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A Decade of Case Management: A Methodological Review of Outcome Research

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ABSTRACT: The last decade has witnessed a burgeoning interest in case management services to people with severe mental illness. While the literature on case management is proliferating, there remains a paucity of rigorously designed outcome research. This paper provides a methodological review of that outcome research on case management, which found that the term case management is used to describe a diverse array of interventions that yield differing client outcomes. Suggestions for the direction of future inquiry are described.

Much of the mental health literature of the late 70s and early 80s focused on exposing the dire circumstances of the "chronically mentally ill" who are frequently unable to access services to meet even basic community survival needs because of an inadequate, fragmented service system (Talbott, 1979; Mechanic, 1980; Bachrach, 1981; Bassuk & Gerson, 1978). The problem was primarily identified in terms of obtaining needed services. The proposed solution was *case management,* which was defined by five major functions: assessment; planning, advocacy; linkage; and monitoring (Sullivan, 1981; Intagliata, 1982). While these functions are ambiguous, they imply a broker-of-service model which assumes that needed services exist and that clients will be

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willing and able to use them once they have been accessed. Based on these assumptions, the intervention focuses on connecting the client to needed services.

A great deal has happened in the ensuing decade. There have been ongoing debates in the literature about the definition of case management. These debates have given rise to a plethora of opinions, recommendations, and some models, most of which have moved far beyond the original broker-of-service definition. Research is reported on several facets of the service, with mixed results. State and federal governments are mandating this service through regulation and fiscal incentives though it is unclear precisely what service is being mandated. Case management has become a major focus of attention in mental health policy and fiscal reform of the 80s, although the definition and expected benefits to the recipients have not yet been universally determined.

METHODOLOGICAL CRITIQUE OF CASE MANAGEMENT RESEARCH

This paper seeks to summarize the intelligence gained thus far from the case management research and suggest direction for future inquiry. To accomplish this purpose, we have sought to answer two central questions. In what ways is case management currently defined? What do we know about the benefit of this service to the recipients? With these questions serving as the standards, the following four criteria for selection of research studies were developed.

1. *Case management is defined as the independent variable rather than an element of the independent variable.* Several studies were eliminated because case management was only a part of the independent variable and the determination of which effect is attributable to which part of the intervention package was not possible (e.g., a study by Gary R. Bond and associates (1989), which examined programs providing crisis housing and case management).
2. *The independent variable is described.* A number of studies conducted by state authorities on statewide systems were eliminated from this review, such as the Fisher, Landis and Clark (1988) study in Mississippi. There did not appear to be a specific model of intervention under study, therefore interpretation of results was not possible. In the study by Muller (1981), the intervention was never described.

3. *Dependent variables are defined as client outcomes.* Several studies were eliminated because the focus of the research was on an element of the service system rather than client outcome: a description of case managers (Goldstrom & Manderscheid, 1983); an analysis of utilization patterns (Harris & Bergman, 1988); a description of case management activities (Baker & Weiss, 1984). While studies such as these have merit, they are not directly pertinent to one of the questions being asked by this critique.
4. *Experimental or quasi-experimental designs were employed.* Using scientific standards for rigor, only studies using experimental designs or designs approaching experimental were included. This excluded studies such as Rapp and Chamberlain (1985) and Rapp and Wintersteen (1989), which did not use control or comparison groups.

In order to locate the relevant literature, major journals were reviewed and bibliographies were obtained from Mental Health Policy Resources, Inc., the National Institute of Mental Health, the Cosmos Corporation, and Boston University. These bibliographies presented independent literature reviews that included case management as one topic. In addition, the University of Maryland, University of North Carolina, University of Buffalo, University of Houston, University of Wisconsin, and the state offices of mental health in Oregon and Texas were contacted directly to solicit both published information and information about work in progress. Each of these universities and agencies were selected for one of the following reasons: the authors had knowledge that the organizations had a particular interest in case management; although previous study(ies) were obtained, there was nothing current in the literature; or to solicit clarifying information on reported studies.

