) or developmentally delayed/at risk (1).

Service coordinator model

Respondents were asked the name of the agency or program for whom the service coordinator worked, the name of the agency or program providing early intervention services to the respondents' child and family, and to indicate whether any early intervention program staff or provider working with the respondents' child and family was the assigned service coordinator. The combination of program or agency, service coordinator role/responsibilities, and early intervention staff roles/responsibilities was used to assign respondents to 1 of the 3 service coordination models (dedicated and independent, dedicated but not independent, or blended). Families were assigned to the dedicated and independent model of service coordination (hereafter referred to as the *dedicated model*) if the role of the service coordinator was dedicated to service coordination only, and the agency providing service coordination was independent from service provision. Families were assigned to the dedicated but not independent model (hereafter referred to as the *intra-agency model*) if the service coordinator provided only service coordination but worked for the same agency or program providing early intervention services. Families were assigned to the *blended model* if the service coordinator provided both service coordination and early intervention services. Contrast coding (Cohen, Cohen, West, & Aiken, 2003) was used to compare the dedicated and intra-agency and dedicated and blended service coordination models.

Contact between service coordinators and program participants and early intervention staff

Respondents indicated how often the service coordinator working with the respondents' child/family had contact with his or her family, which was used to code frequency of contact on a 8-point scale ranging from "at least once a week" (7) to "less than twice a year" (0) and how often the service coordinator had contact with the early intervention program staff or providers, which was used to code frequency of contact on a 7-point scale ranging from "at least once a week" (6) to "a couple of times a year/don't know" (0).

Respondents were also asked to indicate for the practitioner currently providing service coordination how long he or she had been working with the family in years and months.

Family-centered helpgiving

Respondents were asked to indicate on a 5-point scale (ranging from "never" to "always") the extent to which the service coordinators working with their families used 4 relational (eg, "really listens to my concerns") and 4 participatory (eg, "provides me information I need to make good choices") family-centered helpgiving practices (Dunst & Trivette, 1996). Relational practices include behaviors typically associated with good clinical practice (compassion, active listening, empathy, etc) and practitioner attributions about family member's competence, strengths, and capabilities. Participatory practices include behaviors that involve family member's choices and decision making, use of existing abilities, and the development of new capabilities needed to obtain desired resources, and family-practitioner collaboration as the basis for enabling family competence and capacity. Principal components factor analysis of each set of ratings produced single factor solutions for both the relational ($\alpha = .92$) and participatory ($\alpha = .90$) practices. The sum of the ratings for each set of items was used as the family-centered practices measures.

Dependent variable

The types of practices used by the service coordinators were ascertained by asking respondents to indicate the extent to which service coordinators provided the 9 services constituting the focus of the investigation (IFSP oversight, early intervention services oversight, service provision, family decision making, information provision, child learning, transition planning, healthcare information/assistance, and child care information/assistance). Two practice items were included for each type of service coordinator activity. Each item was rated on a 5-point scale ranging from "never true" to "always true" that the service coordinator engaged in the practice.

Principal components factor analysis with varimax rotation was used to discern the factor structure of the service coordinator practice items. The analysis produced a 3-factor solution. One factor was made up of the 11 items ($\alpha = .92$) measuring those practices involving Part C service coordinators and early intervention providers (IFSP oversight, early intervention services oversight, service provision, family decision making, information provision, and child learning). The second factor included the 5 items ($\alpha = .82$) measuring service coordinator practices involving procurement of non–Part C services (information about and assistance in obtaining community resources, child care and child healthcare). The third factor ($\alpha = .89$) included the 2 items measuring a child's transition from Part C early intervention to another program (transition planning and implementation). The sum of ratings for each set of items was used as the dependent measures of service coordination practices. The sum of the ratings for all 18 items ($\alpha = .93$) was used as the total service coordinator practices score.

Method of analysis

Hierarchical multiple regression analysis by sets was used to ascertain the relationship between 7 sets of independent variables and the 4 service coordinator practices measures (Cohen et al., 2003). At each step in the analyses, R^2, increments in R^2 for the variables in each set, and the standardized regression coefficients for the variables in the sets were examined to identify the relative importance of the variables constituting the focus of analysis. The order of entry of variables into the analysis was as follows: (1) respondent age and education, (2) respondent work and marital status, (3) child age, (4) child diagnosis, (5) service coordination model, (6) service coordinator contact, and (7) service coordinator family-centered practices.

