

A Matched, Comparative Study of the Recreation Integration of Adults with Mental Retardation who Moved into the Community and those who Remained at the Institution

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Abstract:

The matched, comparative study described and compared the recreation integration of adults with mental retardation who moved from institutions to community residences with their counterparts who remained at the institutions. Subjects had more severe cognitive, medical, health, and behavioral challenges than their predecessors who were deinstitutionalized in the 1970's and 1980's. The study compared the subjects' baseline to the follow-up assessment and found movers (n = 56) were more integrated into the community than stayers (n = 134). Movers with the most serious levels of maladaptive behavior increased their community integration upon moving to the community. Similar results were found for movers with severe or profound mental retardation. However, other results showed that both movers and stayers (a) engaged in high levels of activities that were sedentary in nature and (b) engaged in recreational activities with friends who were also disabled or staff.

KEY WORDS: Adults, Mental Retardation, Recreation Integration, Deinstitutionalization

Article:

Based upon the principles of normalization and the least restrictive alternative, the deinstitutionalization movement has dramatically changed where and how individuals with mental retardation and related conditions live. As the result of actions following these principles, there has been a dramatic decline in the number of these individuals living in large, state-operated institutions and an increase in the number living in the community. For example, the average daily population of people with mental retardation living in large, state-operated institutions in 1967 was 195,000 (Amado, Lakin, & Menke, 1990), where on June 30, 1993 there were only 79,785 people (Mangan, Blake, Prouty, & Lakin, 1994). In 1993, 137,213 individuals lived in residences that served 1 to 6 people and 56,534 lived in facilities that served 7 to 15 people (Mangan et al., 1994).

As much as the trend toward community living is increasing the physical access of persons with mental retardation and related conditions to their nondisabled peers, the reality is that few meaningful interactions that could result in relationships have occurred. Evidence from a number of studies suggest that people moving from large institutions into smaller community living arrangements have experienced group treatment and isolation (Bercovici, 1983; Jahoda, Cattermole, & Markava, 1990). Researchers found that many residents in all types of community living facilities rarely participated in basic leisure activities of the larger society such as engaging in hobbies, visiting friends, attending sporting events, clubs, or community centers (Hayden, Lakin, Hill, Bruininks, & Copher, 1992). They reported that a majority of the residents they studied participated rarely with neighbors. If social interactions with nondisabled persons occur mostly with staff, there is little difference for persons with severe intellectual disabilities between living in larger institutions and living in small group settings with respect to connectedness to the larger society.

Research consistently and convincingly shows that persons with mental retardation and related conditions can achieve levels of personal independence and participation in daily community life in areas such as leisure

(Hayden et al., 1992; Schleien, Meyer, Heyne, & Brandt, 1995); recreation and outdoor adventure (McAvoy, Schatz, Stutz, Schleien, & Lais, 1989; Schleien, 1990a, 1990b; Schleien, McAvoy, Lais, & Rynders, 1993; Schleien & Rynders, 1989); and use of community resources (Lakin, Burwell, Hayden, & Jackson, 1992; Lakin, Hill, Anderson, 1988; Schleien & Larson, 1986; Schleien & Ray, 1988). However, the generalizability of these findings to deinstitutionalized individuals with severe cognitive impairments and those who engage in challenging or "maladaptive" behavior is unclear.

In a manner largely parallel to the nation, Minnesota deinstitutionalizes people with more severe cognitive, medical/health, and behavioral disabilities. Studying the process and outcomes of Minnesota's efforts to move people from institutions to community residences and examining the critical variables involved in successful community placements is directly relevant to future deinstitutionalization efforts of other states. Compared to other longitudinal studies related to deinstitutionalization, the study is unique for several reasons.

First, it is one of the largest longitudinal studies ever conducted that includes matched comparison groups of individuals leaving large institutions and moving to community settings, and individuals remaining in institutional settings. Second, the study is also one of the largest studies to examine directly a wide range of aspects of quality of life. Third, it is the first longitudinal, matched group study to focus primarily on persons with the most severe levels of mental retardation who also have additional disabilities. Finally, it concentrates on health and medical conditions, mental health and behavioral conditions, and other conditions identified as associated with difficulties in securing and maintaining successful community participation. Although the study is based in Minnesota, it is responding to the issues faced by other states who are concerned with establishing stable, satisfying, and beneficial lifestyles for all persons with severe cognitive, health, and behavioral disabilities wherever they may live.

The purpose of the study was to describe and compare the recreation integration of adults with mental retardation and related conditions who moved from institutions to community residences with their counterparts who remained in the institutions. Additionally, the study examined other factors that may hinder or facilitate integration into the community. Specifically, the study described and compared (a) the utilization of and access to community places, (b) the types and frequency of recreation activities among movers and stayers, (c) the types and frequency of participation in recreation activities by the level of maladaptive behavior exhibited, (d) the types and frequency of recreation activities by the subjects' level of mental retardation, (e) the types of individuals who participated in the recreation activities with the movers and stayers, and (f) other factors that may account for the outcomes.

Method

Design

The study employed a nonequivalent group design without controlled selection. The major limitation of this design is the selection of the stayers may not be sufficiently similar to the movers to permit drawing valid interpretations (Posavac & Carey, 1980). Since there is difficulty in obtaining a reasonable estimate of the "move to the community" effect of a "mover" condition in contrast to a "stayer" condition, selection differences resulting from the nonrandom assignment may produce posttest differences between the two groups even in the absence of a "move to the community" effect (Cook & Campbell, 1979). To get a "reasonable" estimate of the effect, the study controlled for the effects of the initial group differences by matching the movers with stayers on six pretest measures: (a) age, (b) gender, (c) level of mental retardation, (d) functional limitations, (e) presence of challenging behavior, and (f) presence of medical conditions.