The materials were collected and reviewed. Six studies that met the defined criteria were found. These studies included: two implementations of the Program of Assertive Community Treatment (PACT) Model of case management (Bond, Miller, Krumweid, & Ward, 1988; Borland, McRae, & Lycan, 1989); one implementation of the Generalist Model (Franklin, Solovitz, Mason, Clemons, & Miller, 1987); two studies of the Rehabilitation Model (Goering, Wasylenki, Farkas, Lancee, & Ballantyne, 1988a; 1988b); and one study of the implementation of the Strengths Model (Modrcin, Rapp, & Poertner, 1988). The selected studies were compared and reviewed in terms of the independent variables, research subjects, research design, attrition, dependent variables, and findings.

Independent Variables

From the review of the literature, five identifiable models of case management emerged, four of which met the criteria for inclusion in this critique. Clinical case management is a model articulated by authors such as Leona Bachrach, Maxine Harris, and Joel Kanter. According to Harris and Bergman (1988), clinical case management is an "interactional phenomenon" in which "the relationship between patient and case manager is the essential ingredient" (p. 6). While a number of publications describing this model were located, there were none which included client outcome research.

The studies that were selected investigated the effect of the PACT, Rehabilitation, Strengths, or Generalist models as the independent variable. Each of these four approaches has been the subject of considerable specification (Cohen, Vitalo, Anthony & Pierce, 1980; Modrcin, Rapp & Chamberlain, 1985; Stein & Test, 1980; Stein & Test, 1985; Texas DMH/MR, 1985) yet analysis is problematic for several reasons. First, the constraints imposed by the length of a journal article preclude detailed description of the independent variable. To obtain sufficient description, one must locate other publications like those cited above.

Second, the training manuals and books containing the detailed specifications are viewed as "ideal." The fidelity between the ideal practice and actual implementation is never perfect. In fact, most of the research on dissemination of technology and implementation suggests a great deal of slippage with one study reporting that only 6% to 29% of a technology's components will be implemented (Seekins & Fawcett, 1984). Despite this, only one of the six studies describes procedures for systematically monitoring the implementation of the specific case management model (Modrcin, Rapp & Poertner, 1988) although Bond, et al. (1988) do report variations in implementation between sites. The failure to explicitly define intervention elements and systematically monitor implementation creates problems when examining outcomes (Bachrach, 1982).

The result is a lack of clarity regarding the actual process which produced the results. It is difficult if not impossible to ascertain similarities and differences between interventions with other than broad strokes. For example, the PACT and Generalist models seem to employ assessment procedures that place emphasis on identifying problems and deficits of the client where the Strengths model's focus is on identifying strengths. There also seem to be significant differences in conception and implementation of the resource brokerage role. The Generalist

model focuses on linking clients to a formal service system; the Strengths model places a premium on naturally occurring community resources (e.g. landlords, employers, coaches, teachers); and the PACT model exploits the case management team as a replacement for existing services and resources. The Rehabilitation model (Cohen, Vitalo, Anthony, & Pierce, 1980) *seems* to emphasize a formal service system: "viable community resource alternatives are *those programs . . .*" (p. 24).

Of particular interest is the lack of congruence between the intervention and the currently expressed values in the field. One of the most frequently expressed values concerns the empowerment of people with severe mental illness (Rappaport, 1981; Rappaport, 1985; Rapp & Saleebey, 1989). The case management interventions included in this review seem to hold different views on this value. The PACT and Generalist models seems to place more authority with the case manager while the Rehabilitation and Strengths models emphasize client self-determination. For example, protective payee accounts were established to nearly two-thirds of the subjects in the PACT model study by Borland et al. (1989). In contrast, the Rehabilitation model starts with a client-determined goal and the Strengths model places the client as the director of the intervention. It seems reasonable that the stance on client self-determination should affect outcomes.

