Pediatricians' Perceptions of the Effectiveness of Early Intervention for At-Risk and Handicapped Children

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ABSTRACT. To evaluate pediatricians' perceptions of the effectiveness of early intervention for handicapped and at-risk children, all board-certified pediatricians in the state of Ohio were surveyed. A detailed questionnaire was developed which included the use of brief but specific cases identifying eight different children with documented handicaps and two cases of children at developmental risk. Overall, the results indicated that pediatricians judged early intervention to produce at least a modest effect on children's general development and function. A more optimistic perspective was held for families in that involvement in early intervention was viewed as improving substantially the ability of families to cope with the problems of a handicapped or at-risk child and to provide a supportive and stimulating environment. However, perceptions of effectiveness did vary for specific disability and at-risk groups. The correspondence between perceived effectiveness and existing research findings also was discussed. J Dev Behav Pediatr 9:12–18, 1988. Index terms: early intervention, ratings by pediatricians, child and family outcomes.

The emergence of concerted national and local efforts designed to promote the development and implementation of early intervention programs for children with documented handicaps, and for those at risk for developmental problems, has resulted in a diverse and extensive array of programs that have touched virtually every community in the United States. Although the precise nature and form of the involvement of primary care pediatricians in the field of early intervention is still evolving, it is clear that pivotal roles exist with regard to identification, diagnosis, and referral, as consultants to schools and to other professionals, and as part of a multidisciplinary effort focusing on the health and developmental concerns of individual children and families.

How these roles are carried out is certain to be influenced by pediatricians' perceptions of the effectiveness of early intervention programs. Unfortunately, the effectiveness of these services for both children and families has been of concern to professionals from many disciplines, including pediatrics. The often controversial nature of these systematic and experientially based early intervention programs is, in part, a result of the unusually complex methodological problems researchers encounter in conducting efficacy studies in this field. It also reflects a tendency to seek global, summary statements about the effectiveness of early intervention, an approach that has many limitations from theoretical, clinical, and public policy perspectives. In fact, it is now clear that assessments of efficacy must be linked to and qualified by many factors, including specific handicapping conditions or a child's risk status, the severity of each disability, the conditions under which intervention occurs, and associated child, family, and environmental variables, as well as the specific outcomes of interest. Differentiating child and family outcomes appears to be a particularly important aspect of this evaluative process.

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In view of both the press for early intervention services and the uncertain and controversial nature of existing research, a current assessment of pediatricians' perspectives of these issues would provide valuable information. Of particular interest is whether pediatricians' views of effectiveness vary with a client's handicapping condition or risk status, and whether these views correspond to expectations based on existing efficacy research. In addition, the effects of early intervention on families and children should be considered separately, as these perceptions may well influence pediatricians' counseling and referral practices.

Accordingly, in the following study, a detailed questionnaire was developed which included the use of brief but specific cases identifying eight different children with documented handicaps and two cases of children at developmental risk. In each case, the specific parameters of any disability were noted, including its severity. In addition, the general conditions under which intervention was to be provided were outlined, and were presented as optimal approaches. Moreover, the questionnaire was designed to separate out perceived effectiveness for children and for families. Finally, since certain background factors of the respondents such as number of years in pediatric practice, subspecialty interest, or involvement with handicapped children may be associated with perceptions of effectiveness, a series of secondary correlational and subgroup analyses were carried out.

METHODS

Sample

The study population consisted of all pediatricians in the state of Ohio certified by the American Board of Pediatrics and currently practicing pediatrics on a regular basis, either in primary care or a subspecialty area. At the time of this investigation, the list contained 999 board-certified pediatricians (Fellowship List, 1984–85, American Academy of Pediatrics, Elk Grove Village, IL). Two subsamples were excluded from this survey: (1) pediatricians who had graduated from medical school before 1950, and (2) junior fellows. The first group of pediatricians was excluded because many were not currently in active practice or had substantially reduced their clinical responsibilities. Junior fellows were omitted because they were still in the process of completing their training. The remaining sample consisted of 651 pediatricians, all of whom received the Early Intervention Questionnaire in late 1985. Seven pediatricians had changed addresses and could not be contacted or were no longer in pediatric practice. Thus, the final sample consisted of 644 pediatricians.