The Kolmogorov-Smirnov test (Kanji, 1993) was conducted to determine the accuracy of the matches on the following characteristics that were indicated in the Inventory for Client and Agency Planning (Bruininks, Hill, Weatherman, & Woodcock, 1986): (a) primary means of expression, (b) functional limitations (i.e. level of mental retardation, vision, hearing, frequency of seizures, health limitations in daily activities, and level of mobility assistance needed), (c) general maladaptive index, (d) adaptive behavior score, and (e) level of care required by a nurse or physician. The researchers found no significant differences between the projected movers

and stayers, except for the level of care required by a nurse or physician. Stayers were perceived as needing more care by a nurse or physician than were the movers ($KS = 1.44, p < .05$). With the exception of "care by a nurse or physician" variable, movers and stayers were similar and, as a result, any differences between groups were not due to the main effects of history, maturation, and testing (Campbell & Stanley, 1970).

Subjects and Settings

Researchers recruited 200 movers and stayers. Due to time constraints, failure to match, and three deaths (two people were living in the state institutions and one individual was living in the community), the sample was reduced to 190. Upon the completion of the follow-up assessment, there were 56 movers and 134 stayers.

At the time of the baseline data collection, all of the participants lived in one of two state-operated facilities that were certified as Intermediate Care Facilities for the Mentally Retarded (ICFs-MR). The majority of movers (98.2%) lived in non-state residences and the remaining 1.8% moved to state-operated, community-based residences. Nearly 70% lived in residences that were ICF-MR certified and the remaining 30% moved to residences that utilized Minnesota's Medicaid Home and Community Based Services (HCBS) Waiver Program.

Instruments

Inventory for Client and Agency Planning (ICAP). The ICAP (Bruininks et al., 1986) was utilized to provide descriptions of demographic variables, diagnostic status, functional limitations, and mobility assistance needed. The ICAP allows for an assessment of the levels of adaptive behavior (i.e., motor skills, social and communication skills, personal living skills, and community living skills) and problem behavior (i.e., hurtful to self and others, destructive to property, disruptive behavior, unusual or repetitive habits, socially offensive behavior, withdrawal or inattentive behavior, and uncooperative behavior), and service needs. Maladaptive behavior was rated according to five levels of seriousness: (a) very serious, (b) serious, (c) moderate, (d) marginal, and (e) normal. For purposes of this study, these five levels were converted to three levels: very serious or serious; moderate or marginal; and normal.

Residential Services and Supports Survey. An interview survey was developed to obtain information about each subject's quality of life at home. One subsection of the survey addressed the issue of recreation/leisure integration. The following questions were asked: (a) Did the subject utilize a recreation therapist? (b) What type of transportation does the subject typically use for recreation/leisure activities? (c) Did the subject utilize any of the 22 selected community places? (d) How far was the subject from the 22 community places? (e) In the previous month, did the subject engage in any of the 21 selected recreation/leisure activities or interactions? (f) Who typically took part in these activities or interactions (i.e. family members, friends with handicaps, friends with no handicaps, staff, or by self)?

Instrumentation of the survey was based upon an extensive literature review of instruments and surveys that were utilized in previous studies to examine the effects of deinstitutionalization and the long-term effects of living in the community. Approximately 65 instruments were examined. Initial drafts were developed and reviewed by seven individuals who represented state and county social service agencies, the state protection and advocacy agency, residential, and day/work service providers, and other researchers with experience in the area of community integration and therapeutic recreation.

The interview survey was field tested on 13 people employing the assistance of family members, direct care staff of community-based residential facilities, direct care staff from state-operated institutions, and day/work program service providers. Problems with items, definitions, logistics, and formatting problems were corrected. Specific wording and phrasing of items which elicited defensiveness or lengthy unnecessary explanations from respondents were changed.

To ensure reliability of data, the researchers interviewed one or more staff members who knew the participant for at least 3 months. Information related to the study was obtained from the direct care staff member; the unit supervisor, or the social worker. Since respondents knew the subjects well, they typically relied on their

memory to recall information related to the subjects. However, they did check records when they were unsure of the answer.

Procedures

Unlike other deinstitutionalization studies (Conroy & Bradley, 1985; Conroy, Feinstein, & Lemanowicz, 1988; Feinstein, Lemanowicz, Spreat, & Conroy, 1986), the study was not based upon a class action suit in which a group of individuals left an institution at one time and another group remained in the institution. Subjects for this study moved at various times. To ensure that the same amount of time elapsed between assessments, baseline data were collected while all subjects were living in the institutions. The annual follow-up assessments were conducted one year from the date of each person's baseline assessment. Therefore, the follow-up assessment included people who lived in the community from 4.3 months to 16.1 months. The average number of months of community living was 8.63 and the median was 9.5.

Permission for individuals to participate in the study was first obtained through each individual's public or private guardian. Subject selection was based upon institutional staff identifying people whom they projected would move into community residences and individuals whom they believed would not move out of the institutions. Staff matched the movers and stayers on the following pretest characteristics: (a) age, (b) gender, (c) level of mental retardation, (d) functional limitations, (e) presence of challenging behavior, and (f) presence of medical conditions. Their selections were based upon lists received from county social service agencies. The final decisions about who moved and when they moved were made by county case managers.

Interviewer Training. The field coordinator and graduate students served as interviewers. They were given a packet of articles related to the community integration of persons with mental retardation, and directed to read this information prior to the training sessions. Interviewers attended three, 2-hour training sessions and participated in 10 to 12 hours of field training. During the first training session, interviewers viewed a 90-minute video tape entitled, *Interviewing: The Role of the Interviewer* (Glotzer, Marshall, & Kirkman, 1975). Afterwards, the video was discussed and additional information about specific interview techniques were reviewed with the interviewers.

The second training session included a general overview of the study and a review of each interview survey question. The third training session provided interviewers with the opportunity to practice interviewing through role-playing. Field training required that the interviewers observe interviews conducted by experienced interviewers. The field coordinator then observed each new trainee while s/he conducted an interview and provided feedback on his/her performance. During training, agreement between the field coordinator and the trainee was calculated to determine the percentage of agreement. Once the coordinator and trainee obtained 90% agreement, they were allowed to independently conduct interviews.

