

The Role of Case Management Within a Community Support System: Partnership with Psychosocial Rehabilitation

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ABSTRACT: The Strengths model of team case management was assessed relative to an existing high quality psychosocial rehabilitation program that informally provided many services typical of case management (e.g., service linkage, monitoring, and consumer advocacy). The experimental evaluation triangulated consumer and family member responses with mental health professional reports and consumer records of hospitalization and crisis center contacts. An analysis of data from these four sources revealed that one year after full program implementation, consumers who received case management in conjunction with psychosocial rehabilitation functioned at a higher level of competency and experienced significantly lower psychiatric symptomatology than consumers who received only psychosocial rehabilitation. Implications for the successful integration of case management into an existing community support program are discussed.

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Do participants in a comprehensive psychosocial rehabilitation program need case management? Can a formal case management program offer substantially more benefits for people with a serious mental illness than informal case management provided by day treatment or rehabilitation staff?

Although of practical importance to program administrators, answers to these questions have not been provided by mental health research. Most case management evaluations utilizing control or comparison groups have contrasted community-based team case management to constellations of "existing" mental health services (e.g., Bigelow & Young, 1991; Bond et al., 1990; Franklin et al., 1987; Goering et al., 1988a; 1988b; Marx, Test, & Stein, 1973; Stein & Test, 1980; Test, 1992; Wasylenki et al., 1985) or to case management provided by a primary therapist or single case manager (e.g., Bond et al., 1991; Bush et al., 1990; Modrcin, Rapp, & Poertner, 1991). Three published studies have compared case management to alternative community support programs: Bond et al. (1988) and Morse et al. (1988) compared the functioning and quality of life of consumers in a PACT model of case management to consumers in a community drop-in center; Cutler (1987) and his colleagues compared the social support networks of consumers in LINC case management to the networks of consumers who attended a community social center. What we now need are evaluations of how well case management can work, not in competition, but in cooperation with other community support programs.

A NIMH Community Support Program rural research demonstration project was designed to assess the impact of the Strengths model of team case management relative to the impact of an existing high quality psychosocial rehabilitation program that informally provided many services typical of case management (e.g., service linkage, monitoring, and consumer advocacy). Because all case management consumers were also participants in the rehabilitation program, the research provided a very stringent test of case management effectiveness, as well as an evaluation of how well case management can work in league with another community support program.

[Continued from page 323.]

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METHOD

Research Design

The primary research design for the project was a posttest-only experimental evaluation relying on consumer, family member, and mental health professional reports obtained approximately one year after the experimental case management program had begun full operation. The secondary research design was a before-after experimental evaluation of frequency of hospitalizations and crisis center contacts for the same case management and control groups for the 18 month period following full case management implementation compared to the 18 month period preceding full implementation. Full implementation was defined as that point in service when all consumers in the assigned caseload were receiving case management. The period from program start-up to full implementation was approximately three months.

Service Site

The rural mental health center participating in the CSP research demonstration project was Bear River Mental Health Center in Logan, Utah. BRMHC is a non-profit agency serving the diverse mental health needs of 107,000 people in a 9,092 square mile area of northeastern Utah. Bear River Mental Health Center has as a central mission the facilitation of community support for adults with severe and persistent mental illness. The two largest towns in the catchment area are Brigham City (population 16,300), located 52 miles north of Salt Lake City, and Logan (population 28,800), located 80 miles north of Salt Lake City. The Logan center served as the research site for the present project.

Program Participants

Consumers. At the time the program received state funding in the summer of 1989, there were 42 seriously mentally ill adult consumers at Bear River Mental Health Center in Logan who were eligible for case management services (i.e., who met the state Division of Mental Health definition of serious and persistent mental illness, but who did not have a primary diagnosis of mental retardation or substance abuse). Over a six-week period, all of these consumers were invited to participate in the project, and, if they consented, were randomly assigned by the mental health center to either the experimental case management program ($n = 20$) or to a control condition ($n = 21$). One consumer refused participation, resulting in a final sample of 41 consumers. Of this original sample, 83 percent (18 out of 20 for case management and 16 out of 21 for the control group) had been retained at the time of the 1991 interviews. Five of the seven consumers lost to attrition were replaced by new consumers who entered the community support program of the CMHC between late 1989 and late 1990; these replacements were randomly assigned to either the experimental ($n = 2$) or control ($n = 3$) condition. Complete interview data were available for 19 experimental group and 18 control group consumer participants.

