SEVERITY OF HANDICAP AND GEOGRAPHIC DISTANCE AS FACTORS
IN RESIDENTIAL PLACEMENT OF HANDICAPPED CHILDREN

THESIS

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

Dennis P. Ferrell, B. S.
Denton, Texas
May, 1978

There were two types of observations used in this investigation: (a) institutions within the State of Texas providing residential treatment to children severely handicapped mentally or physically and (b) children served by those facilities.

Data were collected from 21 public institutions and 23 private establishments. The results provide support (.001) for the prediction that the distance between the child's home and the treatment facility is greater for public institutions than for private. They also provide somewhat less positive support for the differential effect of handicap severity on distance to public institutions as opposed to private ones.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>iv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Method</td>
<td>9</td>
</tr>
<tr>
<td>Subjects</td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td></td>
</tr>
<tr>
<td>Procedure</td>
<td></td>
</tr>
<tr>
<td>Results</td>
<td>13</td>
</tr>
<tr>
<td>Discussion</td>
<td>15</td>
</tr>
<tr>
<td>Appendix</td>
<td>19</td>
</tr>
<tr>
<td>References</td>
<td>22</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Summary of ANOVA for Severity Classifications and Auspices</td>
<td>13</td>
</tr>
<tr>
<td>2. Means and Standard Deviations by Severity and Auspices Classifications</td>
<td>14</td>
</tr>
</tbody>
</table>
Upgrading the quality and quantity of services to severely handicapped children and youth has been one of the primary concerns within the field of human services over the past decade. Norris and Larsen (1977) surveyed a wide variety of mental health professionals who believed that over the next 5 years the highest priority should be placed on services to children. Program evaluations and assessments of client needs have revealed many gaps in the array of services available to this population, but federal, state, and local governments have responded in varying degrees with attempts to fill these gaps (Kakalic & Brewer, 1975). The efforts have resulted in changes for many areas of service with some of the most extensive occurring in residential placements of mentally retarded and emotionally disturbed children (Cleland & Swartz, 1969; D'Amato, 1969). Kramer (1967) analyzed epidemiological data and population trends of state mental hospitals and projected the greatest increase in demand for residential services through 1973 would occur within the 0-24 age group.

During the 1960s, one response to the increased demand for residential placement was a move toward providing a package of services at the local level which would meet clients' needs adequately and allow them to avoid...
institutionalization. Plans in this direction have involved increased fiscal support for community services and more efficient use of existing community resources (Kakalic & Brewer, 1975; Rafferty, 1975; Sauber, 1976). The State of California, for example, followed an approach of large-scale discharge of chronic mental patients coupled with financial inducements to local service providers to encourage the development of community services to these persons (Lamb & Edelson, 1976). New York increased the discharge rate while tightening admissions standards to state hospitals (Robbins & Robbins, 1974). These projects and other studies have documented an overall decline in public institutional admission rates during the late 1960s and early 1970s (Decker & Shealey, 1973; Orizin & Taube, 1974; Schulberg, Becker, & McGrath, 1976; Shealey & Wright, 1972).

The literature analyzing the developments within this trend falls into three main subject areas: (a) the status of service delivery systems at the community level, (b) effects on families maintaining severely handicapped persons in the home, (c) the differential impact of this trend on various segments of the population.

Kramer's (1967) comprehensive study outlined several assumptions underlying the increased dependence on community-based services to meet the needs of special populations. Central to the idea is the assumption that an adequate array of services exists, or will be developed, in the community and that the client will be in a position to take advantage
of them. The California and New York studies both raised serious questions as to the success of community resource networks in providing appropriate services to those most in need. Robbins and Robbins (1974) reported that local facilities have been severely overtaxed in trying to meet the needs of clients discharged or deflected from the state hospitals. At the same time, city and county governments have been slow to respond with increased appropriations, leaving the programs to rely primarily upon federal and state funds. Lamb and Edelson (1976) describe similar problems in California and point out that recently their state hospital populations have begun again to increase. In some areas, adequate local services simply do not exist (Jones, 1975; Lamb & Goertzel, 1977). In others, the problem seems to be one of communication concerning what resources do exist and how barriers to their services may best be overcome (Beigel, 1971; Kakalic & Brewer, 1975; Rafferty, 1975).

