

Implementation and Effectiveness of a Bed Reduction Project

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ABSTRACT: A legislative mandate to shift a cohort of patients from the state hospital into intensive community treatment created an opportunity to explore questions about the impact of intensive community treatment on hospital utilization and quality of life. Information on prior and subsequent hospital utilization was taken from the state client information system. Information on community services and quality of life was obtained by interviewing clients in their homes, interviewing others who knew the clients, and by making direct observations of the clients' circumstances. Twenty-five of the intensively served clients were interviewed two to three months after discharge, as were 17 comparable clients who did not receive the intensive services. Clients did, in fact, receive more and better community services, their quality of life was better, and hospital utilization was dramatically reduced for both the targeted clients and the entire county catchment area.

Principles (Ytrehus, 1973, Turner & TenHoor, 1978, Bachrach, 1989), model programs (Bachrach, 1980), and evidence for the efficacy of community care for persons at high risk of extensive hospitalization (Stein & Test, 1978, Houlst & Reynolds, 1984, Beiser, Shore, Peters, et al., 1985, Kiesler, 1982, Braun, Kochansky, Shapiro, et al., 1982) have been established. Yet, the general efficacy of community services continues to be debated (e.g., Gralnick, 1985). The nature of the target population and the objectives achievable with the target population have been described (Lamb, 1981, Minkoff, 1987, Gudeman & Shore, 1984, Bigelow, Cutler, Moore, et al., 1987), yet, it remains unclear to what extent the residual population of heavy hospital users can be cared for in the community, what services are required, and the quality of life achievable for each level and bundle of services.

There is great concern that deinstitutionalization may actually reduce the quality of clients' lives. The issue is somewhat clouded by our uncertainty about the quality of life attainable for the majority of people suffering chronic mental illnesses (cf, Lamb, 1981, Minkoff, 1987, Harding, Brooks, Strauss, et al., 1987, Mendel, 1989, Strauss, Hafez, Lieberman, et al., 1985). Therefore, it remains important to study intensive community services to accumulate evidence that clients' quality of life is substantially better with intensive community services than with minimal community services and lengthy hospitalization.

There are several other important questions to be considered in studying the impact of intensive community mental health services on clients at high risk of lengthy hospitalization. Services actually implemented may differ significantly from those mandated, planned, and funded. The impact of a narrowly focused program on utilization by the targeted clients may be off-set by an opposite impact on total utilization. Utilization by targeted clients may be reduced, while other clients fill the empty beds, defeating the larger project goals. Overall utilization may actually increase as a result of other factors introduced by the project (e.g., case finding). Finally, impacts seen in the short run may not be sustained in the long run.

Legislation mandating and funding a comprehensive array of community support services (House Bill 2404, Oregon Legislative Assembly, 1981 Regular Session) created an opportunity to explore these questions.

The target population consisted of persons with major mental illness, disability, and extensive hospital use. Prior to the legislation, these persons would be discharged to community services considered by the Governor's Task Force on Mental Health (1980) to be insufficient to maintain such disabled persons out of hospital to the extent possible. The intensive community service program was intended by the Legislature to be an experiment to determine if a substantial increase in community service based on Community Support Program principles could yield a commensurate decrease in use of hospital services.

Mandated services included residential, part-day/night, prehospital screening, screening and evaluation, 24 hour crisis, continuity-of-care, outpatient, family, group, medication monitoring, vocational, social, prevention, program-oriented consultation, case-oriented consultation, and public education. We explored three expectations for these intensive community services:

1. Intensive services delivered in community programs would decrease hospital utilization by target clients in the short and long run and by the entire county catchment area.
2. Mandated and funded intensive services would actually result in delivery of more services and more adequately fulfill the service needs of targeted clients.
3. Intensive services would result in a better quality of life for targeted clients.

METHOD

Subjects

Two groups of subjects were studied. Both groups were clients from a metropolitan city of approximately one half million. The experimental group consisted of all patients identified for intensive services and discharged in the first five month period of the program who would consent to be interviewed. The comparison group were all those

discharged in the two month period preceding implementation of the program who would consent to be interviewed. A criterion for both was 30 days or more of hospitalization in the prior year.

The experimental group had 15 men while the comparison group had 7 (Chi square = 1.4); 24 white versus 15 (the remainder were black) (Chi square = 0.92); an average age of 36, compared with 41.82 ($t = 1.39$); 8 never married, versus 11; 3 separated, versus 1; 11 divorced versus 5 (Chi square = 4.67); 14 schizophrenic versus 11 ($t = 0.556$). Hospital days in the prior six years were 424 versus 360 ($t = 0.6$), with 6.0 versus 7.2 prior admissions ($t = 0.5$). None of the differences were statistically significant.