There were no significant differences between the experimental and control groups on any diagnostic and demographic variables. Most of the research sample had a psychiatric diagnosis of either schizophrenia (46%) or an affective disorder such as major depression (22%). Approximately one-third (32.5%) of the sample was less than 28 years of age, a third (32.5%) was between the ages of 28 and 45, and another third (35%) was over age 45. Eighty percent were taking psychoactive medication. All had a Global Assessment of Functioning score under 50 ($M = 37$). Men ($n = 21$) and women ($n = 16$) participants in the study were evenly distributed between the two groups (i.e., eight women per group). The study sample was entirely Caucasian, reflecting the low percentage of ethnic minorities in rural Utah.

The level of participation in psychosocial rehabilitation was also the same for the experimental and control groups. The mean scores and variance in reported attendance were nearly identical for the two groups, with most participants reporting that they attended the psychosocial rehabilitation program two or more times per week. Moreover, all study participants were members of the consumer club which operated out of the rehabilitation program.

Both control and experimental group consumers also received primary therapy from the mental health center on a regular basis. While a significantly greater percentage of control group consumers had formal psychotherapy (89% vs. 60%; $X^2 = 4.5, p < .05$), there was no difference between groups in reported satisfaction with therapy. This inequality in receipt of psychotherapy favored the control group, thereby providing a more stringent evaluation of the effectiveness of the experimental case management program.

Consumer Family Members. All but one of the participants in the sample had a living family member for whom permission to interview was requested. The exception was a case management group consumer whose only adult relative was also a participant in the study; this individual was not included in the data set as both a family member and a research participant. The refusal rate was comparable across groups: Two of the control group consumers and three of the experimental group consumers refused to grant permission to conduct family interviews because they did not want their relative to be bothered. No family member who was contacted refused to complete an interview. However, two additional family members in the experimental group could not be reached by telephone, resulting in a slightly greater loss of subjects from the case management group than from the control group. Relatives of 14 case management consumers and 17 control group consumers participated in the family member interviews.

The relatives were interviewed by telephone within a month following the consumer interviews. Approximately half (48%) of the family members were parents; another third (33%) were spouses or siblings. The remaining interviewees were adult children, aunts, or uncles.

Family interviewees saw their relatives frequently during the study. Over a third (37%) of the family members reported having contact with the consumer every day, 70 percent said they saw or spoke with the consumer at least two to three times a week, and 82 percent reported having contact at least once a week. Nearly all (89%) said that they had contact with the consumer during the week before the interview, and over half (56%) reported that they had seen or spoken to the consumer less than a day before the interview. There were no differences between the experimental and control group family members on any of these variables.

Program Descriptions

Psychosocial Rehabilitation. The psychosocial rehabilitation program at Bear River Mental Health Center provided daily activities, group discussions, recreational outings, and a lunch program for both experimental and control group consumers. The rehabilitation staff also provided program participants help with obtaining financial benefits, money management, employment linkage, medical care linkage, and informal counseling. Recreational outings to camp sites, fishing docks, and ski resorts provided a sense of shared interests and mutual social support. The administration of the rehabilitation program was closely coordinated with the local consumer club, of which all research participants were members. The psychosocial program was composed almost entirely of research participants (only one attendee was not enrolled in the present study).

The psychosocial rehabilitation program was staffed by two full-time workers as well as a half-time worker and a half-time consumer aide, who was also a participant in the control group. The director of the program held a master's degree, and one worker held a bachelor's degree. The two other workers were hired for their experience and ability to work with adults who have a serious mental illness; they also had completed some college.

Although the rehabilitation staff worked closely as a team, with consumers having access to every team member, each staff member retained specific responsibilities as well: The director administered the program and its activities; one full-time worker took responsibility for recreational activities, as well as for helping consumers obtain employment and job-training; the other full-time worker assumed responsibility for all billing, record-keeping, and correspondence, including the program newsletter; the part-time worker assumed responsibility for the production and sale of consumer crafts; and the consumer aide was responsible for the preparation of the daily lunch, including the purchase of food and coordination of consumer help with cooking.