Subjects

All six studies under analysis appear to be targeting individuals with serious mental illness though different terms are used to describe subject groups; "chronic mental patients" (Franklin et al., 1987), "the chronically mentally ill" (Borland et al., 1989; Modrcin et al., 1988), "mentally disabled persons" (Goering et al., 1988a), "persons with severe psychiatric disabilities" (Goering et al., 1988b), and those at greatest risk of hospitalization who have been assessed as having a "psychotic disorder" (Bond et al., 1988). However, the heterogeneous nature of the population and the high variability existing among studies in the demographic data reported on samples would lead one to suspect that different subpopulations had been selected across studies. Part of the dilemma is that there are differences in both the demographic data collected and in the manner in which the data are reported (see Table 1). Of the six studies, all reported on primary diagnosis, sex, and age. Five reported on history of hospital admission and marital status; four on employment status; and three on level of education.

Table 1

	Bond, et al. and Borland, et al. N = 248	*Franklin, et al. N = 417*	*p using Z test*
Psychotic diagnosis	94%	73%*	<.001
Sex	59% M	48% M	<.001
Unmarried	93%	83%	<.001
Unemployed	93%	70%	<.001
Hospital admissions	X = 9.1	X = 0.4	<.001
Age	X = 34.5	<31 = 31% 31 – 40 = 27%	Not Comparable

*Obtained by adding "Schizophrenia" and "Affective Disorder" proportions and eliminating "Substance Abuse," "All Other," and "Undiagnosed" categories.

Diagnosis. Primary diagnosis is reported in terms of "psychotic disorder" as defined by the DSM III, "psychotic," or proportions of schizophrenia, affective disorders, depression, and other disorders. A few studies include information regarding secondary diagnoses such as substance abuse, developmental disabilities or personality disorders.

Sex. Proportions of each sex are reported in all studies.

Age. Age is given as a mean, median, or proportions in ranges (e.g. <26, 26-45, >45, or <31, 31-40, >40). Age is not comparable across studies due to inconsistency in presentation.

Marital status. Most studies report the proportion of subjects who are single separately from those divorced and/or widowed. Others report on the percentage "not married" or "single." The proportions for unmarried and married are comparable across studies.

Employment status. Four of the authors indicate the number of people employed. Some authors break down employment status into more discrete categories such as full or part-time and/or "not regularly" employed. The unemployed category is comparable across studies.

History of hospital admissions. This information is presented in a variety of ways including: mean number of admissions; percentages

within defined ranges; or numbers of admissions within prescribed time frames. This information is not comparable among studies.

When comparable data are reported across studies, there are significant differences between the samples selected. To examine these differences further, studies seeming to have the greatest disparity were selected to test for the statistical significance of these differences on the six most commonly reported variables: primary diagnosis, age, hospitalizations, sex, marital status, and employment status.

The two studies which investigated the PACT model (Bond et al., 1988; Borland et al., 1989) reported similar population characteristics. These were combined and then compared with the study which seemed the most disparate (Franklin et al., 1987). The Z test was used to examine the differences between scores on each variable separately, i.e., employment status, marital status, sex, and primary diagnosis, to determine the probability of the between group differences having occurred by chance. Age and hospitalization data were not included because they were not reported in comparable form. The differences between groups on each variable tested were significant (see Table 1).

While samples from all six studies do not demonstrate differences of the same magnitude, the differences between the PACT and Franklin et al. (1987) studies supports the argument that different subgroups of the general population of interest were being studied, thus making the interpretation of outcomes more difficult. For example, are the lack of positive results found by Franklin attributable to a sample of younger people than the Bond study or the Borland study?

The definition of the target population is further confused by one additional factor. The stability of psychiatric symptoms in the sample population appears to vary from study to study and is related to the circumstances under which the individual enters case management service and, usually simultaneously, the study. For example, in the studies by Goering and associates (1988a, 1988b), all subjects were assigned to case managers while in an inpatient setting. Presumably these subjects, as a group, were in fairly stable condition with respect to their symptoms as they entered the community. By contrast, Franklin et al.'s study, using an outreach intervention, found subjects who were untreated in the community, many of whom were experiencing acute symptoms and in need of intensive treatment (Byrd, personal communication, June 1, 1989). Given the differing admission procedures, the needs of the two groups would be anticipated to be quite different as would the services required and expected client outcomes. While a persuasive argument could be used for either program admission pro-

cedure, differing impacts on client outcome measures are nearly assured.