Procedures

Three strategies were used to assess the impact of the deinstitutionalization initiative. First, use of the institution by the entire county was monitored. Second, use of the institution by clients included in the experimental, intensive treatment cohort was monitored for six months after the index hospitalization and, again, for the 18 month period following the year of the project. (See Bigelow, 1989, for a description of the data systems used for tracking patient utilization.)

Third, a sample of clients in the experimental, intensively treated cohort was interviewed and observed (as was a comparison group) to assess adequacy of services received and the clients' quality of life. Lacking feasible true experimental, pre-post design opportunities, we chose a comparison group of patients from the same metropolitan county who had been discharged prior to implementation of the intensive treatment program. Both groups were interviewed between two and three months after discharge.

Instrument

Client interviews were conducted using the Quality of Life Questionnaire, Interviewer Rating version (QLQ-IR) (Bigelow, Gareau, & Young, 1989, and in press). Interviews were conducted in the clients' residences where the living situation could be observed. Additional information was usually sought from family, friends, residential personnel, and case managers. The interview was a comprehensive examination of the client and his or her circumstances.

The QLQ-IR consists of 141 items pertaining to services, responsibilities, performances, and the satisfaction of client needs in each domain. Items pertaining to services have the following alternatives: (1) *received service*; (2) *received service, but inadequate*; (3) *needed service, but didn't receive*, and (4) *neither needed nor received service*. As we were concerned with amount of services actually delivered, the first and second are combined into a category, *services received*. As we were also concerned that the client not be left with unmet service needs, the first and last alternatives are also combined into a category, *adequately served*. (If a client was rated as 1 or 4, he/she was not left with unmet service needs as indicated by 2 or 3). "Adequately served" describes

the condition of the client, rather than services. *Services received* and *adequately served* scores are computed for each domain (housing, nutrition, etc.) as a percentage of the total number of services within the domain.

Most items in the QLQ-IR pertaining to client satisfaction and performance are scored from 1-4, with high scores reflecting better quality of life. A typical item is rated as *very inadequate, inadequate, adequate, very adequate*. Item scores are added to yield scale scores reflecting domains of life (table 1).

RESULTS

The first expectation for the intensive community services program was that it would be accompanied by a reduction of hospital use. Catchment area utilization declined from an average of 194 beds used every day to 152 (22%). Total use of the hospital fell by 14% from 282 beds the year preceding the project to 242 during the last month of the project year. At the same time, direct care positions at the hospital were reduced from 164 Full Time Equivalents to 128.2 (22%) and other positions from 214 to 193.2 (10%). Catchment area utilization by intensively served clients dropped from an average of 56 beds used every day to 5.2 (91%) during the six months following implementation of the project.

TABLE 1
Quality of Life

Quality of Life Domain	Experimental Mean	Comparison Mean	t	p
Physical condition of home	9.4	8.0	2.4	.02
Total satisfaction with home	12.3	10.6	2.8	.01
Structure & support at home	1.8	1.4	3.2	.004
Responsibility for self & home	16.0	15.4	0.4	.71
Self & home maintenance	9.6	8.8	1.3	.21
Monthly income	\$353	\$297	1.3	.19
Room & board	\$276	\$241	1.1	.30
Adequacy of income	3.1	2.6	1.9	
Optimal employment	1.6	1.4	1.6	.13
Adequacy of psych meds	3.7	3.1	2.5	.02
Physical health	7.2	6.8	1.4	.17
Meaningful use of time	7.6	5.8	2.8	.008
Psychological distress	9.4	8.3	2.2	.04
Well-being	13.4	10.8	2.6	.02
Interpersonal relations	14.1	11.4	4.3	.0002

Note: "Means" are scale scores.

We compared hospital utilization for the experimental clients during the two years before the project began and the 18 months following the project year. (Eighteen months after the project year was about two years from the end of the index hospitalization.) Bed utilization dropped threefold from 79 to 25.33 days per patient per year. These data suggest that intensive community services were, indeed, accompanied by reduced

utilization of hospitals by the catchment area as well as by the targeted clients and that the latter reduction is maintained beyond the short run.

The second expectation for the mandated and funded intensive services program was that targeted clients would, in fact, receive more services, and be more adequately served, than similar clients who were discharged to the usual treatment. Experimental and comparison groups were compared on each domain. Specific services within each domain which revealed significant differences between the experimental and comparison groups are also noted below.