Case Management. Experimental group consumers received both psychosocial rehabilitation and formal case management. The case management program under evaluation was based on the Strengths model, which has been described in detail in several published articles (Chamberlain & Rapp, 1991; Rapp & Wintersteen, 1989; Sullivan, 1992; Weick, Rapp, Sullivan, & Kisthardt, 1989). The model focuses on consumer strengths rather than disabilities, and requires individualized goal setting, counseling, and the establishment of a strong consumer-case manager relationship. The Logan, Utah adaptation of the model emphasized practical problem-solving, direct instruction in life skills, and consumer autonomy. Case manager training also prepared team members to provide linkage and brokerage of social and medical services, as well as to monitor consumer functioning and to advocate on the consumer's behalf in community affairs.

The experimental case management team at Bear River Mental Health Center consisted of two half-time bachelor-level case managers as well as a quarter-time consumer aide. The case managers provided full-time service delivery, one working mornings and one working afternoons. The team was supervised by a director who carried additional administrative responsibilities. Both case managers handled all case management tasks, while the consumer aide took primary responsibility for helping consumers with shopping and money management. The team shared a caseload of 20 severely mentally ill consumers. Because the Strengths model specifies separate caseloads in order to ensure close case manager-consumer relationships, each case manager took primary responsibility for a part of the caseload so that there would be sufficient intensity in one-to-one contacts to meet model requirements.

Case Management Service Delivery

The following description of case management services is based on log data records kept by the case managers from November 1, 1990 through April 1, 1991, a period extending from three months before until two months after the consumer and family member interviews.

Distribution of Consumer Contacts. There was wide variation in the frequency of consumer contact with the Logan case management team during the period under study. Over the five-month period, the number of case management contacts per consumer ranged from 2 to 139, with a median of 25 contacts. The majority (53%) of consumers had between 10 and 52 contacts. Approximately one-fourth of the sample had more than 50 contacts, while another one-fourth had less than 10 contacts. The single consumer with 139 contacts was extremely divergent (with the next highest

frequency being 82 contacts). Because of frequent seizures, this individual received a substantial amount of medication monitoring and transportation to medical services from the case management team.

Types of Consumer Contacts. Consumer case management contacts during the five month period encompassed (1) indirect service facilitation (i.e., linkage, coordination, advocacy, or service monitoring) and (2) direct service provision (i.e., personal monitoring or assistance with daily living activities).

The indirect assistance provided by case managers to all but two consumers in the caseload focused on mental health service coordination. This type of indirect help often involved ensuring that consumers arrived for therapy appointments, but also included talks with consumers about the value and purpose of therapy as well as joint meetings with therapists and consumers to provide a third perspective on problematic issues. For all but four of the consumers, a case manager also acted as an advocate to ensure that each consumer received needed non-mental health services, such as appropriate housing or job training. Nearly half of the consumers also received help from the case management team in making and keeping medical appointments related to physical health.

The direct help provided to all but one of the consumers in the caseload focused on (1) financial aid, (2) living skills, and (3) personal problems. A majority of the caseload (71%) received help with the paperwork required for the receipt of social security benefits, while 62 percent received help in money management (e.g., checkbook balancing) on a monthly basis. Most of the consumers (76%) also received help with accomplishing daily activities, including shopping and personal hygiene, while approximately the same percentage (72%) received counseling from the case managers in dealing with personal problems. These last two categories of service—help with daily living and with personal issues—accounted for a majority of case manager-consumer contacts. According to case manager interview reports, counseling and direct skill building were often combined during community-based contacts (e.g., discussing consumer needs while making a shopping list).

Only a few consumers received help in obtaining training (19%) or work (10%) because these types of vocational help had been provided to the case management consumers by the psychosocial rehabilitation program for several years. Similarly, only 10 percent of the caseload had their medication managed directly by a case manager because other staff at the mental health center (i.e., psychotherapists and psychiatrists) had assumed these responsibilities. Only two consumers needed help with obtaining legal aid during the course of the study. Contacts for assessment (5%) were also relatively infrequent, reflecting the eighteen month stability of the caseload. Only three consumers utilized case management for crisis intervention, totaling five crisis contacts.