Data Coding, Editing, and Entry. Codebooks were developed for the interview survey that included standards and rules for coding data. All coding was completed by graduate students under the supervision of the field research coordinator. Once coding was completed, the field coordinator or an advanced graduate student reviewed each interview survey to monitor coding accuracy. Editing at this time typically included clarification of any notes that the interviewer made during the interview, calling interviewees for information that they did not have at the time of the interview, and assuring that all data collection was completed.

Prior to statistical analyses, extensive computer checks were conducted to detect errors of coding and to question inconsistent responses to interview survey questions. These last editing problems were rectified through correcting errors, or in the case of illogical, erroneous, or otherwise questionable responses, through a final follow-up call to respondents or by coding the data as missing. Decisions with respect to further follow-up or coding data as missing were based on the relative importance of the data in question.

Statistical Methods

SPSS v4.04 for the Macintosh was utilized for all statistical analyses. Statistical analyses were conducted within

and between groups at baseline and follow-up assessments. There were no differences between movers and stayers at baseline. Univariate analyses were conducted when the variables being examined were unrelated to one another. Multivariate analyses were conducted when the variables being examined were related to one another.

To determine if parametric tests were appropriate, the Kolmogorov-Smirnov statistic was calculated with a Lilliefors significance level for testing normality (Norusis, 1994). Results found data did not have a normal probability distribution. Therefore, non-parametric tests were employed. These test included the Mann Whitney Rank Sum Test and the Wilcoxon Matched Pairs Signed Rank Test.

The Mann Whitney Rank Sum Test is equivalent to the Two-Sample Wilcoxon (Marascuilo & Serlin, 1988). The Two-Sample Wilcoxon test is known for being more powerful than the t test when the distribution does not meet the t test criteria (Blair, 1981; Bradley, 1978). In fact, the Two-Sample Wilcoxon has an asymptotic efficiency of 95.5%, when the assumptions for the t test can be satisfied (Marascuilo & McSweeney, 1977).

For univariate between group comparisons, the Mann Whitney Rank Sum Test (U) was utilized. For multivariate between group comparisons, a multivariate analysis of variance (MANOVA) was conducted on ranked data and Pillai-Bartlett trace statistic (Marascuilo & Levin, 1983; Zwick, 1985), was transformed into a Chi-square statistic (X²) which was compared with the critical value (CV) for $p < .05$. For the univariate within group comparisons, the Wilcoxon Matched Pairs Signed Rank Test (T) was employed by comparing the movers' baseline scores to their follow-up scores. The same type of comparison was conducted for the stayers. For multivariate within group tests, a repeated measures MANOVA was conducted. The Huynh-Feldt Epsilon statistic was employed to transform the numerator and denominator degrees of freedom and to determine a new critical value (CV) for evaluating the F statistic.

Table 1.
Baseline Data: Type of Subjects'
Characteristics: Gender, Age, Race and
Level of Mental Retardation
(in percentage)

Type of Characteristic	Percentage (N = 190)
Gender	
Female (n = 96)	50.5
Male (n = 94)	49.5
Age (years)	
20 to 29 (n = 8)	4.2
30 to 39 (n = 64)	33.7
40 to 49 (n = 67)	35.3
50 to 59 (n = 32)	16.8
60 to 70+ (n = 19)	10.0
Race	
White (n = 180)	94.7
Black (n = 7)	3.7
Asian (n = 1)	0.5
Native American (n = 1)	0.5
Other (n = 1)	0.5
Level of Mental Retardation	
Mild (n = 12)	6.3
Moderate (n = 8)	4.2
Severe (n = 60)	31.6
Profound (n = 110)	57.9
Level of Seriousness of Maladaptive Behavior	
Very Serious or Serious (n = 35)	18.4
Moderate or Marginal (n = 106)	55.8
Normal (n = 49)	25.8

Results

Subjects

Of the 190 participants, there were about the same number of men and women (see Table 1). Their ages ranged from 20 to 80- years-old. Over two thirds were between the ages of 30 to 49-years-old. The average age was 44.

The majority were white (94.7%) and the remaining individuals were Black, Asian, or Native American. The primary diagnosis for the majority of individuals was mental retardation (98.9%). The remaining 1.1% (n = 2) had a primary diagnosis of either brain or neurological damage, or mental illness. The secondary diagnosis of these two subjects was mental retardation. Levels of mental retardation ranged from mild to profound. Individuals with severe and profound mental retardation were the two largest groups. Nearly 18.5% of the subjects engaged in very serious or serious maladaptive behaviors and 55.8% exhibited moderate or marginal maladaptive behaviors. Only 25.8% of the subjects were considered to engage in normal behavior.

Physical Access to Community Recreation Places

To determine whether or not physical access would hinder utilization rates, respondents were also asked for the number of miles to the location of the community recreation setting. Both movers and stayers primarily lived less than 5 miles from the setting. There were no significant differences between the two groups.

Type of Transportation Employed to Go to Recreational Activities

Respondents were asked the type of transportation utilized by the movers and stayers. At baseline, the majority of movers and stayers used the institutions' vehicles to attend recreation activities off campus. The remaining individuals walked to these activities. At the time of the follow-up assessment, 92.9% of the movers utilized the residential service providers' vehicles, 3.6% used a private agency vehicle that provides services to only people with a disability, and 3.6% utilized some other type of transportation. There were no significant differences between and across movers and stayers.

Utilization of and Access to Community Recreation Places

Movers and stayers utilized a variety of community places (see Table 2). At the follow-up assessment, significantly more movers than stayers utilized churches, community education facilities, and libraries. Within group comparisons found movers' rate of utilization of a community education facility significantly increased from baseline to follow-up assessment. Stayers utilized community places at about the same rate or slightly less between the baseline and the follow-up assessments. There were no significant differences in their utilization rate between baseline and follow-up assessments.

