FINAL REPORT

Recovery Emphasis on Ohio Behavioral Health Care Organizations' Inpatient Units

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Mental health system decision makers in Ohio have targeted recovery in mental health as one of the primary goals for the mental health system of care. As part of this mission, the Integrated Behavioral Healthcare System (IBHS) undertook the Recovery and Rights Initiative (RRI) beginning in October 2006. The RRI was an organizational change effort designed to increase the recovery focus of the Behavioral Healthcare Organizations" (BHO) in-patient units. Although the RRI was implemented in all of the BHOs, this research centered on implementation and effects in two units at each of two BHOs, the Athens campus of Appalachian Behavioral Healthcare[1] and the Toledo campus of Northcoast Behavioral Healthcare.

The RRI encompassed three broad interventions: a change in the title of the Client Rights Advocate (CRA) to Recovery and Rights Advocate (RRA); increased consumer "choice and voice" in the BHOs; and recovery-oriented trainings for staff, consumers and families. The interventions were intended to create a recovery-oriented culture and, thereby, improve patient movement toward recovery. The title change of the CRA was intended to mark a role change from that of overseeing consumer rights to one of collaborating with other staff in and advocating for consumer recovery within the BHO. The RRA was to foster a culture of recovery among BHO staff members, who would then help BHO consumers in their movement toward recovery. Increased consumer choice and voice in the BHOs was to come about through such means as recruiting consumers to serve on standing committees, changing the consumer complaint process, and better involving consumers in developing their treatment. Although recovery training materials had previously been developed and used in the BHOs, the RRI sought to revive and enhance these materials for staff and offer additional orientation to recovery to consumers and their family members.

Literature Review and Conceptual Framework

Recovery in Mental Health

Recovery is an elusive concept. The literature offers several definitions and beginning efforts to elucidate its dimensions such as phases and tasks (Spaniol, Wewiorski, Gagne & Anthony, 2002) as well as aspects of the service system that impede (Onken, Dumont, Ridgway, Dorman & Ralph, 2002) or promote (Russinova, 1999) recovery. Conceptually, recovery consists of internal conditions (hope, healing, empowerment, connection) within an external context that promotes a positive culture of healing and recovery-oriented services (Jacobson & Greely, 2001). The latter requires 1) attitudes of professionals that promote consumer choice, empowerment and autonomy in the community and in the treatment setting; and 2) services that incorporate the attitude that recovery is possible (Jacobson & Greely, 2001).

Challenges to the adoption and implementation of a recovery orientation arise from several sources, such as the in-patient setting itself, staff experience and professional training.

[1] The Cambridge campus of ABH was closed and new units of the Athens campus opened after the active period of data collection for this project.

As Sowers (2005) states, "Traditional professional training has developed a workforce that has seen its role as a benign authority providing care for persons with severe, unremitting illnesses, unable to make rational decisions independently . . .Professionals have been trained to have limited expectations for lasting improvement and therefore, little hope has been offered to clients to establish a productive and satisfying life" (p. 760). Indeed, consumers in the in-patient setting are struggling with acute phases of mental illness. Staff may have little experience with consumers who are living fuller lives. Further, choice and autonomy may be limited by the structure of the setting, which may include use of seclusion and restraint to safeguard clients in instances of threats to self or others, while concern for liability limits clients' freedom of movement beyond the facility to remain connected to family, pursue employment, or develop living skills in the community.

Seclusion and restraint may have unintended effects beyond limiting choice and autonomy. The literature on seclusion and restraint indicates that both physical and psychological trauma result from seclusion and restraint. Importantly, the literature documents both primary and secondary trauma. For instance, Robins, Savageot, Cusack, Suffoleta-Maerle & Frueh (2005) interviewed 27 mental health consumers about their experiences of seclusion and restraint. Eighteen of the consumers had either witnessed or experienced seclusion and restraint, and even many who had only witnessed such incidents reported that the hospital thereafter felt unsafe to them and that they saw staff and rules as often arbitrary and unfair. This is of particular concern since one survey of mental health consumers found that 54% had experienced seclusion and 34% had experienced restraint (Frueh, Knapp, Cusack, Grubaugh, Sauvageot, Cousins, Yim, Robins, Monnier, Hiers, 2005). It is not unreasonable to think that discharged mental health consumers who view the hospital as dangerous and staff as unfair might hesitate to re-establish contact with the mental health system in the community. Previous studies apparently have not attempted to link seclusion and restraint with mental health system contact following discharge.