Location of Contacts. Every consumer in the Logan caseload was seen in the case management office for most of his or her contacts, largely because the case management office was adjacent to the psychosocial rehabilitation program rooms, sharing the same general area of the mental health center in which consumers in both the experimental and control groups spent most of their time. However, two-thirds of the caseload were also seen in the community at least once. Most of the office visits were for money management activities, while most of the community contacts entailed problem solving or shopping and took place in consumers' homes, doctor's offices, social service offices, or stores. Thirty-eight percent of the case management consumers received at least one home visit, while 43 percent were regularly provided with transportation to appointments or to go shopping.

INSTRUMENTATION

Consumer Interviews

The primary data for the outcome evaluation were consumer responses to a one-hour interview. Nearly all consumer interviews were conducted in Logan within a three-day period in February 1991 by a team of trained interviewers from the Graduate School of Social Work, University of Utah. All interviewers were MSW students and staff research assistants from Salt Lake City who had no prior acquaintance with any of the project participants in Logan. Interviewers were randomly assigned to interview consumers in either experimental group, and, until the final service satisfaction questions were asked, each interviewer was blind to experimental conditions.

Consumer interviews took place in a variety of locations, including the mental health center, consumer homes, state and local hospitals, group homes, and even the local jail. At the time of the interviews, 83 percent of the study participants had been in case management and/or psychosocial rehabilitation continuously from July 1989 to February 1991.

Two consumer interview instruments were designed especially for the population under study:

The Brief Psychological Well-Being Index. The Brief Psychological Well-Being Index (Macias & Kinney, 1990) was used to measure consumer depression, anxiety, and somatic complaints. The Brief PWB Index correlated highly with Dupuy's (1984) Psychological General Well-Being Index ($r(210) = .64, p < .01$) and the Moos et al. (1984) Health and Daily Living Form ($r(105) = .84, p < .01$). The interitem reliability of the Brief PWB Index was very high ($\alpha = .90$), and the test-retest reliability coefficient was statistically significant when the test was administered twice over a three week interval ($r(13) = .97, p < .01$) to a separate sample ($n = 15$) of adults with serious mental illness.

The Self Report Inventory. The version of the Self-Report Inventory (Macias & Jackson, 1990) used in the present research was composed of twelve 5- to 10-point composite scales measuring four consumer *resource* variables: (1) help received, (2) level of personal liability, (3) family support, and (4) personal income; five consumer *outcome* variables: (1) global mental and physical health, (2) problems with thinking, (3) emotional problems, (4) level of social support, and (5) competence in daily living; and three *service satisfaction* variables: (1) satisfaction with primary therapy, (2) general satisfaction with the mental health center, and (3) experimental group satisfaction with case management. (Satisfaction with psychosocial rehabilitation was not measured in order to reduce evaluation apprehension in center staff.)

The overall six-month test-retest reliability of the Self-Report Inventory scales ranged between $r = .44$ and $.59$ ($p < .01$) for a sample of 121 seriously mentally ill adults. Validity estimates between $r = .40$ and $.60$ were obtained for specific scales through correlations with measures of comparable concepts from different sources (i.e., GAF scores and Utah CCAR ratings).

Family Member Interviews

Fifteen-minute family member interviews were also conducted by telephone from the case management research offices at the University during the month following the consumer interviews. Only those family members identified by the consumer as capable of providing reliable information and for whom consumer "permission to contact" had been granted were included in the family interview sample. A single interview sched-

ule was designed by the research staff for ease of administration and comparability to the self-report interview schedules.

Family Interview Schedule. The Family Interview Schedule adapted several of the Self Report Inventory consumer interview subscales for use with family members and included an additional scale designed to measure family burden. The 11-item Utah Family Burden Scale (Macias, Kinney & Vos, 1991) consists of three subscales reflecting (1) the direct impact of consumer functioning on family member emotional well-being, (2) the degree of worry and responsibility assumed by the family member for the consumer's welfare, and (3) objective reports of consumer disruptions of normal family functioning. These factors were identified through a principal components analysis with orthogonal (Varimax and Equamax) rotation conducted on data from a sample of 115 family members of seriously mentally ill adults in Utah.