The experimental group did receive more housing services (a mean of 33.0% of possible services versus 16.2% for the comparison group, $t = 2.8$, $p = .008$), primarily, housing search and placement. The experimental clients received more nutritional services (26.4% versus 16.5%, $t = 1.8$, $p = .09$), primarily assistance in shopping and preparing meals; and more financial services (56.5% versus 39.7%, $t = 2.6$, $p = .02$). The experimental group received more transportation services (21.3% versus 2.0%, $t = 4.1$, $p = .0003$); more social/recreation services 33.0% versus 7.4%, $t = 4.5$, $p = .0002$); and more mental health services (62.7% versus 44.2%, $t = 4.3$, $p = .0002$), especially outreach and counseling. They received, altogether, more (14.72 versus 9.0, of 45 possible services ($t = 6.92$, $p = .0002$).

The targeted group was also more adequately served with housing (95% versus 82%, $t = 2.3$, $p = .04$), primarily housing search and placement; with nutritional services (98% versus 82%, $t = 2.7$, $p = .02$), primarily assistance in shopping and preparing meals; with home management services (100% versus 86%, $t = 2.7$, $p = .02$); with financial services (97% versus 78%, $t = 3.6$, $p = .0002$); with employment services (83% versus 59%, $t = 3.3$, $p = .003$); with physical health services (93% versus 82%, $t = 2.6$, $p = .02$); with transportation services (99% versus 86%, $t = 2.4$, $p = .03$); with social/recreation services (81% versus 44%, $t = 5.6$, $p = .0002$); and with mental health services (99% versus 62%, $t = 6.1$, $p = .002$), especially outreach and counseling. These data suggest that more services were delivered to target clients and those clients had their service needs more adequately met, as mandated and funded.

The third and most important expectation for the experimental, intensive service program was that intensive services would result in a better quality of life than would the standard care. The intensively served group was better housed (table 1). *Physical condition* of the bedroom and living area, cleanliness of the bedroom, and *adequacy of structure and support* were better. The intensively served clients were also more *satisfied with their homes*, especially with the living area and the people sharing their housing situation.

Differences in *monthly income* and cost of *board and room* were not significant. However, the intensively served group had more *adequate incomes* because recreational and social activities were provided by the program free of charge.

All clients had prescriptions for psychiatric medications and over 90 percent were actually taking them. There was no significant difference in compliance. However, there was a significant difference in *adequacy of the medication* level-intensively served clients had medication levels more sensitively adjusted to current level of need (as rated by the nurse-interviewer). There were only three clients in the intensively served group who did not understand that they needed medications, compared with close to half of the comparison group.

The intensively served group had significant more *meaningful use of time* due to much more structuring of their time as well as more interesting and stimulating activities. The activities included drop-in socialization, recreation, and arts and crafts.

The intensively served group had much better *interpersonal relations*. There was a great deal more social support, however, there is no significantly greater level of comfort with others. A great deal of this social support was provided by case managers. The intensively served group had significantly less *psychological distress* (reverse scored) and enjoyed a greater sense of *well-being*.

There were no differences in level of responsibility or performance in the *self and home maintenance* domain attributable to intensive services and little difference in *physical health* between the groups. There were no significant differences in *optimum employment* and, in fact, few in either group were employed. The intensively served clients appeared to have more realistic employment goals. They identified job stress as a contraindication due to the risk of decompensation and rehospitalization.

These data suggest that intensive community services did result in a better quality of life than would standard care with its less intense community service and greater use of hospitalization.

DISCUSSION

Inferences and generalizations based on this study must be made very cautiously because of the lack of randomized subject assignment, limited pre-intervention information about subjects, and the small sample sizes. The research design cannot rule out rater bias, although the rater had no vested interest in the success of the experimental services. The study is useful because it was a very serious attempt on the part of the state mental health authority, state hospital, and county mental health programs to find out if intensive services in the community could achieve certain objectives-decreasing hospital utilization and giving clients a better quality of life. We collected a great deal of information about the clients who participated, all of which seems to support the same conclusion.

Our findings suggest that intensive, targeted services did not result in shifting hospital utilization from the targeted clients to others. The strategy of identifying and dealing with key utilization factors (high bed users, in this case) can yield improvements in overall utilization. This finding bodes well for some capitation strategies (e.g., Hadley & Glover, 1989). We found that utilization by targeted clients dropped dramatically. Furthermore, we found that this drop in utilization persisted for at least two years.

Based on our lengthy interviews with clients, it seems that targeted clients did get more and that their service needs were more adequately met, as planned. Also based on those interviews it appears that intensively served clients are more likely to live in facilities that are clean, that they like, and that provide a more adequate level of support and structure. They are more likely to understand why they need mental health services, why they need medication, and how they can decrease symptomatology through diversional activities. Clients receiving intensive community services are more stable, take their medications, and are engaged in more activities. Of great importance, those clients have a better sense of being looked after and having someone who cares about them.

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