Table 2.
Utilization of Community Places Among Movers and Stayers: Type of Community Place by Type of Assessment and Group Comparison (in percentage)

Type of Community Place	Type of Assessment				Type of Comparisons		
	Baseline		Two Year Follow-up		U ¹	T ²	
	Movers (n = 56)	Stayers (n = 134)	Movers (n = 56)	Stayers (n = 134)		Movers	Stayers
Bowling Alley	44.6	29.1	32.1	20.9	3,330	1.18	1.50
Church	21.4	17.9	28.6	9.0	3,016*	0.83	1.91
Community Education Facility ³	5.4	2.2	41.1	6.7	2,463*	3.73**	1.53
Corner Store	46.4	48.5	55.4	53.0	3,663	0.91	0.90
Library	19.6	16.4	35.7	13.4	2,916*	1.64	0.66
Playing Field	28.6	18.7	19.6	23.1	3,621	1.14	0.85
Public Beach/Pool	37.5	23.1	28.6	23.1	3,548	0.87	1.00
Restaurant	89.3	84.3	87.5	80.6	3,493	0.27	0.78
Theater/Movie	60.7	50.0	51.8	50.7	3,713	0.96	0.14
Zoo	32.1	35.8	48.2	34.3	3,231	1.51	0.26

¹ U = Mann Whitney Rank Sum Test. p < .05.
² T = Wilcoxon Matched Pairs Signed Rank Test. p < .05.
³ Places where adult education classes are held.
* Significantly more movers than stayers utilized this place.
** Significantly more movers utilized this place at follow-up than at baseline.

Type and Frequency of Recreation Activities

Respondents were given a list of recreational activities (see Table 3). They were asked what type of recreational activities subjects were involved in during the past month. The primary activities engaged in by almost all of the

movers and stayers at baseline were passive activities, including sitting around resting and watching or listening to TV, radio, and records. At the follow-up assessment, there continued to be a high percentage of both movers and stayers engaged in these passive activities. There were significantly more movers than stayers who read or looked at printed materials at the follow-up. However, there was no significant difference between the percentage of movers who read or looked at printed materials at baseline and follow-up.

At the follow-up assessment, there were significantly more movers than stayers who went out to eat and attended adult education classes. Within group comparisons found significantly more movers who: (a) attended a community event, (b) went out to eat, and (c) attended an adult education class at the follow-up assessment than at baseline. There were significantly fewer movers who attended religious services at baseline than at follow-up. At baseline, religious services were held at the institutions and in the community during the follow-up assessment. Therefore, accessibility to services was less convenient for movers.

Table 3.
Type and Frequency of Recreation and Other Community Activities Among Movers and Stayers by Type of Assessment (in percentage) and Type of Group Comparison

Type of Activity	Type of Assessment				Type of Group Comparisons		
	Baseline		Follow-up		U ¹	T ²	
	Movers (n = 56)	Stayers (n = 134)	Movers (n = 56)	Stayers (n = 134)		Movers	Stayers
Watched, listened to TV, radio, records	98.2	97.8	94.6	97.0	3,663	0.91	0.34
Sat around resting	92.9	92.5	98.2	95.5	3,651	1.60	0.04
Worked on hobbies	42.9	32.8	69.6	26.9	2,147	2.43	1.13
Went to sporting event	17.9	19.4	26.8	17.9	3,419	1.22	0.33
Went to a movie, concert or play	37.5	35.8	42.9	30.6	3,292	.57	0.91
Went out on a date	3.6	0.7	3.6	0.7	3,646	0.00	0.00
Visited a friend	39.3	42.5	33.9	42.5	3,429	0.52	0.00
Attended a community event	17.9	26.1	67.9	28.4	2,270	4.19**	0.42
Went to a meeting of a club or organization	12.5	9.0	12.5	13.4	3,717	0.00	1.41
Attended religious services	71.4	70.1	23.2	76.1	1,767	4.38***	0.98
Went out to eat	58.9	59.7	82.1	53.7	2,686*	2.19**	0.95
Went for a walk	73.2	85.8	85.7	77.6	3,448	1.71	1.72
Played cards or table games	53.6	57.5	62.5	61.9	3,731	1.01	0.75
Read or looked at printed materials	60.7	53.0	62.5	42.5	3,003*	0.25	1.84
Attended an adult education class	1.8	3.7	23.2	1.5	2,937*	2.82**	1.01
Participated in a sporting event	17.9	11.9	14.3	6.0	3,440	0.44	1.57
Went grocery shopping	28.6	34.3	64.3	37.3	2,740*	3.43**	0.57
Shopped for personal items	33.9	46.3	85.7	42.5	2,132*	4.16**	0.57
Did banking	12.5	17.9	32.1	19.4	3,274	2.21**	0.32

¹ Mann Whitney Rank Sum Test. $p < .05$. ² Wilcoxon matched Pairs Signed Rank Test. $p < .05$. * Movers participated significantly more than stayers. ** Movers participated significantly more at follow-up than at baseline. *** Movers participated significantly less at follow-up than at baseline.

For non-recreation community activities, between group comparisons indicated that there were significantly more movers than stayers who went grocery shopping, shopped for personal items, and did banking at the follow-up assessment (See Table 3). For within group comparisons, there were significantly more movers engaged in these activities at the follow-up assessment than at baseline.

By Level of Seriousness of Maladaptive Behavior. Table 4 summarizes the level of participation in recreation activities by the level of seriousness of maladaptive behaviors exhibited by the movers and stayers. Baseline data revealed only two activities where there were significant differences between groups. Significantly more stayers with very serious or serious maladaptive behaviors (100%) went for walks than movers (85.7%). Additionally, significantly more movers with very serious or serious maladaptive behaviors (42.9%) than stayers with very serious or serious maladaptive behaviors (10.7%) participated in sports. However, there were no differences between movers and stayers with very serious or serious maladaptive behaviors at baseline for these two activities.