Professional Ratings of Consumer Functioning

In January and February 1991, professional staff at Bear River Mental Health Center in Logan were asked to evaluate the level of functioning of consumers in their caseloads who were participants in the research project. Each consumer was evaluated by the CMHC professional who knew her/him best (e.g., who had sufficient familiarity with the consumer to assess her or his functioning in daily life). For the case management group consumers, a case manager provided the functioning ratings. For the control group consumers, primary therapists provided ratings; if the consumer was not in psychotherapy, psychosocial rehabilitation staff provided ratings.

A brief training session was provided by the research staff to all professionals using the rating instrument. Each professional was then asked to complete the level of functioning assessment immediately following a regular appointment with the consumer being evaluated.

While it would have been preferable to have all consumers rated by a professional blind to experimental conditions (e.g., in the same way diagnostic assessments are usually obtained from psychiatrists), there were no professionals available outside the CMHC who had sufficient knowledge of consumers' daily functioning to complete the rating forms. Moreover, the rating of all consumers by a single type of CMHC staff (e.g., psychosocial rehabilitation workers) would not have eliminated rater bias: All CMHC staff who were acquainted with the consumers in the sample were aware of consumer assignment to conditions. However, while case managers, therapists, and rehabilitation staff were probably all motivated to see their own clients as doing well, none of these raters knew what ratings were being given to consumers in the alternative group and no one could know whether their own ratings were higher or lower than those given to the other group.

The Utah Case Management Consumer Assessment Record (Utah CCAR). The instrument used for the professional ratings was adapted from the brief Level of Functioning Scale of the Colorado Client Assessment Record (C-CAR), developed by Ellis, Wilson, & Foster (1984). The Utah CCAR (Carter et al., 1990) consists of twelve items: Mood, rationality, social behavior, self care, management of environment (level of dependency), money management, family relations, friendship relations, education/vocational/daily activity, physical health, substance use, and legal problems. Each item is scaled from 1 ("Extreme Dysfunction") to 6 ("Above Average Function"), with each of the scale levels labeled.

The Utah CCAR inter-rater reliability was assessed through the use of a written scenario describing a typical seriously mentally ill adult. The standard deviation of

ratings given by ten CMHC professionals averaged .72 across items. The validity of the Utah CCAR items was assessed through a comparison to self-report data on preselected (*a priori* hypothesized) comparable dimensions. These inter-item correlations ranged from $r = .40$ to $.74$.

RESULTS

Consumer Self-Reports

Resource Variables. Using current scores on the Consumer Resource Subscales of the SRI and pre-intervention Global Level of Functioning scores, a multivariate analysis of variance (MANOVA) was conducted to determine if the case management and control groups differed in regard to (1) personal liabilities (i.e., lack of a high school education, poor work history, chronic physical illness, ineffective psychiatric medication, experience of social stigma), (2) amount of direct help received from any source over the past six months, (3) level of family cohesion, (4) personal income, and (5) pre-intervention Global Level of Functioning. The overall group main effect was nonsignificant, as were all five univariate ANOVA's (all p 's $> .10$). These findings suggest that random assignment to the experimental and control groups was carried out with fidelity and that any preexisting group differences on these variables probably did not account for group differences on the outcome variables.

Outcome Variables. Having established the comparability of groups on the resource variables, a similar MANOVA was conducted using the five Consumer Outcome Subscales of the SRI and the Brief PWBS: (1) problems with mood, (2) problems with thinking, (3) overall mental and physical health, (4) competence in daily living (e.g., residential autonomy), (5) level of social support, and (6) psychological well-being (Brief PWBS). A significant group main effect was observed, $F(1, 35) = 5.20$, $p < .01$. Bonferroni protected univariate ANOVA's were then performed on each of these variables, and significant group differences were observed for five of the six analyses. The case managed consumers reported having fewer problems with mood ($M = 1.58$ vs. 2.89 ; $F(1, 35) = 5.53$, $p < .05$), fewer problems with thinking ($M = 1.26$ vs. 2.33 ; $F(1, 35) = 6.42$, $p < .02$), better overall physical and mental health ($M = 5.16$ vs. 3.89 ; $F(1, 35) = 7.41$, $p = .01$), greater competence in daily living ($M = 4.21$ vs. 3.06 ; $F(1, 35) = 16.53$, $p < .001$), and greater psychological well-being ($M = 63.58$ vs. 52.50 ; $F(1, 35) = 4.81$, $p < .05$) than consumers in the control group. The two groups did not differ with

respect to amount of social support. Overall, the case management group reported lower psychiatric symptomatology, a greater sense of health and well-being, and a higher level of competence in daily functioning than the control group, even though both groups were equivalent in types of diagnosis, level of social support, and other factors known to be related to impaired functioning.