Table 2. Correlations between the predictor measures and service coordinator practices

Independent variables	Service coordinator practices			
	Community resources	**Transition planning**	**Early intervention services**	**Total practices score**
Respondent age	−0.02	0.09	−0.04	−0.01
Respondent education	−0.28[a]	−0.02	−0.20[b]	−0.23[b]
Respondent work status	−0.05	0.00	−0.03	−0.04
Respondent marital status	−0.10	0.03	−0.02	−0.05
Child age	−0.06	0.42[a]	−0.06	0.02
Child diagnosis	0.11[c]	0.01	−0.04	0.02
SC model (D vs I)[a]	0.12[c]	0.12[c]	0.20[b]	0.19[d]
SC model (D vs B)[a]	0.06	0.16[d]	0.27[a]	0.22[b]
Length of service coordination	0.08	0.23[b]	−0.08	0.03
Frequency of SC/family contact	0.11[c]	0.19[b]	0.35[a]	0.29[a]
Frequency of SC/EI staff contact	0.14[c]	0.15[d]	0.29[a]	0.26[a]
Family-centered participatory practices	0.36[a]	0.31[a]	0.73[a]	0.65[a]
Family-centered relational practices	0.29[a]	0.27[a]	0.66[a]	0.57[a]

Abbreviations: B = blended service coordination model; D = dedicated service coordination model; I = intra-agency service coordination model; SC = service coordination.
[a]$P < .0001$.
[b]$P < .001$.
[c]$P < .05$.
[d]$P < .01$.

RESULTS

Table 2 shows the zero-order correlations between the independent variables and the 4 service coordinator practices scores. With the exception of respondent education, none of the other background variables were significantly correlated with more than 1 dependent measure. In contrast, 6 of the 7 service coordination measures were significantly correlated with 3 or 4 of the practices measures.

The multiple regression analysis results are shown in Table 3. Respondents who completed more years of formal schooling indicated that service coordinators engaged in fewer of the community resources and early intervention services practices. The same was the case for the total service coordinator practices scores.

Child age and diagnosis were the only other background measures that accounted for a significant amount of variance in a dependent measure. Respondents of older children reported more service coordinator use of transition practices, and respondents whose children were classified as developmentally delayed (or at risk) reported more service coordinator use of practices procuring child care and child healthcare (community resources).

All 3 sets of service coordination measures accounted for significant amounts of variance in either 3 or 4 of the dependent variables, with the family-centered practices measures accounting for the largest amount of variance in service coordination practices. The latter is particularly noteworthy in light of the fact that the family-centered practices measures were entered at the last step in the analyses after the covariation between all the other independent variables and the dependent measures was removed.

Table 3. Multiple correlations (R^2), increments (I) in R^2, and standardized regression coefficients (β) for the relationship between the independent variables and service coordinator practices measures

	Dependent measures											
	Community resources			Transition planning			Early intervention services			Total practice score		
Independent variables	β	R^2	I	β	R^2	I	β	R^2	I	β	R^2	I
Respondent measures		0.08[a]	0.08[a]		0.01	0.01		0.04[b]	0.04[b]		0.06[b]	0.06[b]
Age	.04			.10			.00			.04		
Education	−.29[b]			−.04			−.20[b]			−.24[b]		
Family measures		0.09[b]	0.01		0.01	0.00		0.04[c]	0.00		0.06[d]	0.00
Work status	.03			.01			.03			.03		
Marital status	−.07			.02			.00			−.03		
Child age	−.06	0.09[b]	0.00	.42[b]	0.18[a]	0.17[a]	−.05	0.04	0.00	.03	0.06[d]	0.00
Child diagnosis	.13[c]	0.11[b]	0.02[c]	.04	0.18[a]	0.00	−.02	0.04	0.00	.05	0.06[d]	0.00
Service coordination model		0.12[b]	0.01		0.21[a]	0.03[d]		0.11[b]	0.07[d]		0.11[b]	0.05[d]
Dedicated vs intra-agency	.09			.07			.10			.11		
Dedicated vs blended	−.01			.14[c]			.21[b]			.15[d]		
Service coordinator contact		0.14[b]	0.03[c]		0.25[a]	0.04[d]		0.23[b]	0.12[a]		0.20[b]	0.09[b]
Length of family involvement	.10			.02			−.05			.01		
Frequency of family contact	.09			.16[d]			.26[a]			.22[b]		
Frequency of EI staff contact	.13[c]			.14[d]			.24[a]			.22[b]		
Family-centered practices		0.25[a]	0.11[a]		0.34[a]	0.09[b]		0.61[a]	0.38[a]		0.51[a]	0.32[a]
Participatory helpgiving	.50[c]			.38[b]			.67[a]			.68[a]		
Relational helpgiving	−.17			−.06			−.01			−.08		

[a] $P < .0001$.
[b] $P < .001$.
[c] $P < .05$.
[d] $P < .01$.