Studies comparing the costs of institutional placement with the expense of maintenance within home/community settings have yielded conflicting results. Murphy and Datel (1976) conducted a cost-benefit analysis of local programs serving previously institutionalized clients in Kentucky and reported a savings in 10 years of $20,800 per client over projected institutional costs. Sharfstein and Nafziger (1976) also reported large savings on clients diverted from institutional placement. Both of these studies computed savings only with regard to state expenditures, ignoring federal and
local costs. They also dealt only with clients low in risk of recidivism, even though many discharged or deflected clients are requiring inpatient services at the local level (Jones, 1975; Rafferty, 1975). In contrast, Lamb and Edelson (1976) compared total costs per client served and found that state hospital placement cost only one-third as much as local inpatient services. Lamb and Goertzel (1977) reported similar data showing local inpatient episodes to be 44% more expensive than in state hospitals.

Another assumption Kramer (1967) views as crucial to the success of the community-based services model is that the client's family possesses sufficient strength and understanding to deal with the client's needs and behavior without undue hardship. Parsons and Fox (1953) put forth the view that the burden of care for the seriously ill should be taken away from the family so as to preserve its equilibrium and ability to cope with ordinary problems of living. Presence of a severely mentally handicapped person in the home puts such stress on the family that the care and rehabilitative progress of the person can be seriously affected (Anderson & Meisel, 1977; Farber, 1959). Robbins and Robbins' (1974) data indicated that such families in New York felt significantly increased stress, especially those for whom financial resources were the most limited.

Doll (1976) studied families to whom a hospitalized person had been returned. Although the families generally provided adequate care, they often refused to integrate the
person into the mainstream of family life and reported severe emotional and social strains. These results were later supported by Lamb and Goertzel's (1977) conclusion that families typically provided overt acceptance but had very low expectations for the success of the arrangement and spent little time with the person working toward rehabilitative goals.

As a group, these studies point to the seriousness of the conflict experienced by families of handicapped children with regard to residential placement. When the natural reluctance to separate the family unit must be balanced against the often harsh reality of maintaining the child in the home, parents can be left with no satisfactory possibilities from which to choose. From both the child and family's point of view, the research casts some doubt on the appropriateness of home placement for clients with chronic and severe conditions. Unfortunately, high costs and gaps in service availability often work in concert to make it impossible to place the child in either a full- or partial-care facility near the family's home.

Increased dependence on local resources to meet the needs of severely mentally handicapped persons has had varying impact on different portions of the population. Shealey and Wright (1972) analyzed statewide epidemiological data in Georgia and determined that the existence of community mental health centers significantly lowered state hospital admission rates for whites but not for blacks. Decker and
Shealey (1973) found identical results in Alabama and also noted that counties with community mental health centers had higher per capita incomes.

The majority of residential facilities for severely handicapped children are located in or near metropolitan centers. Reasons for this pattern include high incidence rates in such locations and availability of the sophisticated support specialties necessary for appropriate treatment packages to be offered to this population (Lamb & Goertzel, 1977). Bachrach (1977) argues that, for the same reasons, the development of the community-based services model has been primarily an urban phenomenon. Her position is that the architects of the model have underestimated the interactive nature of the two variables of rurality and deinstitutionalization. Like Kramer, Bachrach believes the deinstitutionalization movement rests on the premise of freedom of choice from an array of treatment alternatives--this is simply not the case for the rural client. As support, she includes examples of rural Texas communities often having to pay for clients in expensive urban private settings due to stricter public institution admission policies coupled with limited or nonexistent residential alternatives in the home community. She acknowledges the presence of many problems in providing community services within urban areas, but proceeds to describe how these same problems are exaggerated and complicated for a rural population. Even though most rural areas received federal economic subsidies during the 1950s and
1960s, rural population declined consistently over this period. However, many areas have now reversed this trend and are growing rapidly. Bachrach presents evidence suggesting this demographic trend has not been matched by either increased state or federal funding for mental health services to these areas. Participants at a recent conference on rural mental health service delivery (Conference Report, 1977) agreed with her assessment and observed that massive problems exist not only for the delivery of mental health services but for almost all other health services as well.

In general, it appears that the trend toward community-based maintenance of severely handicapped children has not yet solved the problems most crucial to its effectiveness. Local service networks have not responded to the degree anticipated in developing new services or better organizing existing resources. Families caring for these clients in the home have experienced increased stress, and doubts have been raised as to the rehabilitative progress of clients in such situations. In addition, there is no evidence to suggest that the trend has decreased the dependence of rural, minority group, and low income clients upon residential treatment at often distant urban facilities. These segments of the population represent those least likely to possess the information, money, and other resources necessary to keep the child in the home on at least a part-time basis. Very little direct research on these problems has been undertaken. The studies that have been done suffer from great variability in
the types of information collected and the methods of data analysis (Osterweil, 1967). Admission rates to public institutions have been the primary dependent measure although investigators have largely ignored Osterweil's caution that the use of admissions rates can lead to serious distortions if the proximity of certain areas to the hospital is not taken into account.