Service Satisfaction. Because they are conceptually orthogonal, the Service Satisfaction Scales for primary therapists and for case managers were analyzed separately. There was no significant difference between groups in satisfaction with primary therapy or in general satisfaction with the mental health center. The mean rating of satisfaction with the case management team by the experimental group (on such variables as case manager concern, value of help given, and confidence in the case manager's ability to make a difference) was 7.56 out of a possible total score of 10.0.

Family Member Reports

Assessments of Consumer Symptomatology. The reports of family members of consumers at Logan, taken within approximately a month of the consumer interviews, corroborate these consumer reports. The mean rating by family members of case management consumers' cognitive psychiatric symptomatology was significantly more positive in comparison to the mean rating given by control group family members ($M = 17.88$ vs. 15.08 , $F(1, 19) = 4.29$, $p < .05$). In addition, the average ratings by family members of consumer anger and paranoia were significantly more positive for the case management consumers ($M = 3.70$ for anger and $M = 3.75$ for paranoia) than for the control group consumers ($M = 3.00$ for anger and $M = 2.79$ for paranoia) (anger: $F(1, 23) = 4.80$, $p < .05$; paranoia: $F(1, 24) = 5.86$, $p < .05$). These family interview results replicated the consumer interview findings, thus substantially increasing the internal validity of our study findings.

Family Member Burden. In addition to perceiving lower consumer psychiatric symptomatology, family members of case management consumers reported feeling less burdened by their consumer's problems than family members of control group consumers. The Family Burden Scale mean score was significantly more positive for case management group family members than for control group family members ($M = 41.92$ and 36.93 , respectively; $F(1, 25) = 7.96$, $p < .01$). This overall group difference in burden was attributable to a difference between groups in the direct impact of consumer behavior on family member

emotional well-being: Family members of case managed consumers reported being less depressed when around their consumer, less in need of help in dealing with the consumer, less trapped, less frustrated by an inability to plan ahead, and less strained by tension and conflict caused by the consumer (Factor 1: $M = 20.83$ and 17.73 , respectively; $F(1, 25) = 6.24$ $p < .02$). There were no significant differences between groups on the other two burden factors "Responsibility for the Consumer's Welfare" or "Disruption of Family Life".

These family member reports suggest that case management at Logan minimized family member stress and sense of oppression through the facilitation of consumer autonomy and the reduction of consumer psychiatric symptomatology. This assumption is in keeping with the finding that a higher percentage of control group family members (80%) than case management group family members (33%) reported feeling that consumers relied heavily on them for help ($X^2(1, N = 26) = 6.01$; $p < .02$) despite no difference between groups in the report of specific types of family help. (All family members reported that their consumers relied on them "a little" for shopping, for household help, and for making doctors appointments). Moreover, a higher percentage of case management family members (75% vs 25%) reported that their contacts with consumers over the past month had been by telephone, while a higher percentage of control group family members (80% vs 20%) had face-to-face contact ($X^2(1, N = 26) = 8.17$, $p < .01$)—an indication that case management consumers needed less intensive monitoring and support from their families.

Because a majority of consumers in both groups (case management 65%; control group 75%) lived independently, and because only one control group consumer and one case management consumer lived as a dependent in a relative's home, it is unlikely that residential circumstances contributed to the group difference in either perceived burden, face-to-face contact, or subjective reports of reliance on family members. However, case management log data indicate that family burden may have been alleviated through case manager arbitration of intrafamilial problems. In fact, case managers met with the "significant others" of three-fourths of the consumers in their caseload during the months preceding and following the family member interviews.

Professional Assessments of Consumer Functioning

The Utah CCAR was filled out in January-February 1991 for each consumer in the study sample by the Bear River CMHC professional assuming primary responsibility for the consumer's welfare. For the control group, this staff member was the consumer's primary therapist

or a member of the psychosocial rehabilitation staff. For the case management group, assessments were given by case managers. Consumers were assessed by those professionals who knew them best so that the Utah CCAR ratings would be based on actual consumer behavior and everyday life events.