Within-set inspection of the standardized regression coefficients for the service coordination measures highlights which particular variables were the most important predictors of variations in reported use of service coordinator practices. Respondents assigned to the blended service coordination model reported greater service coordinator use of the practices than respondents assigned to the dedicated service coordination model. How frequent the service coordinators had contact with either or both the respondents' families and early intervention staff (but not the length of time the service coordinator worked with a family) was associated with greater service coordinator use of the practices.

Family-centered participatory helpgiving practices were the variable most associated with reported use of the service coordinator practices. The findings indicate that participatory helpgiving is relatively more important than relational helpgiving in predicting variations in service coordinator practices. The phrase *relatively more important* is the operative term because at the step before the family-centered practices measures were entered into the equation, both helpgiving practices measures were significantly related to all 4 service coordinator practices scores.

DISCUSSION

Findings clearly showed that service coordination structural and process variables, but not child, parent, or family background variables, were the most important determinants of variations in reported use of different service coordinator practices. Service coordinators working for programs using blended service coordination models who had relatively frequent contact with the respondents' families (and with early intervention staff) and who used family-centered helpgiving practices during these contacts were more likely to employ a wide range of practices providing or mediating the different kinds of child and family resources, supports, and services constituting the focus of the investigation.

The relative importance of service coordinator use of family-centered helpgiving practices as a determinant of service coordinator practices deserves comment because it illustrates that *how* service coordinators work with families matter a great deal in explaining variations in use of desired and valued practices (Bruder, 2005; Bruder et al., 2005). This finding adds to a burgeoning body of evidence, indicating that the use of family-centered practices has both direct and indirect influences on the nature of parent-practitioner relationships and child, parent, and family outcomes (eg, Dempsey & Dunst, 2004; King, King, Rosenbaum, & Goffin, 1999; Law et al., 2003; McWilliam et al., 1995; Munn, 2003; Trivette, Dunst, Boyd, & Hamby, 1995; Trivette, Dunst, & Hamby, 1996; van Riper, 2001). Munn (2003), for example, found that "professional elitism" (p. 305) was a deterrent to effective service coordination, whereas the kind of practices indicative of family-centeredness was a facilitator of effective service coordination.

To the best of our knowledge, this is one of the first studies of the empirical relationship between service coordination models in early intervention and variations in service coordinator practices. The exception is a study by Roberts et al. (2005). These investigators found, for example, that families who had service coordinators who worked for programs using a dedicated service coordination model indicated that their service coordinators were less helpful and they had more difficulty contacting them than service coordinators who worked for agencies using blended or integrated service coordination models. Taken together, the results from our study and study by Roberts et al. (2005) indicate that states that have adopted dedicated service coordination models (Harbin et al., 2004) may inadvertently "water down" the breadth and depth of service coordinator practices. This is due mostly to the fact that the caseloads of dedicated service coordinators are often larger than those using other models (Hurth, 1998; Roberts et al., 2005), which limits the amount of time

the service coordinators have to contact and work with families.

Results add to the knowledge base regarding the factors that influence service coordinator practices by isolating which factors matter most in explaining variations in how parents and other caregivers of early intervention program participants view service coordinators. The fact that all the service coordination measures contributed to variations in respondent's judgments of service coordinator practices indicates that these judgments were multiply determined in a way consistent with Park and Turnbull's (2003) contentions regarding the interpersonal (process) and structural factors that are important for service coordination to be successful. However, our finding demonstrated that one particular process factor (ie, family-centered helpgiving) was relatively more important than structural factors (service coordination model and frequency of service coordinator contact with families and providers) in explaining variations in service coordinator practices and the most important process factor was service coordinators' use of participatory helpgiving practices. We highlight the latter because research examining the influence of relational and participatory helpgiving on parent, parent/child, and child outcomes demonstrates that participatory helpgiving is more strongly related or has value-added benefits in explaining variations in child, parent, and family functioning (Dempsey & Dunst, 2004; King et al., 1999; Trivette et al., 1995; Trivette et al., 1996).

Studies like the one reported in this article have both limitations and strengths. A major limitation is the reliance of survey data for measuring service coordinator practices. Studies that monitor and report on the observed practices of service coordinators would make even more explicit the conditions under which desired and valued practices are used and not used. Similarly, the respondents were a self-select group, who were fairly homogeneous, white, educated, and married. The study results are representative of this sample, with limited generalizability to more underrepresented groups attending early intervention. The major strength is the analytic approach used to ascertain the factors that were most related to reported differences in service coordinator practices. This permitted, for all the variables examined in this study, the identification of which contributed most to reported use of service coordinator practices. This cannot but help make clear what matters most, as was the case in this study.

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