At the follow-up assessment, there were significant differences between movers and stayers spanning all three

levels of maladaptive behaviors. For subjects with very serious or serious maladaptive behaviors, there were no significant differences among the recreational activities. There were for the three non-recreational activities. Of these subjects, there were significantly more movers than stayers who (a) went grocery shopping, (b) shopped for personal items, and (c) went banking. There were significantly fewer movers who attended religious services than stayers.

By far the most significant differences were between movers and stayers with moderate or marginal maladaptive behaviors. For the recreation activities, there were significantly more movers than stayers with moderate or marginal maladaptive behaviors who were involved in (a) working on hobbies, (b) attending community events, (c) reading or looking at printed materials, (d) attending adult education classes, and (e) participating in sports. There were also significantly more movers than stayers with moderate or marginal behaviors who shopped for personal items. Significantly more stayers with moderate or marginal maladaptive behaviors were involved in attending religious services than their mover counterparts.

Table 4.
Participation in Recreation Activities Among Movers and Stayers: Type of Recreation Activities and Level of Seriousness of Maladaptive Behaviors (in percentage) by Type of Assessment and Type of Group Comparison

Type of Recreation Activities/ Level of Seriousness of Maladaptive Behaviors	Type of Assessment				Type of Group Comparison		
	Baseline		Follow-up		U ¹	T ²	
	Movers (n = 56)	Stayers (n = 134)	Movers (n = 54)	Stayers (n = 134)		Movers	Stayers
Watched TV, radio, records							
Very Serious or Serious	100.0 (n = 7)	96.4 (n = 28)	92.3 (n = 13)	95.2 (n = 22)	133	1.00	0.00
Moderate or Marginal	96.8 (n = 31)	97.3 (n = 75)	92.6 (n = 28)	100.0 (n = 69)	863	0.53	1.34
Normal	100.0 (n = 18)	100.0 (n = 31)	100.0 (n = 13)	93.0 (n = 43)	280	0.00	1.60
Sat around resting							
Very Serious or Serious	85.7	85.7	92.3	100.0	126	0.00	1.83
Moderate or Marginal	93.5	94.7	100.0	94.2	878	1.00	0.34
Normal	94.4	93.5	100.0	95.3	287	1.34	0.53
Worked on hobbies							
Very Serious or Serious	42.9	46.4	53.8	33.3	109	1.21	0.40
Moderate or Marginal	45.2	33.3	70.4	27.5	533*	1.76	0.19
Normal	38.9	19.4	78.6	23.3	135*	1.26	1.53
Went to a sporting event							
Very Serious or Serious	14.3	28.6	23.1	28.6	129	0.53	0.34
Moderate or Marginal	19.4	18.7	33.3	23.2	837	1.89	0.68
Normal	16.7	12.9	14.3	4.7	272	1.34	1.47

Table 4 (Continued)

Type of Recreation Activities/ Level of Seriousness of Maladaptive Behaviors	Type of Assessment				Type of Group Comparison		
	Baseline		Follow-up		U ¹	T ²	
	Movers (n = 56)	Stayers (n = 134)	Movers (n = 54)	Stayers (n = 134)		Movers	Stayers
Went to a movie, concert or play							
Very Serious or Serious	28.6	46.4	23.1	28.6	129	1.60	0.73
Moderate or Marginal	45.2	36.0	51.9	33.3	759	1.21	0.34
Normal	27.8	25.8	35.7	25.6	271	0.34	0.73
Went on a date							
Very Serious or Serious	0.0	0.0	0.0	0.0	137	0.00	0.00
Moderate or Marginal	6.5	1.3	7.4	1.4	876	1.00	1.00
Normal	0.0	0.0	0.0	0.0	301	0.00	0.00
Visited a friend							
Very Serious or Serious	28.6	35.7	38.5	47.6	124	0.73	1.26
Moderate or Marginal	41.9	45.3	33.3	42.0	851	0.94	0.30
Normal	38.9	41.9	28.6	39.5	268	0.00	0.44
Attended a community event							
Very Serious or Serious	14.3	25.0	53.8	42.9	122	1.01	0.63
Moderate or Marginal	19.4	32.0	74.1	31.9	539*	3.31**	1.18
Normal	16.7	12.9	64.3	16.3	157*	2.37**	1.12
Went to meeting of club or organization							
Very Serious or Serious	14.3	10.7	7.7	9.5	134	1.00	0.00
Moderate or Marginal	16.1	12.0	18.5	17.4	921	0.73	1.69
Normal	5.6	0.0	0.0	7.0	280	1.00	0.00

Attended religious services							
Very Serious or Serious	71.4	82.1	7.7	66.7	56 [†]	2.67***	1.47
Moderate or Marginal	77.4	70.7	25.9	81.2	417 [†]	1.49**	1.12
Normal	61.1	5.1	21.4	72.1	149 [†]	2.52**	1.12
Went out to eat							
Very Serious or Serious	71.4	64.3	76.9	57.1	110	0.40	0.40
Moderate or Marginal	64.5	69.3	77.8	60.9	774	1.49	3.19
Normal	44.4	32.3	92.9	39.5	141*	2.02**	1.01
Went for a walk							
Very Serious or Serious	85.7	100.0	100.0	95.2	130	1.00	1.00
Moderate or Marginal	77.4	85.3	88.9	73.9	742	1.26	1.76
Normal	61.1	74.2	64.3	74.4	271	0.91	0.47
Played cards or table games							
Very Serious or Serious	57.1	64.3	46.2	57.1	122	0.00	1.21
Moderate or Marginal	58.1	53.3	66.7	63.8	905	0.89	1.14
Normal	44.4	61.3	64.3	60.5	290	0.73	0.24
Read or looked at printed materials							
Very Serious or Serious	57.1	64.3	30.8	42.9	120	0.91	0.34
Moderate or Marginal	64.5	53.3	74.1	42.0	633*	1.26	1.98**
Normal	55.6	41.9	64.3	41.9	234	1.00	0.30
Attended adult education classes							
Very Serious or Serious	0.0	3.6	15.4	4.8	122	1.34	0.53
Moderate or Marginal	3.2	4.0	40.7	1.4	566*	2.55**	0.00
Normal	0.0	3.2	0.0	0.0	301	0.00	1.34
Participated in sporting event							
Very Serious or Serious	42.9	10.7	7.7	4.8	133	0.91	0.91
Moderate or Marginal	12.9	13.3	22.2	7.2	792*	0.30	0.80
Normal	16.7	9.7	0.0	4.7	287	1.34	1.21