The present study explores patterns of residential placement of handicapped children in terms of the distance between the child's home and the treatment facility. The evidence suggests that factors which help determine the likelihood of placement include both the degree to which the local service network is unable to provide appropriate services to the family in maintaining the child in the home. A primary variable influencing both these factors is the severity of the handicapping condition. This investigation tests the prediction that the more severe the handicap the greater will be the distance between the client's home and the eventual residential placement.

The studies of residential placement patterns have centered on institutions operating under public auspices and typically have not collected data from facilities in the private sector. Nonpublic facilities tend to be more expensive (Bachrach, 1977) and thus seem to comprise a less significant group of resources for families who are limited financially. Confounding this situation is the fact noted by
several authors that families with limited financial means are the ones most severely stressed by the home maintenance of a severely handicapped child (Doll, 1976; Kakalic & Brewer, 1975; Robbins & Robbins, 1974). For these reasons, this research is designed to test the predictions that (a) the distance between the child's home and the facility is greater for public institutions than for private and, (b) that the variables of institutional auspices and severity of handicap interact in their effect on this distance.

Method

Subjects

The subjects were 6,374 children institutionalized for a serious physical or mental handicap. Measurements on these subjects were observations for one data analysis; these measurements were also averaged over the subjects within the 44 institutions serving them, and the institution scores were observations for the other data analysis.

The 44 institutions sampled were within the State of Texas. Those referred to as "public" were the 21 which are funded by and responsible to a city, county, state, or federal governmental body. The "private" institutions were the 23 which are funded by nongovernmental organizations, including both nonprofit and proprietary establishments. Excluded from the sample were facilities either clearly custodial in services or providing services only to residents of a single-county catchment area. Such single-county facilities frequently subcontract the services to included institutions, this fact
would tend to inflate the sample of institutions and increase the possibility of both the subcontracting agency and the actual service provider reporting data on the same client. The restricted catchment area could confound the variable of distance from the facility by effectively limiting its range to the radius of a single county.

The sample of children included persons currently receiving residential treatment services from one of the identified facilities and whose handicapped conditions falls into one of the following categories: seriously emotionally disturbed, trainable mentally retarded, severe/profound mentally retarded, multihandicapped, orthopedically handicapped, or cerebral palsy. Definitions of these handicaps may be found in Appendix A. The group of public institutions reported no data on orthopedically handicapped children—consequently his handicapping conditions was not included in the data analysis.

Variables

There are three variables measured in this study. The first is the distance in miles from each client's hometown or county (whichever was available) to the facility at which he/she is being treated. The second variable is a severity score for each of the above handicapping conditions. These scores for the different handicaps were obtained by asking a group of professionals (whose primary expertise is the area of service to handicapped children) to rank order the conditions in terms of the degree of difficulty with which a
child with this handicap can be adequately maintained in the family home. This group consisted of two state-licensed psychologists, two certified associate psychologists, one speech therapist, and one physician. The rankings for each handicap were summed and the handicaps were given an overall severity ranking based on these sums. The handicap viewed by the panel as most severe was assigned a rank of 5 and the least severe was assigned a rank of 1. Measurement of the third variable involved classifying each identified treatment center as operating under either "public" or "private" auspices.

Procedure

Institutions providing residential treatment services to the specified target population were identified through a computer search on the RESOURCE data base of the Texas Learning Resource Center which has been gathering and updating information on a variety of services for handicapped children within the State of Texas for the past 3 years. As part of the file maintained on each treatment facility they include the address, the auspices under which it operates, a category-subcategory classification of each service provided by that facility (in this case, residential-treatment), and a list of the specific types of handicapped children for which each service is primarily intended. Each institution identified as providing residential treatment to clients 0-21 years of age in one or more of the six handicap categories was
classified as "public" or "private" auspices on the basis of
the information obtained in the computer search.

The data specific to each client being served by these
resources were gathered in several ways. Data on handicap
conditions and geographic distributions of clients' home
counties for each residential treatment facility operated
by the Texas Department of Mental Health and Mental Retarda-
tion were collected from the 1976 annual reports from these
institutions kept on computer files in the state capitol.
All other institutions identified from the data base were
sent questionnaires (Appendix B) asking them to list numbers
of clients served in each handicap category and their home
counties or towns (whichever was most readily available).
Before the questionnaire was mailed, each institution was
telephoned and informed of the nature of the investigation.
They were asked to please return the information in the
enclosed, self-addressed envelope. In the case of several
smaller institutions, it was possible to obtain the data over
the telephone during the initial call.