Completed questionnaires were received from 270 pediatricians in response to the first mailing. A follow-up mailing was conducted 3 months later. The same questionnaire, along with a reminder memo, was sent to all nonrespondents. Questionnaires were returned by an additional 84 pediatricians. Thus, the combined total of respondents was 354, which is a 54.9% return rate. No further follow-ups were conducted.

Questionnaire

The Early Intervention Questionnaire was divided into two major sections. In the first section of the questionnaire, background information was obtained that appeared to be relevant to issues of early intervention. Specifically, data were gathered with regard to (1) year of graduation from medical school, (2) type of pediatric practice (general pediatrics, subspecialty interest, subspecialty, other), (3) city of practice—used to identify size of the community, (4) the number of infants and young children seen in the practice, (5) whether regular consultation occurred with local infant stimulation programs, preschools, Head Start programs, etc., regarding young handicapped children, (6) the number of handicapped children seen in the practice, and (7) the proportion of children in the practice from potentially adverse home environments, including those with very low income, parents with limited education, and teenage parents.

The second and main section of the questionnaire requested the opinions of the respondents focusing on eight separate handicapping conditions and two types of developmental risk.

Children with Documented Handicaps. A shared context for responding to questions regarding early intervention was considered necessary, especially for children with documented handicaps. Accordingly, the questionnaire provided essential background information describing the nature of early intervention and the types of services that are commonly received by children and their families. In addition, since opinions with regard to the effectiveness of early intervention are likely to vary for children with different disabilities or degrees of severity for a given disability, a brief description containing essential diagnostic information with developmental parameters for the eight different cases representing each of the documented handicaps of interest was provided.

The eight cases with documented handicaps selected for study were: (1) cognitive delay (moderate mental retardation), (2) cognitive delay (mild mental retardation), (3) motor disability (moderate spastic diplegia), (4) communication disorder (severe expressive, mild receptive language problems), (5) hearing impairment (severe congenital bilateral loss), (6) visual impairment (congenitally blind child), (7) autism (nonverbal moderately retarded child with significant self-stimulatory behaviors), and (8) multiply handicapped (profoundly retarded child with spasticity and seizures). Respondents were asked to assume that the specific service agency identified in each case provides a well-run program, uses up-to-date individualized approaches, and employs a highly qualified staff.

For each case (handicap), respondents were asked to complete two separate scales. The first focused on the effectiveness of early intervention in relation to the handicapped children themselves. It was stated that we were interested in the opinion of each pediatrician with regard to the "probable impact of these programs on child development or function." The second scale focused exclusively on the effects of early intervention on families, "specifically their ability to cope with the problems of a handi-
capped child and to provide a supportive and stimulating environment." Each scale ranged from no effect of early intervention (a rating of 1) to a substantial (positive or beneficial) effect (a rating of 5). A midpoint (rating of 3) was used to reflect a modest (positive or beneficial) effect. A "no opinion" option was also available. Finally, at the end of the section on children with developmental handicaps, respondents were asked if they saw any contraindications with regard to enrolling handicapped children in early intervention programs and to specify the problems and conditions for which this might be the case.

Children At Risk for Developmental Problems. An identical pattern was followed for the section on children at risk for developmental problems. A brief discussion of programs designed to prevent or minimize the possible impact of adverse biological (e.g., asphyxiated full-term infants, premature/low birth weight graduates of neonatal intensive care) and environmental factors (e.g., low educational level of mother, delayed prenatal care, poverty) was presented. These two risk categories, biological risk and environmental risk, were selected for separate case presentations. The biologically at-risk case consisted of a 3-month-old premature child (30 weeks' gestation, 1200 g) recently discharged from the neonatal intensive care unit. The environmentally at-risk case was that of an 18-month-old child from a single parent family with limited education and resources. Two of the mother's previous four children were currently enrolled in special education. Separate scales for assessing impact on the child and on the family were provided, and the question on contraindications was also presented.

RESULTS

Characteristics of the Sample

The mean number of years from the point of graduation from medical school of our sample was 20.34 (SD = 7.97). Almost half the respondents were in a general pediatric practice (46.74%), 24.08% identified themselves as subspecialists, and 21.25% indicated they were in a general pediatric practice with some subspeciality interest. The remainder selected the "other" category, identifying administration or nutrition research, for example, as their primary involvement. The practices of most respondents (83.53%) were in large metropolitan areas.