Table 4 (Continued)

Type of Recreation Activities/ Level of Seriousness of Maladaptive Behaviors	Type of Assessment				Type of Group Comparison		
	Baseline		Follow-up		U ¹	T ²	
	Movers (n = 56)	Stayers (n = 134)	Movers (n = 54)	Stayers (n = 134)		Movers	Stayers
Went grocery shopping							
Very Serious or Serious	42.9	39.3	76.9	33.3	771*	2.02**	0.00
Moderate or Marginal	29.0	37.3	48.1	40.6	861	1.87	0.00
Normal	22.2	22.6	78.6	32.6	163*	2.07**	1.02
Shopped for personal items							
Very Serious or Serious	42.9	46.4	84.6	42.9	801*	1.68	0.56
Moderate or Marginal	38.7	52.0	85.2	42.0	530*	3.31**	0.78
Normal	22.2	32.3	85.7	41.9	169*	2.07**	0.39
Did banking							
Very Serious or Serious	14.3	25.0	46.2	14.3	93*	1.47	1.47
Moderate or Marginal	12.9	17.3	14.8	27.5	813	.00	2.50***
Normal	11.1	12.9	42.9	7.0	193*	2.20**	1.89

¹ Mann Whitney Rank Sum Test. $p < .05$.

² Wilcoxon Matched Pairs Signed Rank Test. $p < .05$.

* Movers participated significantly more than stayers.

[†] Stayers participated significantly more than movers.

** Movers participated significantly more at follow-up than at baseline.

** Stayers participated significantly less at follow-up than at baseline.

*** Movers participated significantly less at follow-up than at baseline.

*** Stayers participated significantly more at follow-up than at baseline.

For those with normal behaviors, significant differences were found among seven recreational and non-recreational activities. In six of the seven activities, there were significantly more movers and stayers who participated in (a) working on hobbies, (b) attending community events, (c) going out to eat, (d) going grocery shopping, (e) shopping for personal items, and (f) banking than their counterparts with more serious maladaptive behaviors. There were significantly more stayers than movers with normal behaviors who attended religious services.

Within group comparisons found the rate of participation for stayers with very serious or serious maladaptive behaviors remained about the same between the baseline and the follow-up. For the movers, there were significantly fewer who attended religious services than stayers. Conversely, there were significantly more movers who went to the grocery store at the follow-up assessment than at baseline.

Movers with moderate or marginal maladaptive behaviors were significantly more involved in (a) attending

community events, (b) attending adult education classes, and (c) shopping for personal items from baseline to follow-up. The only significant decrease was for attending religious services. The percentage of stayers with moderate or marginal maladaptive behaviors who read or looked at printed materials significantly dropped from baseline to follow-up. The percentage of stayers who did banking significantly increased.

For within group comparisons for stayers with normal behaviors, their rate of participation remained the same from baseline to the follow-up assessment. For movers with normal behavior, the significant increases occurred for (a) attending community events, (b) going out to eat, (c) grocery shopping (d) shopping for personal items, and (e) banking. The only significant decrease was in attending religious services.

By Subjects' Level of Mental Retardation. Table 5 summarizes the level of participation in recreation and non-recreation activities by movers' and stayers' level of mental retardation. Analysis of the follow-up data found that the level of participation for movers and stayers with mild and moderate mental retardation remained about the same. There were significantly more stayers attending religious services than mover counterparts. There were also significantly more movers than stayers with severe mental retardation who (a) attended a community event, (b) attended an adult education class, (c) went grocery shopping, and (d) shopped for personal items.

For participants with profound mental retardation, there were significantly more movers than stayers who (a) worked on hobbies, (b) attended community events, (c) went out to eat, (d) read or looked at printed materials, (e) attended an adult education class, (f) went grocery shopping, (g) shopped for personal items, and (h) went banking. There were significantly more stayers than movers with profound mental retardation who attended religious services.

For within group comparisons, the level of participation at baseline remained about the same at the follow-up assessment for movers and stayers with mild and moderate mental retardation. There were significantly more movers with severe mental retardation who (a) attended a community event, (b) went grocery shopping, (c) shopped for personal items, and (d) went banking. For stayers with severe mental retardation, there were no significant increases between the two assessments in the level of participation.

Movers with profound mental retardation participated significantly more in (a) working on hobbies, (b) attending community events, (c) going out to eat, (d) attending adult education classes, (e) shopping for groceries, (f) shopping for personal items, and (g) banking at the follow-up assessment than at baseline.