Findings. A MANOVA was performed using consumer scores on nine scales of the Utah CCAR. (One scale, Management of Environment, had incomplete data; two scales, Substance Abuse and Legal Problems, were not used because too few Logan consumers had these types of problems). The group main effect was statistically significant, $F(1,29) = 2.48, p < .05$. Bonferroni protected univariate ANOVA's paralleled the consumer self-reports and family member reports. Case management consumers were assessed as less depressed in mood ($M = 4.35$ vs. $3.64; F(1,29) = 5.88, p < .05$), more clear-thinking and rational ($M = 4.41$ vs. $3.57; F(1,29) = 8.96, p < .01$), and more productive in daily activities ($M = 4.82$ vs. $3.79; F(1,29) = 7.30, p = .01$) than control group consumers. The case management and control groups were not seen as significantly different in regard to social behavior, self care, ability to manage their own money, quality of family relationships, interpersonal skill, or physical health. As with the consumer and family member reports, consumer psychiatric symptomatology and level of functioning in daily life differentiated the case management and control groups.

Hospitalization Rates and Crisis Center Contacts

The results of an analysis of hospitalization records for this sample of seriously mentally ill adults also supported the consumer interview reports of higher functioning and lower symptomatology for those in case management. During the 18-month period preceding full case management program implementation (7/88 – 12/89), 5 of the case management consumers (33%) and 4 of the control group consumers (26%) were hospitalized at least once in the regional hospital. After full implementation of the case management program in January 1990, the number of clients hospitalized decreased sharply for the case management group from 5 to 0 (Wilcoxon Matched-Pairs Signed-Ranks Test: $z = -2.02, p < .05$), but increased slightly for the control group from 4 to 6 ($p < .10$). There was also a statistically significant difference between the experimental and control groups in regard to crisis center contacts for the 18-month periods preceding and following full case management implementation. Within the case management group, a high percentage of individuals continued to utilize the crisis center before and after

program implementation (60% of the caseload), but the total number of crisis contacts decreased substantially from 112 during the preintervention period to 48 during the postintervention period. This decrease in crisis service usage was distributed across the case management caseload, rather than attributable to a few individuals. There was a mean change of -5.15 for all case management consumers ($n = 13$) utilizing the crisis service at any time during the 36 month period ($F(1,12) = 2.83, p < .02$). Because the number of crisis contacts recorded in the case management logs was negligible (e.g., there were only 5 crisis contacts by a total of 3 people during the five months of log data included in the process analysis), we cannot assume that case management replaced the crisis service as a source of help, but rather, the findings suggest that case-managed clients experienced fewer crises.

By comparison, while the same percentage of consumers in the control group utilized the crisis service regularly during the first and second 18-month periods (60% of the sample), the direction of change over time was the opposite of that for the case management group. Omitting one outlier consumer from the control group analysis (who had 28 contacts in the first 18-month period and 125 contacts in the second 18-month period), there was a total of 27 contacts during the preintervention period and 49 contacts during the 18 months following. The increase in crisis contacts for the control group represented a mean change of $+2.44$ for all consumers ($n = 9$) utilizing the crisis service at any time during the 36-month period. Although there was a nearly significant group \times time interaction effect ($F(1, 21) = 4.17, p = .05$), this effect was accounted for by the decrease in case management group crisis contacts; the increase in crisis service usage by the control group was not statistically significant.

DISCUSSION

A year after full implementation of an experimental case management program in Logan, Utah, case management consumers reported significantly better mental and physical health, fewer problems with mood or thinking, greater competence in daily living, and higher psychological well-being in comparison to a control group of consumers who received only psychosocial rehabilitation services. Case management family members also reported lower consumer psychiatric symptomatology and said they felt less burdened by their consumer's illness

than control group family members. In addition, primary care providers assessed case management consumers as less depressed, more rational, and more productive than control group consumers. These group differences in consumer, family member, and service provider reports were obtained in spite of group equivalence in pre-intervention level of functioning, level of help received, social support, family cohesiveness, and a variety of personal liabilities (e.g., chronic pain or poor work history).