Research Design

The studies reported on research which was either experimental or quasi-experimental in nature. The research designs were compared on the following elements: attrition rates, sample size, randomization, control/comparison groups, testing schedule, and length of time of the study. Table 2 describes the studies in terms of the elements.

As the table illustrates, all studies employed an experimental or quasi-experimental design. Thus, significant efforts were made by researchers to protect the internal validity of the studies through a combination of control groups, pretesting, and/or random assignment. The exceptions were Goering and associates (1988a, 1988b) who used a matched control group design and Borland and associates (1989) who compared clients' performance on the post-test with their prestudy performance rather than using a control group. However, in both

Table 2
Case Management Research

Investigators	*N*	*Design*	*Assignment* *Exp*	*Cont*	*Posttest*	*Attrition*
Franklin et al., 1987	417	Pre-post control grp	R	R	12 mos.	36%
Modrcin, et al., 1988	51	Pre-post control grp	R	R	4 mos.	12%
Bond, et al., 1988	167	Post only control grp	R	R	6 mos.	23%
Goering, et al., 1988a, 1988b	92	Time series post only control grp	R	matched	1, 6, 12, 24 mos.	11%A 15%B
Muller, 1981	72	Pre-post independent	Cohort+	R	E-6 mo. C-12 mo.	11%
Borland, et al., 1989	81	Time series A-B design	Cohort+ None*		1, 2, 3, 4, 5 yrs.	11%

+ Cohort refers to a group of clients entering for service during a specified time frame.
* The experimental group was compared with a two year baseline of their own performance prior to the intervention.

studies multiple post-tests were used extending over a much longer period of time than the other studies (i.e. two and five years respectively), and yielding data on client change over longer periods of time.

Attrition Rates

The four studies with less than 100 subjects each reported attrition rates of 11-15 percent. The two studies with larger samples, Bond et al. (1988) (N = 167) and Franklin et al. (1987) (N = 417) report attrition rates of 23 and 36 percent respectively. The combination of investigators report that the major causes of attrition are: inability to locate subjects, institutionalization, refusal of subjects to participate, subjects moving out of the area, research procedural errors, and death. Given the fact that failure to locate the subjects and institutionalization were two of the major factors (accounting for 53% of the subjects lost across studies), it can be assumed that the higher the attrition rate, the less likely it is that the sample will be representative of the population initially selected for study since it may well be that people with the most serious disabilities are those who are institutionalized or cannot be located.

Size of N

Sample sizes ranged from 417 (Franklin et al., 1987) to 51 (Modrcin et al., 1988). The correlation between the larger N and higher attrition rates may be more than chance given the comments by Franklin and associates on the difficulty of locating research participants in the community and the limitations of "time and money" (p. 674). While smaller sample sizes, even when randomly selected, may not be as representative of the population chosen for study, increasing the sample size beyond the scope of available resources may not be worth the trade off in terms of confounding the research results.

Dependent Variables and Findings

Client outcome variables were defined in similar terms across studies (see Table 3). All studies measured some category of functional ability and recidivism and hospital days. Five of the six used quality of life as a dependent variable. Three measured service utilization. Three studies measured medication compliance and two measured symptomatology.

Although there would appear to be consistency in the outcome variables chosen for each study, quality of life and functional abilities were

Table 3
Dependent Variables Used in Case Management Research

	PACT		*Rehabilitation*	*Strengths*	*Generalist*	
	Borland, et al., 1989	*Bond, et al., 1988*	*Goering, 1988*	*Modrcin, et al., 1988*	*Muller, 1981*	*Franklin, et al., 1987*
Client functioning	+	+	+	+	+	+
Recidivism	+	+	+	+	–	+
Hospital days used	+	+	+	+	–	+
Quality of life	–	+	+	+	+	+
Service use	+	–	+	+	–	–
Medication compliance	+	+	–	+	–	–
Symptoms	+	–	+	–	+	–

+ = used
– = not used

conceptualized differently from study to study, and different instruments were used to measure hypothesized effects. In the following sections, the commonly used dependent variables are examined.

