Children and Youth Services Review, Vol. 6, pp. 125–133, 1984
Printed in the USA.

0190-7409/84 $3.00 + .00

Matching Children with Placements

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Utilizing profiles of children in diverse residential programs, a computerized model was developed to explore the possibility of replicating existing placement patterns and to aid practitioners in making future child placement decisions. The model provides a method for rank-ordering placement alternatives for children needing residential care.

Introduction

Approximately 273,000 children in the United States are in substitute care living arrangements (Tatara & Pettiford, 1983). Among the distinct types of out-of-home care arrangements are the following: emergency placement facilities; foster homes; specialized foster homes; family group homes; peer group homes; group residences; child care centers; children's service centers; child therapy

The authors express their appreciation to the Regional Network for Children, Inc. (RNC) of Central Texas, whose leaders initially expressed to the authors the need for this study and whose member agencies volunteered to participate in these exploratory efforts. The authors are also grateful for the cooperation and assistance of the Texas Department of Human Resources, a founding member of RNC, whose in-kind contributions and financial assistance under P.L. 93-247 National Center for Child Abuse and Neglect State Grant Funds made the study possible.

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centers; psychiatric hospitals; and security facilities (Mayer, Richman, & Balcerzak, 1977, pp. 158–159).

However, with the diversity of facilities often available for children, social workers continue to grope for a clear, reasonably well-validated answer to the classic question involved in a referral decision. What kind of children are best served in what kind of facility? (Kadushin, 1978, p. 127).

The process through which a child is placed in substitute care apart from his or her family can be viewed as an interaction between two complementary service systems. The child placing, or referral system assists the family or guardian of a child in preparing and presenting information to an institution from whom placement is sought. The child caring, or institutional system is composed of the facilities that provide the actual physical care and/or treatment for children. If a parent or guardian directly approaches a child care facility, the function of the referral agency is performed by institutional personnel.

According to Scott Briar (1963), "perhaps no decisions in social casework practice pose more awesome responsibilities for the caseworker and are more far-reaching in their potential consequences for the client than those involved in the placement of children in foster care" (p. 101). Thus, ideally, there should be clearly formulated and widely accepted guidelines for matching children needing care with the different alternative facilities available.

Often, though, caseworkers have no clear conception as to what facilities can serve which disturbed child (Mayer et al., 1977, p. 97). Moreover, the effectiveness of any substitute care program may depend upon the accuracy of the social worker's judgment in assessing the probable duration of the placement, the probability of the child returning to his or her own home, and selecting the placement resource which is most likely to benefit the child (Briar, 1963, p. 168).

Several researchers have explored decision making in child placements and have identified a number of variables that tend to be significant predictors of child placement decisions. Among these are: parental preference, previous placement patterns of the worker's employing agency (Briar, 1963, p. 168); background factors impinging on the family, negative traits of the child (Phillips, Shyne, Sherman, & Haring, 1971); age of child, socioeconomic status of child, negative family relationships, level of education, and creativity of caseworker (Jaffee, 1967).

Acknowledging that other factors, in addition to those just cited, may influence a child placement decision (i.e., availability of an opening at the time needed, relative costs, anticipated benefits,

and so on), the study to be discussed focused on these factors and others to develop a computerized methodology or model for matching children with substitute care placements. It is designed to enable child placement practitioners to utilize available client information to anticipate institutional decisions to accept a child into placement and to provide the referring agent with information to evaluate the appropriateness of any initial recommendations.

The impetus for attempting to develop a computer model came from a group of child care professionals who were dissatisfied with the available procedures for (a) evaluating placement options for individual children and (b) for identifying and planning services for children whose needs were agreed to exceed the resources available at most institutions, i.e., were difficult to place. Although the ultimate questions and criteria for child placement decision focus on questions of benefit and outcome, those issues assume that we have an adequate understanding of the child placement process as it exists in current practice. Without denying the importance of the question of benefit, the present study was designed to enhance our understanding of how children were selected into placement alternatives.

The first step in increasing our understanding of the child placement process was to attempt to build a small-scale model of the existing services for children currently being placed—one that could identify and weigh the key variables that predicted the probability of any one child being admitted to each program in the model. If the child care system could be modeled, it would then be possible to use the model to simulate placement for those children described as falling outside the network of services. If these children had very low probabilities of being accepted at any institution in the model, then a conclusion that the existing system of services could not meet their needs would be supported.