As noted, a series of questions was asked to determine the size of each respondent's practice and his or her involvement with handicapped and at-risk children. Nearly two-thirds of our sample saw more than 10 children, 5 years old or younger, per day, in their practice, and approximately 15% saw more than 15. When asked if they consulted regularly with infant stimulation programs, preschools, Head Start programs, or other agencies serving young handicapped children, 58.63% responded positively. Respondents were then probed specifically about the number of handicapped children seen in their practice per month. One-quarter of the sample (25.07%) saw more than 15 handicapped children per month, but nearly half (49.28%) saw fewer than five per month. A similar distribution held for the question asking respondents to estimate the proportion of their practice that included children from potentially adverse home environments. Approximately 10% of the sample responded that their practice was composed primarily of children at environmental risk, with 42.78% indicating that this subgroup constituted less than 10% of their practice.

Perceived Effectiveness of Early Intervention for Children

A one-way repeated measures analysis of variance (ANOVA) across the 10 disability and risk status groups was carried out for all respondents who had opinions for all cases (n = 271). This analysis was highly significant, F(9,2700) = 149.27, p < 0.0001. Pair-wise comparisons were then evaluated using the Newman-Keuls test (p < 0.05). Figure 1 presents the mean effectiveness ratings for each of the 10 cases. The bracketed areas at the top of the figure indicate which cases differed significantly from others. Brackets encompassing more than one case did not differ reliably from one another. However, each of the seven bracketed groupings was significantly different from each of the others.

As can be seen, hearing-impaired children were judged by pediatricians to be most likely to benefit from early intervention, approaching the highest rating possible (a substantial effect). Cases involving the visually impaired child and the child with a communication disorder constituted the next highest grouping, achieving average scores above 4.00. The third grouping was quite heterogeneous, consisting of a case involving a child with a motor disability, a child at environmental risk, and a child with mild mental retardation. The remaining four cases all differed significantly from one another, with the child with multiple handicaps judged to be least affected by involvement in early intervention.

Approximately 50 respondents indicated that there were some contraindications with regard to enrolling handicapped children in early intervention programs. Most noted the possibility of establishing false expectations for families, especially for children with severe disabilities. Financial stress was the second most frequently cited problem. In addition, a number of pediatricians were concerned about the absence of prospective longitudinal studies of effectiveness and the substantial professional disagreements that existed surrounding specific therapeutic modalities. Very few respondents noted any contraindications for children at risk. The only issue that emerged involved cost-benefit considerations for the biologically at-risk child.

*Not all respondents answered every question (range 337–353). Since the n for each question did vary, most of the data for the background questions are presented as percentages of the total number of those responding.

†The n used for this repeated measures analysis (271) was therefore based on the lowest number of possible respondents in the sample. The n for each of the 10 groups ranged from 313 to 326. Nevertheless, the smaller subset was representative of this larger sample as the means and standard deviations were virtually identical in all instances.
Effectiveness of Early Intervention

Perceived Effectiveness for Families and Comparisons to Child Effectiveness

A one-way repeated measures ANOVA across the 10 disability and risk-status groups carried out for all respondents who had opinions on the effectiveness for families for all cases ($n = 272$) was highly significant, $F(9,2710) = 45.61$, $p < 0.0001$.\(^4\) Pair-wise comparisons using the Newman-Keuls test ($p < 0.05$) revealed the pattern of outcomes depicted in Figure 2. Brackets for each disability or risk group indicate which cases differed significantly from each other. As can be seen, the case of the hearing-impaired child received the highest effectiveness rating for families, a result identical to that obtained for the effectiveness for children ratings.