Recidivism and Hospital Days Used. These variables are straightforward both in definition and data collection procedures. The information yielded by these measures is critical in the determination of the overall cost impact of case management services which is a major public policy concern. The two PACT model studies demonstrated significant differences in hospitalization in favor of the experimental subjects and the Generalist model study found significant differences in favor of the control subjects. The Rehabilitation and Strengths model studies failed to find statistically significant differences.

While this information is quite relevant to service planning and funding, it is not without problems. As Goering et al. (1988b) noted, "one of the deficiencies of using rehospitalization as an outcome criteria is its relative independence from symptoms and social adjustment" (p. 13). Witheridge and Dincin (1985) found through their experience with the Bridge Program of Chicago that many psychiatric admissions occur for nonpsychiatric reasons. Among the reasons cataloged are nonpsychiatric client related incentives for hospitalization, such as a lack of housing or a safety net during times of distress, and system related incentives. Included in the system related incentives are the need of inpatient systems for a predictable flow of patients, inadequate cooperation between hospital and community providers, and the incentives to communities to extrude individuals whose behavior is too disruptive.

It is obvious from this list of incentives for hospital use that unless the admissions process can be controlled by the case management program or the incentives ameliorated through public policy (e.g. reducing the number of available beds), hospital use is unlikely to be impacted by case management services, regardless of the success on other outcomes. This was demonstrated by the Goering et al. study (1988a) in which the experimental group performed significantly better than controls on other outcome criteria at 24 months but failed to demonstrate analogous differences on hospitalization rates.

By contrast, Borland et al. (1989) demonstrated a significant impact on hospitalization rates but clients were not accepted into the case management program unless their primary clinician agreed that treatment (including hospitalization) would be controlled by the case manager. The Bond et al. study (1988) also demonstrated a positive impact

on recidivism but notes active intervention on the part of state authorities.

Another factor influencing the merit of hospitalization as an outcome measure is the definition of the independent variable. Case management, as conceived in the PACT model, has the expressed purpose of aggressively working toward deterring hospitalization. It provides such services as 24 hour crisis intervention to accomplish this task and is successful when using hospitalization as an outcome. Conversely, the Rehabilitation model speculates that its failure to impact rehospitalization is, in part, attributable to "its emphasis on improving patient's functioning rather than on providing crisis intervention and preventing hospitalization" (p. 276).

In summary, the PACT model, which prioritizes community tenure by providing the necessary alternative services and gaining some control over hospital utilization, significantly impacts this dependent variable within time frames as short as four to six months (Bond et al., 1988). The other models, which emphasize improved client functioning or circumstances with the expectation that this improvement will translate into reduced hospital usage, do not impact this dependent variable (Franklin et al., 1987; Goering et al., 1988; Modrcin et al., 1988).

Functional Assessments and Quality of Life. These outcome criteria will be considered together since they are conceptually linked in the studies in which they were used. Franklin et al. (1987), Goering et al. (1988a, 1988b), and Modrcin et al. (1988), present conceptualizations of quality of life which are reliant upon indicators of life circumstances (e.g., residential arrangements and social contacts) and ability to function within these situations. The Franklin and Modrcin studies also include a subjective assessment of the life situations by the client. The conceptual framework for the study by Bond and associates (1988) is not presented. Each study used an instrument designed or modified for that particular study with the exception of the Strengths model study (Modrcin et al., 1988), which used the Oregon Quality of Life Questionnaire.

The Bond group (1988) reported no difference on quality of life between subjects in the experimental and control groups. Franklin et al. (1987) and Modrcin et al. (1988) report that there were no significant differences on the overall quality of life measure though Modrcin notes some significant differences in favor of the experimental on several subscales. Goering et al.'s (1988a, 1988b) study reported that experimentals performed significantly better in the areas of occupational functioning, social isolation and independent living. However, this ef-

fect was not seen at the six to twelve month testings but was evident at the 24 month post-test.