Derivation of the Model

Although it would have been desirable in our study of placement decisions to have had data available both on institutional decisions to accept and decisions to reject children, the only consistently available information source is acceptance decisions. Institutions maintain a data base on the characteristics of the children that they have accepted. However, there is no systematic information available about children who are either not accepted or for some reason not placed—none required by licensing standards and none common to institutional practice.

Therefore, the model was designed to replicate the acceptance

decisions made in the past by institutional administrators. It was assumed that patterns do exist in the combinations by characteristics descriptive of children admitted to different programs and that they are sufficiently distinct as to make it possible to differentiate children at any one facility from those at other facilities. We are not implying that child care facilities serve strictly homogeneous populations; we are implying that children at a particular facility are more alike than different. The modelling effort will, in effect, provide a test of these assumptions.

The degree to which a child resembles other children whom an institution has accepted in the past becomes the basis for recommending or not recommending referral to a particular program. Thus, the model was designed to distinguish the client group acceptable to one institution from that acceptable to other institutions.

Selecting the Sample

The opinions of local child placement experts as well as pragmatic statistical necessities dictated the choice of institutional settings to be included in the sample. Data were collected from seven facilities which were identified as being representative of the two most common forms of institutional placement in the state of Texas—basic child care and residential treatment. A residential treatment center was defined as a child caring institution which provides residential care and treatment for emotionally disturbed children and adolescents (Minimum Standards for Residential Treatment Centers, 1980). Basic child care facilities provide care for more than 12 children for 24 hours a day (Minimum Standards for Institutions Providing Basic Child Care, 1980). The type of care provided was identified by the type of license held by the facility.

Facilities were purposively selected based on the recommendations of child placement experts and the willingness of the facility to participate. All the facilities included in this study (three basic child care and four residential treatment programs) were privately operated, had long experience in the provision of children's services, and were highly regarded by child care professionals.

By limiting the sample to include only two types of programs, we purposefully allowed opportunities for overlapping to occur among the populations studied so that the modeling technique would have a chance to fail to distinguish between some of the groups.

In the analysis, each program studied was treated as providing service to a unique sub-population of the total sample. Thus, in

attempting to replicate all existing placement patterns, we were trying to distinguish between seven institutional programs rather than two types of care.

Data Collection and Analysis

Data were collected from the case records of 267 children placed in the seven institutions. The size of the sample at each institution was initially targeted to be the 40 children most recently discharged. However, two factors caused the actual number of cases studied at each institution to vary from as many as 49 to as few as 29. Some programs served children for such long periods that meeting a quota of 40 children recently discharged would have caused them to go back so far in their history that they would be including children very different from their present population. Second, the physical capacity of some institutions was so small that it restricted the number of cases available for study. Smaller samples were considered preferable to excluding any of the selected programs for study.

These problems were resolved by selecting children in the sample population who had been in placement at least 3 months so that appropriateness of care could be estimated. The sample available for the study included 114 children from three different basic child care facilities and 153 from four different residential treatment centers.

In order to collect uniform and relevant data on the sample population as a basis for building the predictive model, an instrument was developed by cross checking items required to be in intake studies by child care licensing standards (Minimum Standards for Institutions Providing Basic Child Care, 1980; Minimum Standards for Residential Treatment Centers, 1980) with descriptions of children and families used in previous studies of children in residential care.

The data collection instrument included the following variables: items that demographically described the child and his or her family; family problems; the child's physical, emotional, peer, school, and legal problems; and the number and types of previous placements and other professional efforts to resolve the problem. Using this data collection instrument, student interns and project staff collected data from intake records.

The actual placement decision model began with a data set of 139 variables describing each of the 267 children placed in the seven different institutions. Discriminant analysis provided a scheme for selecting the best subset of predictive characteristics to

replicate the known placement patterns. Output for this procedure from the Statistical Package for the Social Sciences (SPSS) included a rank-ordered list of predictor variables and a classification for each case based on the discriminant functions derived by SPSS. These classifications form the basis for recommending placement alternatives. The degree to which predicted admissions coincided with known admissions provided a measure of model accuracy or effectiveness. The more often an actual placement was predicted by the model, the better the computer model was able to replicate placement decision making.