Other types of adverse incidents may also affect the climate of the hospital and its clients. The literature on adverse events concentrates almost entirely on patient aggressive behavior, which is quite rare in the units that we are studying. Thus, the investigators include both major and minor incidents in the analysis of change in climate.

Organizational Change

The literature on recovery orientation in mental health services offers detail on what needs to be changed for services to be more recovery oriented, but less guidance on how to bring about such change. Thus, the investigators turned to the broader literature on organizational change in human services organizations to develop a conceptual model for guiding and assessing recovery-oriented organizational change. The model provides information on the organizational and employee level variables that influence organizational change to embrace and actualize mental health recovery.

Relevant variables at the organizational level include constructive organizational culture, positive organizational climate, and clear communication. Constructive organizational culture is defined by "… performance, motivation, support, interpersonal relationships and

effectiveness…." (Glisson & Green, 2005, p.435). Positive organizational climate is indicated by the positive impact of the work environment on employees (Glisson et al., 2006). Both constructive organizational culture and positive organizational climate are associated with better job performance (Glisson & Green, 2005; Glisson & James, 2002), greater job satisfaction (Morris, & Bloom, 2002), and successful organizational change (Burke & Litwin, 1992).

Clear communication by administrators to employees of both the rationale for change and the actual changes to be made is necessary for successful organizational change (Frahm & Brown, 2007). In a study of a public services agency undergoing change, in the absence of clear communication from administrators, employees constructed their own meaning for the change, which did not match the administration's rationale for the change (Frahm & Brown, 2007).

At the employee level, organizational commitment, belief in mental health recovery, and readiness for change all are variables that could affect employee acceptance of recovery-oriented organizational change. Organizational commitment, defined as the level of loyalty an employee has to the organization, has been associated with positive attitudes toward organizational change (Iverson, 1996). Davidson and colleagues (2006) found that mental health practitioners were confused about the meaning of recovery as the concept relates to both consumers and mental health practitioners, in part because of the professional role changes necessary to encourage consumer recovery. Employees need to understand the concept of mental health recovery and their role in its promotion to fully engage in recovery-oriented organizational change within hospitals.

Another individual level factor is readiness for change, or an employee's understanding of the need to change and an expressed desire to change. Cunningham and colleagues (2002) found that readiness to change was a strong predictor of employee engagement in organizational change activities. Madsen and colleagues (2005) found greater organizational commitment was associated with stronger readiness to change. The proposed model of recovery-oriented organizational change in hospitals posits readiness for change mediates the effects of organizational commitment and understanding of mental health recovery on adoption of recovery-oriented practices.

Although the current study does not operationalize all of the variables in the conceptual model, the data do tap several of the employee-level variables, such as belief in mental health recovery and understanding of staff role in promoting recovery. Thus, less direct indicators of change to a recovery orientation are used and interpreted within the conceptual model.

Research Questions and Hypotheses

Research objectives included looking for changes in the recovery orientation of the BHO environment through such indicators as staff attitudes about recovery, the extent to which staff discuss recovery, use of seclusion and restraint, consumer and family involvement in treatment planning, consumer and family member satisfaction with services, and continuity of care with community providers.

Methodology

The study used administrative data routinely collected by the BHO for many of the variables of interest, as well as an investigator-administered survey and face-to-face interviews to measure staff attitudes about recovery and explore other issues related to recovery. The design was a time series with repeated measures of many variables of interest. The two sites were chosen to provide regional as well as rural/urban variation.

Variables

The independent variable for the study was the RRI, operationalized as the date the Initiative was formally announced in October, 2006. Because some of the planned changes of the RRI began earlier than the formal announcement, some analyses were run with both October 2006 and an earlier date indicating commencement of the RRI.

Recovery-oriented culture of the BHO was considered a dependent variable, and operationalized as follows:

- staff attitudes about recovery as indicated by responses to a paper and pencil survey, the Recovery Self-Assessment, Provider Version (O'Connell, Tondora, Croog, Evans & Davidson, 2005) with additional questions regarding consumers on committees; and responses in face-to-face interviews about recovery.
- use of restraint and seclusion, in hours per week;
- major and minor incidents, per day;
- consumer involvement in treatment planning, indicated by consumer response on the exit survey;
- family involvement in treatment planning, indicated by family member response on family/visitor survey;
- consumer satisfaction, indicated by consumer response on the exit survey;
- family member satisfaction with care, indicated by family member response on family visitor survey;
- continuity of care with community providers involved in hospital treatment planning, indicated by consumer report on the exit survey.