Because of the conceptual and instrumentation differences in considering quality of life, we are unable to determine the degree to which researchers were measuring similar or different phenomena. Based on the experience of Goering et al. (1988a, 1988b) it is possible that the studies by Modrcin et al. (1988), Bond et al. (1988) and Franklin (1987), which administered the post-test at four, six, and twelve months respectively, may have shown significant results had they had a longer time frame. It is also possible that client functioning, the focus of Goering's research, may be of a different order than quality of life. Once again, the strongest positive effects were produced by the independent variable which emphasized change in that area, e.g. the Rehabilitation model emphasizes skill development.

Borland et al. (1989) did not use a quality of life assessment. In the Borland study, client functioning was assessed on a monthly basis over the course of five years using the Global Assessment Scale. This instrument "measures overall functioning on a continuum of psychiatric sickness to health" (p. 373). Subjects did not show any significant change on this scale despite the fact that other indicators, such as the number of suicidal threats and gestures and the number of emergency calls, decreased over time.

Community service utilization. This is another important cost measure and also serves to monitor the implementation of the independent variable (i.e. did the linkage function occur?). However, a simple tallying of services used does not appear to be useful information in the overall interpretation of findings.

Three research groups collected information on this dependent variable which indicated that service utilization increased for case managed clients. Combining this finding with an absence of positive findings for quality of life or functional assessment findings, two authors came to similar conclusions. Franklin et al. (1987) reported that "a potential alternative explanation for the findings is that adequate resources were already available for both E and C groups so that there was no need to add case managers" (p. 677). It should be noted that 95% of the services used by both of these groups came from the local mental health center which was considered to have an adequate program. Borland et al. (1989) suggested that "the more adequate local resources are before aggressive case management is added, the less likely it is that adding case management will improve care and lower total costs"

(p. 374). These authors go on to explain that their project was added to an existent well-developed and integrated service system.

The opposite proposition is also credible: If existing services are ineffective then increased utilization of these services would not produce better outcomes. As Anthony (1988) has written, "most interventions are not having a potent impact on rehabilitation outcomes" (p. 26). The track record of services like psychotherapy (Stuart, 1977), social skills training (Morrison & Gellack, 1987) and vocational programming (Dion & Anthony, 1987; Bond & Boyer, in press) are modest at best.

Bond et al. (1988) suggest that "assertive case management appears to have the greatest impact on the clients in greatest need, particularly those who are frequently hospitalized and who refuse other aftercare services" (p. 417). Presumably this population subgroup would not use the existing service, regardless of adequacy, without aggressive case management. Goering et al. (1988b) presented information by distinguishing the interactive effects of the types of services accessed with improved functioning. They comment that case management had "an effect upon instrumental role functioning through the specific type of referrals made to vocational/educational services" (p. 15). The Strengths Model, which emphasizes the use of natural supports, did not define use of community service utilization as an outcome criteria since it was not a goal of the intervention.

Community service utilization as a dependent variable in case management research is fraught with difficulties. First, the assessment of case management effectiveness (dependent variables) must be focused on client outcomes. In this way, service utilization is properly conceived of as a means to that end, not as an end in and of itself. Since resource acquisition is central to all models of case management, service utilization, or better still, *resource* utilization, would be a critical variable to monitor the implementation of the intervention. Second, the evidence has yet to find that increased service utilization has any relationship to client outcomes. The Franklin study is particularly noteworthy in this respect.

CONCLUSIONS

This review set out to answer two questions: In what ways is case management currently defined, and what has been shown empirically about the impact of this service on recipients? The most surprising finding was the paucity of outcome research on case management. Add

to this the lack of comparability of these studies (e.g. intervention, purpose, subjects, outcomes) and the conclusions must be viewed tentatively. The following are therefore less conclusions than they are impressions which hopefully will lead to further theoretical clarification and more empirical testing.