To assess the relationship between child and family ratings, we carried out separate repeated measures ANOVAs for each of the 10 cases (Fig. 3).\(^5\) That analysis for the hearing-impaired case indicated no difference between the ratings received for the child and family assessments ($p < 0.05$). The visually impaired child received the next highest rating, a position also identical to that obtained for the corresponding child effectiveness assessment. The brackets in Figure 2 indicate that the visually impaired child's ratings differed significantly from all other cases, except that of the child identified as having a cognitive-moderate disability. Comparisons between child and family ratings for the visually impaired child (see Fig. 3) did not reveal a reliable difference ($p < 0.05$), as pediatricians perceived that both children with sensory impairments and their families would benefit substantially from participation in early intervention programs. Children with cognitive delays that were moderate in severity also received a high family rating. However, this rating differed from the child effectiveness pattern and resulted in a significantly higher rating for families than for children, $F(1,648) = 117.22$, $p < 0.0001$ (Fig. 3).

The next highest ratings for families formed a cluster that included the motor, communication, and cognitive-mild cases (Fig. 2). This order also differs from that obtained from the effectiveness for children assessments. Separate analyses comparing child and family ratings for each of the three cases in this grouping revealed that respondents perceived the impact to be greater for families than for children, for cases involving children with cognitive-mild, $F(1,650) = 24.61$, $p < 0.0001$, and motor $F(1,646) = 13.34$, $p < 0.001$, disabilities. In contrast, in the case of the child with a communication disorder, respondents perceived the impact on children to be greater than that on the families, $F(1,642) = 5.04$, $p < 0.05$. This latter difference was quite small, however (Fig. 3).

The case of the child at biological risk was part of a cluster of three groups that received the next highest effectiveness rating for families. Once again, respondents rated the effect for families to be greater than that for children, $F(1,622) = 37.44$, $p < 0.0001$ (Fig. 3). This pattern was retained for the ratings composed of the child with autism and the child with multiple handicaps. Ratings for the effect on families were substantially higher for both the child with autism, $F(1,592) = 95.61$, $p < 0.0001$, and the multihandicapped child, $F(1,642) = 248.81$, $p < 0.0001$. As can be seen, although respondents did not expect that early intervention programs would produce more than a modest effect on child development or function for these

\(^4\)To adjust for varying numbers of respondents, the same approach used for the analysis for effects on children was used here (see footnote 1). Once again, a high correspondence existed between this sample and the slightly larger number of pediatricians responding to each of the 10 cases.

\(^5\)The sample used for this analysis consisted of all respondents who rated both the child and family effectiveness scale for each particular case (range 297–326).
more severely disabled children, they were considerably more optimistic with regard to benefits to their families. Finally, and in marked contrast to the pattern noted above, respondents not only rated that early intervention would be least effective for the families of the environmentally at-risk case, but that the effect on the child would be substantially greater than the effect on families, $F(1,634) = 28.76, p < 0.0001$.

Correlations with Background Factors and Effects of Type of Practice

A series of correlational and subgroup analyses involving background factors were carried out to determine whether specific outcomes were associated with aspects of the respondents' practice, their involvement with handicapped children and their families, and their subspecialty interests. These extensive analyses revealed few and no substantial correlations or consistent patterns for any variable, suggesting that the ratings described above do not require qualification. Details of these analyses can be obtained by writing the first author.

DISCUSSION

The results of this extensive survey of pediatricians' perceptions of the effectiveness of early intervention for at-risk and handicapped children revealed a number of important patterns. Overall, pediatricians appear to hold a positive view of early intervention, judging it to produce at least a modest impact on children's development and function and to improve substantially the ability of families to cope with the problems of a handicapped child, and to provide a supportive and stimulating environment. However, these opinions were not independent of a child's handicapping condition or risk status. Based on the results of the effectiveness for children scale, pediatricians considered children with sensory impairments and communication disorders to benefit more than any of the other groups, receiving an overall rating of 4.3 on the child scale. In contrast, children with more severe handicaps, i.e., those with autism and multiple impairments, were judged to benefit to only a limited extent from early intervention. Although this study was not designed to assess the correspondence between these perceptions and clinical practice, it is likely that the more extreme differences reflected different counseling and referral strategies. An important direction for future work in this area will be research that directly evaluates the relationship between perceptions of early intervention and clinical practice.

Pediatricians were even more positive about the impact of early intervention for families. Direct comparisons between the child and family scales favored the family component for children with a wide range of existing or potential disabilities, including the cognitive-mild, cognitive-moderate, motor, autism, multihandicapped, and at-risk biological cases. Those instances in which no differences were found between the child and family scales were due to the fact that the child effectiveness rating itself was quite high. The only major exception to this pattern was the rating for children at environmental risk. In this instance, pediatricians judged families to benefit less than their children from participation in early intervention. This finding may reflect the recognition that a large number of diverse problems confront these families and, despite involvement in early intervention programs, these family life patterns are not likely to be altered dramatically.