A 36-month longitudinal analysis of hospitalization and crisis center records substantiated these interview reports. Following full program implementation, case management consumers showed a decrease in rate of hospitalization and frequency of crisis center contacts; control group consumers did not. The co-occurrence within the case management group of fewer hospitalizations and crises together with family member reports of lower emotional burden is of particular relevance to mental health policy. Although researchers warn that planned reductions in consumer hospitalization often increase family burden (e.g., Olfson, 1990), family member reports in Logan suggest that case management can simultaneously reduce hospitalizations and lower family burden by providing continuous emotional support to consumers and consultation to family members. That is, when a reduction in hospitalization is brought about through a decrease in consumer symptomatology, reductions in family burden can accompany consumer community retention.

The combined study findings provide compelling evidence that the Strengths case management program at Bear River Mental Health Center in Logan improved the lives of its consumers over and above the socialization, employment, daily activities, and network development provided by the agency's strong psychosocial rehabilitation program. What accounts for the apparent success of the Strengths case management program in Logan? The mental health services provided to the control group consumers were of high quality, so the experimental-control group differences in the present study did not approximate a service-no service comparison; yet, the differences found between experimental and control groups are stronger than what is usually obtained in studies comparing two or more services. Moreover, the Logan psychosocial rehabilitation program had already adopted the assertive, advocacy-oriented, enabling values characteristic of most models of case management—as have many other day treatment, drop-in centers, and rehabilitation programs throughout the country

(Mowbray, 1990; Solomon, 1992)—so we cannot assume that Strengths case management was effective simply because it espoused a different practice philosophy.

What, then, is the explanation for such strong evidence of Strengths case management effectiveness in comparison to a high quality psychosocial program alone? In interviews with the researchers, rehabilitation staff explained that they welcomed formal case management because it allowed them more time for carrying out vocational and recreational activities. Likewise, in a conference with center administrators in early 1992, Bear River Mental Health Center psychotherapists expressed strong satisfaction with the case management program, explaining that the case managers' assumption of responsibility for solving daily living problems now allowed them an opportunity to provide more psychotherapy. Therapists reported that they were able to devote more session time to actual therapy with case managed consumers, and that these consumers were more likely to show up for appointments and to arrive in a better frame of mind to engage in therapy.

In view of psychosocial rehabilitation staff and therapist reports, we propose that case management has *directly* improved the functioning and symptomatology of seriously mentally ill consumers through life skill instruction and supportive counseling, and has *indirectly* improved consumer functioning and symptomatology by helping existing services, such as psychosocial rehabilitation and psychotherapy, to work more effectively. Through the formalization of services originally provided informally by various mental health center staff, case management lightened the workload of other center staff, allowing them to devote more time and energy to their primary duties. Moreover, case management consumers were in a better position to take full advantage of rehabilitation activities and psychotherapy than most other seriously mentally ill clients because their basic life needs were being managed, a continuous source of guidance and care was now available, and instruction on how to function competently in the community was being provided. Considering case management family member reports of lower emotional burden, it is also probable that case management indirectly facilitated improvements in consumer functioning by reducing family stress. In essence, the impact of case management exceeded program parameters by indirectly facilitating existing rehabilitation and psychotherapy programs, case management consumers' improved response to these programs, and positive changes in the consumers' social environment.

This "systems impact" explanation for the success of the Logan Strengths case management program accounts for the strong differences in symptomatology and functioning not usually found in comparisons of service groups, and it underscores the importance of rethinking simple assumptions of linear causality in mental health outcome research. Unlike most service evaluation designs, the present study did not pit case management against existing services or another "informal" type of case management (i.e., it was not designed to determine the relative efficacy of case management vs. psychosocial rehabilitation), but rather was designed to discover whether case management could further enhance an already effective community support program. In this sense, it was a stringent test of whether case management is an essential component of effective community support.

The results of the present research strongly suggest that the *in vivo* counseling and teaching characteristic of Strengths case management have the potential to augment and enhance the impact of other programs within a comprehensive community support system, in addition to directly improving the lives of adults with serious mental illness. The generalizability of these results rests upon a consideration of those characteristics of Bear River Mental Health Center in Logan, Utah which might have helped case management work well in league with other services: Close communication between staff in different programs, the physical proximity of programs, and a shared staff understanding of the life circumstances of the clients they serve. These qualities are not uncommon in small rural mental health centers. Whether such system characteristics are essential to the successful coordination of case management with other community support services must be addressed by future research.

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