Table 5.
Participation in Recreation Activities Among Movers and Stayers: Type of Recreation Activities and Level of Mental Retardation by Type of Assessment and Type of Group Comparison (in percentage)

Type of Recreation Activities/ Level of Mental Retardation	Type of Assessment				Type of Group Comparison		
	Baseline		Follow-up		U ¹	T ²	
	Movers (n = 56)	Stayers (n = 134)	Movers (n = 55)	Stayers (n = 134)		Movers	Stayers
Watched or listened to TV, radio, records							
Mild	100. (n = 5)	100.0 (n = 7)	100.0 (n = 5)	87.5 (n = 8)	18	0.00	1.00
Moderate	100.0 (n = 1)	100.0 (n = 7)	100.0 (n = 1)	100.0 (n = 7)	4	0.00	0.00
Severe	100.0 (n = 13)	97.9 (n = 47)	100.0 (n = 10)	97.7 (n = 43)	210	0.00	0.00
Profound	97.3 (n = 37)	97.3 (n = 73)	92.3 (n = 39)	97.3 (n = 75)	1,389	0.91	0.00
Sat around resting							
Mild	80.0	100.0	100.0	87.5	18	1.00	0.00
Moderate	100.0	57.1	100.0	100.0	4	0.00	1.34
Severe	100.0	89.4	100.0	90.7	195	0.00	0.00
Profound	91.9	97.3	97.4	98.7	1,445	0.91	0.91
Worked on hobbies							
Mild	80.0	42.9	80.0	50.0	14	0.00	0.00
Moderate	100.0	85.7	100.0	42.9	2	0.00	1.34
Severe	46.2	51.1	70.0	39.5	150	1.21	1.07
Profound	35.1	15.1	66.7	14.7	702*	2.24**	0.21

Went to a sporting event							
Mild	20.0	57.1	20.0	25.0	19	0.00	0.91
Moderate	100.0	71.4	100.0	57.1	2	0.00	0.00
Severe	38.5	17.0	50.0	27.9	168	0.40	0.51
Profound	8.1	12.3	17.9	8.0	1,317	1.26	0.30
Went to a movie, concert, or play							
Mild	80.0	85.7	60.0	62.5	20	1.00	0.53
Moderate	100.0	42.9	100.0	57.1	2	0.00	0.40
Severe	30.8	40.4	50.0	37.2	188	0.34	0.56
Profound	32.4	27.4	35.9	21.3	1,250	0.51	0.69
Went on a date							
Mild	20.0	0.0	40.0	12.5	15	1.00	1.00
Moderate	0.0	14.3	0.0	0.0	4	0.00	1.00
Severe	0.0	0.0	0.0	0.0	215	0.00	0.00
Profound	2.7	0.0	0.0	0.0	1,463	1.00	0.00
Visited a friend							
Mild	80.0	85.7	60.0	87.5	15	1.00	0.00
Moderate	100.0	57.1	100.0	57.1	2	0.00	0.00
Severe	30.8	53.2	50.0	48.8	213	1.83	0.17
Profound	35.1	30.1	25.6	33.3	1,350	1.01	0.16
Attended community event							
Mild	0.0	57.1	80.0	75.0	19	1.83	1.34
Moderate	100.0	57.1	100.0	42.9	2	0.00	1.34
Severe	15.4	31.9	90.0	34.9	97*	2.37**	0.41
Profound	18.9	16.4	59.0	17.3	854*	2.99**	0.00
Went to a meeting of club or organization							
Mild	80.0	57.1	40.0	62.5	16	1.34	1.00
Moderate	100.0	28.6	100.0	28.6	1	0.00	0.00
Severe	7.7	8.5	20.0	23.3	208	0.53	1.90
Profound	2.7	2.7	5.1	1.3	1,407	0.53	0.53

Table 5 (Continued)

Type of Recreation Activities/ Level of Mental Retardation	Type of Assessment				Type of Group Comparison		
	Baseline		Follow-up		U ¹	T ²	
	Movers (n = 56)	Stayers (n = 134)	Movers (n = 55)	Stayers (n = 134)		Movers	Stayers
Attended religious service							
Mild	100.0	100.0	60.0	75.0	17	1.34	1.00
Moderate	100.0	71.4	0.0	100.0	0.00 [†]	0.00	0.00
Severe	69.2	87.2	40.0	76.7	136 [†]	1.83	1.22
Profound	67.7	56.2	12.8	74.7	558 [†]	4.01***	2.03**
Went out to eat							
Mild	100.0	100.0	100.0	100.0	20	0.00	0.00
Moderate	100.0	100.0	100.0	85.7	3	0.00	1.00
Severe	61.5	72.3	80.0	72.1	198	0.40	0.64
Profound	51.4	43.8	79.5	34.7	807*	2.24**	1.45
Went for a walk							
Mild	80.0	100.0	100.0	87.5	18	1.00	1.00
Moderate	100.0	100.0	100.0	85.7	3	0.00	1.00
Severe	69.2	85.1	90.0	86.0	207	1.34	0.40
Profound	73.0	83.6	82.1	70.7	1,296	1.12	1.79
Played cards or table games							
Mild	40.0	57.1	40.0	50.0	18	0.00	0.00
Moderate	100.0	85.7	100.0	85.7	3	0.00	0.53
Severe	69.2	61.7	70.0	67.4	210	0.53	0.20
Profound	48.6	52.1	61.5	57.3	1,401	0.88	0.69
Read or looked at printed materials							
Mild	80.0	71.4	60.0	62.5	20	1.00	0.53
Moderate	100.0	85.7	100.0	57.1	2	0.00	1.00
Severe	84.6	74.5	80.0	58.1	168	0.00	1.41
Profound	48.6	34.2	56.4	29.3	1,067*	0.51	0.96
Attended adult education classes							
Mild	20.0	28.6	20.0	12.5	19	0.00	0.53
Moderate	0.0	14.3	0.0	0.0	4	0.00	1.00
Severe	0.0	4.3	20.0	2.3	177*	1.34	0.53
Profound	0.0	0.0	25.6	0.0	1,088*	2.80**	0.00
Participated in sports							
Mild	20.0	42.9	40.0	12.5	15	0.53	1.34
Moderate	100.0	28.6	0.0	14.3	3	0.00	0.53
Severe	15.4	10.6	30.0	11.6	176	0.91	0.00
Profound	16.2	8.2	7.7	1.3	1,370	1.26	1.69