For those clients whose hometown were identified, the
distance to the treatment center was determined directly from
Texas Highway Department maps. For clients whose home
counties only were identified, distances were computed from
the approximate geographic center of their county. Clients
whose hometowns were the same as the facility were assigned
a distance equal to the approximate radius of that town.
Results

The 21 public institutions and 23 private residential facilities reported data on a total of 6,374 children. A mean severity score was computed for each institution from the handicap scores of their clients. These institution scores were used to divide the institutions into three groups corresponding to the lower, middle, and upper thirds of the distribution of means. This classification was used along with the public versus private dimension to construct a 3 X 2 data matrix in which the element entered into the matrix for each institution was the mean distance from home to facility for all subjects reported by that institution. Table 1 contains a summary of the analysis of variance (ANOVA).

Table 1
Summary of ANOVA for Severity Classifications and Auspices

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auspices</td>
<td>30,152</td>
<td>1</td>
<td>30,152</td>
<td>12.32</td>
<td>.001</td>
</tr>
<tr>
<td>Severity</td>
<td>3,447</td>
<td>2</td>
<td>1,723</td>
<td>0.70</td>
<td>.5</td>
</tr>
<tr>
<td>Interaction</td>
<td>8,285</td>
<td>2</td>
<td>4,142</td>
<td>1.69</td>
<td>.2</td>
</tr>
<tr>
<td>Residual</td>
<td>93,008</td>
<td>38</td>
<td>2,447</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>134,892</td>
<td>43</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

on these data; Table 2 contains the study means and standard deviations. A significant main effect was found for the variable of auspices. Neither the other main effect nor the
Table 2
Means and Standard Deviations by Severity and Auspices Classifications for Distance Scores

<table>
<thead>
<tr>
<th>Auspices</th>
<th>Severity (Thirds)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower Mean</td>
<td>SD</td>
<td>Middle Mean</td>
<td>SD</td>
<td>Upper Mean</td>
<td>SD</td>
<td>Rows Mean</td>
</tr>
<tr>
<td>Private</td>
<td>106</td>
<td>52</td>
<td>98</td>
<td>21</td>
<td>79</td>
<td>52</td>
<td>95</td>
</tr>
<tr>
<td>Public</td>
<td>156</td>
<td>32</td>
<td>120</td>
<td>58</td>
<td>171</td>
<td>52</td>
<td>143</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Columns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>123</td>
</tr>
</tbody>
</table>

The data were further analyzed by computing correlation coefficients between the individual client's severity score and distance to the home. Separate coefficients were computed for clients in private and those in public institutions. The correlation between severity and distance scores for children in public institutions was +0.18 (p < .01), while that for children in private facilities was -0.23 (p < .01). This again shows the differences existing due to the auspices of institution revealed in the ANOVA. Though the correlations between severity and distance for individual children are significant, they account for little of the variability in
these measures (only 3% for public institutions and 5% for private). Although the severity score was clearly a rank-ordering of the various disorders, the very large number of observations makes the lack of correspondence to the assumptions of this analysis a minor source of error.

The main effect due to auspices did account for 22% of the variability in the ANOVA table. This finding, suggest that institutions operated under public auspices serve larger catchment areas than those under private auspices, independent of the severity of the client's problem.

Discussion

The results provide support for the prediction that the distance between the child's home and the treatment facility is greater for public institutions than for private. They also provide somewhat less positive support for the differential effect of severity on distance to public institutions as opposed to private ones. Consideration of these findings suggests several lines of reasoning which could contribute to the results obtained in this study. First, the local service networks in rural areas tend to be poorly developed and seldom offer the appropriate package of specialized partial care and professional assistance which can make it possible for the child to remain with the family. This lack of access to nearby professional support can greatly increase the stress in the home by depriving the family of such needed services as management of medication, respite care, and help in toilet training. In addition, families in rural areas
tend to have lower incomes (Bachrach, 1977; Decker & Shealey, 1973) and thus are less likely to be able to afford the higher cost of a private facility even if it is much closer to their home than a public one.

Private facilities, though they seldom restrict their services to a specified catchment area, are located primarily in urban centers and are typically set up to serve clients from these high-incidence areas. Some of these facilities include training and counseling for the parents in their programs, which requires that the family live within reasonable commuting distance from the institution. These factors, along with the higher average cost to the family for services from the private sector, help explain why public institutions appear to be the primary providers of residential services to severely handicapped children from rural and outlying areas.