An important question to ask is whether or not these perspectives correspond to existing outcome data on the effectiveness of early intervention. Overall, ratings for the effectiveness for children with documented handicaps correspond to the general finding that responsiveness to early intervention correlates positively with a child's intellectual level. However, a more detailed examination of the individual disability and risk status groups suggested a more variable relationship to existing research. The case of the child with a hearing impairment received the highest rating, and current research, particularly for programs following a total communication approach, does, in fact, indicate that hearing-impaired children can benefit substantially. It is nevertheless somewhat ironic that this perception is held, since a number of studies have indicated that pediatricians often fail to detect a hearing impairment sufficiently early. In contrast, high effectiveness ratings for the cases of the visually impaired child and the child with a communication disorder are not based on adequate empirical support. In fact, virtually no systematic or scientifically sound studies are available demonstrating the effectiveness of early intervention for visually impaired children. Pediatricians' perceptions of a modest effect for children with motor, cognitive-mild, and cognitive-moderate disabilities, as well as those at risk from environmental factors, are consistent with available research. The low ratings for children with autism and multiple handicaps also seem realistic, although there is increasing, yet still preliminary, evidence that more substantial benefits can result for autistic children. The relatively low ratings for children at biological risk are perhaps related to the
fact that the child in the case described in the questionnaire does not appear to have detectable problems upon discharge from the neonatal intensive care unit, despite the fact that the incidence of developmental problems in very low birth weight children is quite high. On the other hand, the rating may well reflect the research literature that has failed to demonstrate reliable effects of early intervention for children at biological risk.

The finding that pediatricians viewed the impact of early intervention programs for families to be highly positive is especially noteworthy. However, despite the fact that a strong case can be made for the benefits of early intervention for families, the research literature has not been able to demonstrate a consistent and reliable effect, although this issue is currently a highly controversial one. We were unable to determine from our study whether the positive ratings by pediatricians were based on families' perceived ability to cope with the problems of a handicapped child, their ability to provide a supportive and stimulating environment, or both. Nevertheless, pediatricians tend to hold the view that families benefit substantially from involvement in early intervention programs, a view shared generally in the field, despite the absence of supportive research.

Despite the sampling approach that included all board-certified pediatricians residing in one state who graduated within the last 35 years and the reasonable return rate (54.9%), it is not possible to determine whether responses to the early intervention questionnaire were representative of pediatricians in the entire state or of pediatric practitioners in general. A comparison of respondents with nonrespondents in terms of year of graduation, however, did indicate that a higher proportion of respondents than nonrespondents graduated more recently from medical school. Since there was a modest negative correlation between years in practice and child and family ratings, this would suggest that respondents were likely to have been slightly more positive with regard to child and family outcomes for some disability or risk groups. Nevertheless, as noted earlier, correlations with all background factors were both sporadic and extremely small, clearly suggesting that our findings need not be qualified by any of these factors. Moreover, the large sample size and the internal consistency of the findings add confidence to the generality of our results, but other samples are certainly necessary before our conclusions can be firmly established. To some extent, the overall positive perception may have been influenced by the fact that the questionnaire stated that the early intervention programs were to be considered as being well run, with highly trained staff. Although these seem like reasonable descriptions, the tendency toward extreme negative ratings by pediatricians who had personal experiences with inadequate programs may have been reduced. Finally, our findings must be interpreted within the 10 cases representing each of the disability and risk groups. Establishing a framework in the questionnaire for pediatricians to respond to child and family ratings was seen as essential, but nevertheless forced a choice among an array of possible child characteristics.

Conclusions

Despite the complexity and diversity of early intervention programs and the need for more definitive research for most disability and risk status groups, pediatricians appear to hold a generally positive and realistic outlook with regard to the effectiveness of early intervention. The high ratings received for the family scales are particularly noteworthy since, even when children are not expected to benefit even modestly from early intervention services, referrals by pediatricians to early intervention programs and encouragement to families to become active participants are likely occurrences.

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