1. Simplistic notions of case management as a mere brokering of service seems to have been abandoned. Except for the Generalist model, all studies are based on case management interventions which emphasize relationship, intensity of involvement, outreach mode of service delivery, etc., which were not usually included in earlier descriptions of case management (Sullivan, 1981; Intagliata, 1982) and even some current work (Levine & Fleming, 1986).
2. The models seem to differ conceptually and/or programmatically on a variety of dimensions such as assessment procedures, definition of resource system, client authority, primary goal for service.
3. Only three studies were found that employed a true experimental design.
4. Given the relationship between sample size and attrition, caution must be exercised in designing research which fits with the resources available for its implementation. Choices must be made between small samples and low attrition on one hand, and large samples and high attrition on the other.
5. Effects seem discernible after a year but not before.
6. There are a host of conceptual and methodological problems in selecting outcome variables and the instruments used to operationalize them.
7. Regardless of intervention or particular focus of the intervention (e.g. hospitalization, functional abilities, service usage), the primary focus will be achieved (except with the Generalist model). In other words, defining a principal focus seems sufficient to insure achievement on that dimension.
8. Given the reliance on mental health services by the Rehabilitation and Generalist models, the question is raised about what is being evaluated. Is it a test of case management or a test of the effectiveness of these other services? How could the separate contributions be identified? This review had excluded a study by Bond and associates (1989) which tested the effects of case management and crisis housing because of the multiple interventions.

In some ways, all case management consists of multiple interventions and reconsideration of the Bond study may be warranted.

9. With the exception of the Generalist model, the models all report some positive effects and seem of sufficient promise to warrant further development and testing.

The single biggest need is for concerted attention devoted to the conceptualization and measurement of dependent variables. The outcome data on case management is "sparse and contradictory" (Anthony & Blanch, 1989, p. 70) and the range of dependent measures used are quite varied. Some of the most frequently mentioned concepts may have suffered from inadequate measurement. For example, several studies have purposefully sought to measure the effects of case management on "quality of life." In no study were statistically significant differences found based on these measures (Bond, et al., 1988; Field & Yegge, 1982; Franklin et al., 1987; Modrcin, 1985).

Other frequently used measures such as service usage, compliance with treatment plan, compliance with medication, and pathology oriented measures (e.g. Brief Psychiatric Rating Scale, problem number and severity scales, number of needs, severity of symptomatology, Maladaptive Behavior Record) are not consistent with national CSP or rehabilitation philosophy; are properly viewed as means rather than ends (e.g. service usage, compliance); seem based on a medically based paradigm of rehabilitation and community care; and have shown poor or at best uneven results in the studies that have employed them (Bigelow & Young, 1983; Bond et al., 1988; Fisher et al., 1988; Muller, 1981; Wasylenki et al., 1985). In contrast, measures of instrumental role functioning in specific life domains like vocational and housing (Goering et al., 1988; Rapp, Gowdy, Sullivan, & Wintersteen, 1988; Wernert, personal communication, December 1988), community tenure/hospitalizations (Bigelow & Young, 1983; Bond et al., 1988; Curry, 1981; Franklin, 1987; Goering et al., 1988; Rapp & Chamberlain, 1985; Rapp & Wintersteen, 1989; Wasylenki et al., 1985), and individual case goal attainment (Rapp & Chamberlain, 1985; Rapp & Wintersteen, 1989) all show promising if somewhat uneven results. Other measures that go to the heart of rehabilitation and CSP philosophy are in their infancy such as those that would assess loneliness/social support (Goering et al., 1988; Sullivan & Poertner, 1989) or measures that have yet to be developed for this population such as one that would examine empowerment.

Of particular concern is the degree to which our dependent measures "amplify the voice" of the people we seek to help through case management (Rappaport, 1989). The measures currently being employed are dominated by professional perspectives. The challenge is to develop intervention, research designs, and dependent measures which meet standards for scientific adequacy and rigor while concurrently empowering the "subjects" or our efforts (please see Rappaport, 1985, 1989; Rappaport, Seidman, & Toro, et al., 1985 for discussion of this issue).

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