In their discussion of this situation Kakalic and Brewer (1975) suggest that one of the primary barriers to handicapped clients in need of services is a lack of coordinated information about existing resources and how to gain access to them. They advocate the establishment of local "Direction Centers" to help families get in contact with the most appropriate local service providers and assist in adjusting the mix of services as the clients' needs change over time. Research into the effectiveness of such centers could provide a valuable approach for families and professionals attempting to meet the needs of a handicapped child.
The implementation of Public Law Number 94-142 (1975), guaranteeing to all children, regardless of handicap, the right to a free public education has led the Texas Education Agency to engage in Operation Child Find. This project has identified a large number of unserved and inappropriately served handicapped children from all parts of the state. A great many of these children are from rural areas where many needed services simply do not exist. Their cases are helping to make local officials acutely aware of the large gaps in services and the consequences of those gaps. Hopefully, this situation will result in increased development of local service capabilities in these areas.

The second prediction tested with these data was that the variables of institutional auspices and handicap severity interact in their effect on the distance from the clients' homes to the facilities. The interaction as analyzed in the ANOVA failed to meet the criterion for statistical significance, while the correlational relationships within the two classes of institutional auspices were in opposite directions to a significant degree. This apparent conflict may simply be due to the degrees of freedom for the correlations were greater than 6,000 as opposed to 43 in the ANOVA. This would give the correlational analysis considerably more power to detect small relationships. On the other hand, the relationship between severity and distance from home to institution may be qualitatively different in public versus private treatment centers. In other words, the auspices dimension may
serve as a moderator variable rather than interacting in a linear manner with severity in affecting distance from the home. For example, the additional expense to the client for private treatment (Bachrach, 1977) may place a ceiling on the severity of disorders receiving treatment in such settings. Clients with more severe handicaps may be more in need of State assistance, but must travel further for treatment from public institutions.
Appendix A

The Handicap Classification System for the RESOURCE Data Base

Cerebral Palsy

This term describes a child who suffers from any of a group of conditions affecting control of the motor system due to central nervous system or other neurological dysfunction.

Multihandicapped

This term describes a child who exhibits any combination of more than one of the following handicaps to a severe degree: mental retardation, serious emotional disturbance, cerebral palsy, orthopedic handicap, hearing impairment, or visual impairment.

Orthopedically Handicapped

This term describes a child who is physically disabled, has difficulty ambulating or moving due to neurological or neuromuscular disease, or disability characterized by skeletal deformities of a crippling nature.

Seriously Emotionally Disturbed

This term describes a child with severe disorders of communication and behavior not attributable to mental retardation or identifiable organic syndrome. This condition is often characterized by severe deficits in his/her language and inability to respond to surroundings or participate appropriately in social relationships.
Severe/Profound Mentally Retarded

This term describes a child whose measured intelligence is approximately 29 or less and whose measures adaptive behavior is two or more standard deviations below the norm for his/her chronological age group.

Trainable Mentally Retarded

This term describes a child whose measured intelligence is approximately 30-54 and whose measured adaptive behavior is one or more standard deviations below the norm for his/her chronological age group.
Appendix B

Questionnaire for Institutions

Dear ________:

As we discussed in our telephone conversation, I am completing a thesis for my master's degree in psychology and am collecting data on patterns of residential placement for handicapped children 0-21 years of age throughout the State of Texas. It would be of considerable assistance to me if you could provide me with some demographic information about the children your organization is currently serving. The handicapping conditions I am studying are listed below and defined in an attached appendix.

1. Cerebral Palsy
2. Multihandicapped
3. Orthopedically handicapped
4. Seriously emotionally disturbed
5. Severe/profound mentally retarded
6. Trainable mentally retarded

The information you can provide me is the hometown (or home county) of each child you are serving in these handicapping groups. I have enclosed separate pages corresponding to each of these handicaps for you to list the hometowns. If more than one client in a group are from the same town, put the number of clients in parentheses after the town name. Your assistance in this effort is greatly appreciated.

Sincerely,

Dennis Ferrell
References


Bachrach, L. L. Deinstitutionalization of mental health services in rural areas. *Hospital and Community Psychiatry, 1977, 28, 669-672.*

Beigel, A. Communication with the catchment area. *Hospital and Community Psychiatry, 1971, 22, 35-38.*


Farber, B. Effects of a severely mentally retarded child on family integration. Lafayette, Indiana: Child

Jones, M. Community care for chronic mental patients: The need for a reassessment. Hospital and Community Psychiatry, 1975, 26, 94-98.


Texas Department of Mental Health and Mental Retardation,
Division of Program Analysis and Statistical Research,
Dr. Jack L. Franklin, Director; 909 West 45th Street,
Austin, Texas, 78756.

Texas Learning Resource Center RESOURCE data base, Dr. James
A. Tucker, Director; 201 East 11th Street, Austin, Texas,
78701.