Findings

Stepwise discriminant procedures were used to identify the model that replicated the known pattern of placements with the highest degree of accuracy based on the fewest number of variables. A model based on the 20 variables in Table 1 was found to be the most accurate based upon a limited number of variables.

This list of variables indicate the factors that were most useful in differentiating between the samples from each institution. They are the variables on which the groups showed the greatest differ-

TABLE 1
Variables in the Model

1.	Age at time of this placement
2.	Diagnosed with psychiatric problems
3.	Conservator is a family member
4.	Legal status is delinquent
5.	Number of legal problems
6.	Mental retardation as a school problem
7.	Sex
8.	Number of peer problems
9.	Prior treatment oriented placement
10.	Previously in special education classes
11.	Prior treatment by a social worker
12.	Prior placement in a correctional facility
13.	Poor attendance in school
14.	Other natural siblings in other placements
15.	Committed crimes of a legal minor
16.	Previously in family counseling
17.	Prior treatment by a psychologist
18.	Previously evaluated by a psychiatrist
19.	Mother remarried
20.	Abuse by a stepparent

ences. Because they are specific to the particular facilities in this exploratory study, it would be a serious error to attempt to use this list as a general guide for the placement of children.

The SPSS classification procedure provided an estimate of the model's accuracy as 83%. This estimate is overly optimistic (too high) because the cases classified are the same ones used in deriving the discriminant functions (Eisenbeis, 1977). A method for developing a more accurate estimate of the model's accuracy requires holding out one case from each discriminant analysis and classifying that case on the basis of the calculated functions (Lachenbruch, 1967). This procedure yielded a more conservative accuracy rate of 69%.

The mathematical model replicated the actual placement pattern for 69% of the 267 children studied. Although this accuracy rate falls within the range of 60%–75% reported for similar studies, (Brookhart, Ruark, & Scoven, 1976; Feldhusen, Aversano, & Thurston, 1976), a few other facts lend perspective to the usefulness of a model with this rate of accuracy. When computing errors, the model was assumed to be in error every time a mismatch occurred. It is possible that the model may have identified a placement that was more appropriate to the child's characteristics, but unavailable for other reasons, such as cost, location, or lack of an opening. Moreover, if either of the two most highly recommended placements for a given child is compared with the child's actual placement, the accuracy rate jumps to 85%. If errors by type of care are studied (a child from residential treatment recommended for basic care or vice versa) the model misplaced children less than 10% of the time. Therefore, the accuracy of the placement model appears to be sufficiently high to merit serious consideration by practitioners.

Conclusions

The application of discriminant analysis classification techniques to the client variables for 267 children from seven institutions provided a reasonably accurate model for recommending placement based on client characteristics. By entering data descriptive of a specific child for whom placement is being sought, it is possible to receive a set of recommendations for placement based upon the child's similarity to each of the populations of children included in the model.

The results of this exploratory study demonstrated the feasibility of using this methodology to develop a more comprehensive model which would include an entire range of available child care

services in both the private and public sector. Such a model should not supercede the individual worker's authority and responsibility for making child placement decisions. Instead, the computer-based model is viewed as a resource or support to those charged with finding placement for children. This decision support system would provide the following data to the worker:

1. characteristics of children currently in a particular child-care facility; and,
2. the programs most likely to admit a particular child.

If a small-scale model can be built as the results of this study indicate, then the next step is to attempt a large-scale model with sufficient alternatives to be useful to practitioners. If this proves possible, the sampling plan could assemble practice wisdom, previously stored in the minds of numerous workers, into a single computer data base. Thus, knowledge gleaned from diverse geographic areas could become available to all child placement workers and eventually benefit all children who need placement.

It is possible, and likely, that in the future such a model could simulate the operation of an entire system of children's services. It may even be possible to examine what might happen to a group of children if a particular program were no longer available. Moreover, as cost-of-care figures become available, it may also be possible to propose a budget adequate to fund a program of services for a sub-population of children who are now difficult to place within the existing spectrum of services. This kind of model could be extremely useful to public and private agency planners and administrators.

Continued developments and refinements of the current model will be reported as they occur, and should lead to further applications for social workers and other child care professionals.

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