Went grocery shopping							
Mild	80.0	100.0	100.0	87.5	18	1.00	1.00
Moderate	100.0	71.4	100.0	85.7	3	0.00	1.34
Severe	38.5	42.6	90.0	46.5	122*	2.20**	0.41
Profound	16.2	19.2	51.3	22.7	1,044*	2.48**	0.44
Shopped for personal items							
Mild	80.0	100.0	100.0	100.0	20	1.00	1.00
Moderate	100.0	71.4	100.0	71.4	3	0.00	0.00
Severe	46.2	61.7	90.0	48.8	127*	2.02**	0.87
Profound	21.6	28.8	82.1	29.3	692*	3.61**	0.15
Banking							
Mild	80.0	71.4	40.0	62.5	16	1.34	0.53
Moderate	100.0	57.1	100.0	42.9	2	0.00	0.00
Severe	15.4	27.7	50.0	39.5	193	2.02**	0.83
Profound	0.0	2.7	23.1	1.3	1,145*	1.87	0.00

¹ Mann Whitney Rank Sum Test. $p < .05$. ² Wilcoxon Matched Pairs Signed Rank Test. $p < .05$. * Movers participated significantly more than stayers. † Stayers participated significantly more than movers. ** Movers participated significantly more at follow-up than at baseline. ‡ Stayers participated significantly more at follow-up than at baseline. *** Movers participated significantly less at follow-up than at baseline.

Co-Participants

Respondents were asked who typically took part in each recreation and non-recreation activity with the subjects: family, friends with disabilities, friends without disabilities, staff, or by themselves. There were no differences between the movers and stayers at baseline. Co-participants were primarily staff and friends with disabilities. At the follow-up assessment, significantly more movers than stayers were involved with friends with disabilities ($X^2 = 74.46$; $CV = 26.30$), staff ($X^2 = 96.48$; $CV = 26.30$), and by themselves ($X^2 = 23.09$; $CV = 16.92$). These differences reflected the increase in activity level among the movers. For within group comparisons, there were significantly more movers at the follow-up assessment involved in activities with staff ($F = 8.43$, $CV = 2.15$) than at baseline. There were no significant differences found for stayers.

Season Versus Frequency of Activities

The study examined whether the level of activity was dependent upon the time of year the interview was completed. The Mann Whitney Rank Sum Test compared when interviews were completed (non-winter months (April through October) = 0; winter months (November through March) = 1) to the total number of activities engaged in by the subjects (Total possible score = 21), to the total number of community places visited (Total possible score = 22). Analysis found no significant differences across all subjects ($W = 5950.5$, $p = .07$, $n = 186$), within movers ($W = 507.5$, $p = .06$, $n = 52$), and within stayers ($W = 2022.0$, $p = .15$, $n = 134$).

Utilization of Recreation Therapist

The use of the term, "recreation therapist" is limited to people who are specifically trained and who are certified by the National Council for Therapeutic Recreation Certification (NCTRC). During baseline, 83.9% of the movers and 79.1% of the stayers utilized a recreation therapist. At the follow-up assessment, 16.1% of the movers and 77.6% of the stayers utilized a recreation therapist. The difference between the two groups was significant ($U = 1,443$, $p < .05$). For persons employed at the state-operated facilities, a recreation therapist must have a degree in recreation, therapeutic recreation, park/recreation, corrective therapy or physical education. Some positions required a four year degree in therapeutic recreation or corrective therapy from an accredited program or one year of experience in therapeutic recreation at a clinical setting. The educational background of people who were considered recreation therapists in the community was unknown.

Discussion

The participants involved in this study had significant cognitive and behavioral challenges. Movers and stayers lived less than 5 miles from a wide variety of community recreation services, places, and settings. Additionally, people who lived in the institutional settings utilized the staff who provided recreation opportunities significantly more often than their counterparts who moved to the community. Yet, movers were more integrated into the community than the stayers, as shown by the wider variety of community services, businesses, and locations utilized following their move into the community. Moreover, movers with the most serious level

of maladaptive behavior increased their community integration upon moving to the community, as evidenced by increases in attending community events, sporting events, and adult education classes. Similarly, movers with severe or profound mental retardation also increased their involvement in recreation activities upon moving to the community, as demonstrated by increases in attending community events and adult education classes, going out to eat, going grocery shopping, working on hobbies, shopping for personal items, and banking.

Although these findings could be considered encouraging, other results showed that both movers and stayers engaged in high levels of activities that were sedentary in nature. Additionally, both groups engaged primarily in recreational activities with friends who were also disabled or with staff, regardless of where they lived. Since movers and stayers primarily utilized special transportation and exhibited preference for passive activities typically engaged in at home, the likelihood of people with mental retardation being able to broaden their social networks to include people who are not disabled is, at best, minimal. Engagement in high quality recreation activities and utilization of community places where nondisabled individuals are likely to be found did not appear to be part of the typical repertoire of the subjects.

There is some evidence that suggests that the current availability of, and access to, existing community recreation services may be more limited for individuals with severe intellectual disabilities and those who display severe challenging behavior (Lakin, Hayden, & Abery, 1994). Persons who currently live in institutions typically have more severe intellectual disabilities, fewer social skills, and display more severe challenging behavior than their predecessors who moved from institutions in the 1970's and 1980's (Mangan et al., 1994). Therefore, the continuation of deinstitutionalization will require a comprehensive plan that should include the following: (a) significant advances in access to and application of behavior management technology (Amado, 1988; Schleien et al., 1995), (b) the removal of barriers that hinder full community participation, (c) the implementation of new strategies and curriculum to develop a repertoire of functional social skills, and (d) the development of strategies and assurances that enable the system to become more responsive to the needs of people with more severe intellectual disabilities (Lakin, Hayden, & Abery, 1994; Reichle & Light, 1992; Schleien & Ray, 1988). Other strategies found useful include (a) conducting comprehensive needs and preference assessments before activity identification, (b) conducting environmental analysis inventories to determine how well the individual's current abilities match the physical, cognitive, and social demands necessary for successful participation, and (c) employing Certified Therapeutic Recreation Specialists in the recreation agencies to work collaboratively with residential staff in the community (Schleien, 1993).

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