For some analyses, the above indicators also were independent variables in predicting the dependent variable of consumer movement toward recovery, operationalized as

- length of time between discharge and first psychiatric appointment in the community;
- tenure in the community after discharge, operationalized as number of discharged clients not readmitted within 30 days of discharge.

Data Collection—Instruments

Recovery Self-Assessment, Provider Version

The Recovery Self-Assessment, Provider Version (RSA) (O'Connell, Tondora, Croog, Evans & Davidson, 2005) is a 36 item self-administered instrument, intended to assess the degree to which recovery-supporting practices are evident in a variety of inpatient and outpatient settings where individuals with severe mental illness receive services. Items are rated on a five-point scale of 1 = Strongly Disagree to 5 = Strongly Agree. The instrument yields five subscales: Life Goals (11 items); Involvement (8 items); Diversity of Treatment Options (6 items); Choice (6 items); and Individually-tailored Services (5 items). In a validation study conducted by the instrument's authors with almost 1000 respondents, the subscales' internal consistency ranged from fair (Choice and Individually-Tailored Services: Cronbach's alpha = .76) to high (Life Goals: Cronbach's alpha = .90). Face validity is high in that the items were derived from literature about recovery, with input from individuals involved in recovery. The authors strongly recommend anonymous administration because of high tendency for socially-desirable responding. Therefore, the RSA, with several additional questions posed by the researchers, was anonymous, distributed to staff by the researchers and returned in self-addressed, postage-paid envelope. Respondents answered a series of questions to generate a code number used to match surveys over time. Additional questions elicited information on staff attendance at work committee meetings, contact with clients or consumers from the community in the context of work committees, evaluation of patient/consumer participation in committee meetings, attendance at recovery trainings, contact with the RRA, and demographic variables such as race, gender and professional status.

The remaining instruments already were in use in the BHOs for routine quality assurance and administrative purposes.

NRI/MHSIP Patient Exit Survey

This instrument is administered in either paper-and-pencil or computer screen form to clients as they are being discharged from the BHOs. It consists of 28 likert-scale items that attempt to elicit clients' views of various elements of their treatment and overall experience during the hospital stay. The few (six) demographic items allowed analysis to control for length of stay of this hospitalization episode (coded as one week or less, one month or less, 3 months or less, or more than 3 months), gender, age group, and legal status.

Family/Visitor Survey

The Family/Visitor Survey is designed to collect impressions of patient family or friend visitors with six likert scale items. Initially, the Family/Visitor Survey was to be completed by every visitor during every visit. However, the data collection schedule was changed to one week per quarter part way through the study period.

Analysis and Results

Staff Attitudes Toward Recovery

The survey of staff attitudes toward recovery (RSA) administered twice. A total of 61 staff (35 from Athens and 26 from Toledo) responded to the RSA. Although the intent was to compare responses from the same individuals over time, only a small number (11 or 18% of respondents) of staff completed the instrument at both time one and time two. Staff who responded indicated at least a moderate degree of agreement with most of the items reflecting recovery ideas and practices. There was a higher degree of agreement with items that reflect several practices particularly important to a recovery perspective: efforts to involve family and significant others in planning for treatment, and avoiding coercion in treatment. In addition, staff expressed a higher degree of agreement with the belief that people with serious mental illness can recover and make their own life choices. Items with lower agreement indicate, however, that patient involvement in aspects of treatment related to planning for programs and everyday activities, such as leisure or volunteering, is less emphasized in the BHO setting.

The RSA instrument yields five subscales: Life Goals (11 items); Consumer Involvement (8 items); Diversity of Treatment Options (6 items); Choice (6 items); and Individually-tailored Services (5 items). Mean scores on these subscales, in the current study, range for a low of 3.06 on Consumer Involvement to a high of 3.48 on Life Goals. Subscale scores from staff in the study are similar to those from a hospital-worker sample reported by Salyers, Tsai & Stultz (2007) and somewhat lower than two community samples (Salyers, Tsai & Stultz, 2007; and O'Connell, et al, 2005).

We had hypothesized that attendance at meetings that included BHO clients would positively correlate with more recovery-oriented attitudes. We had also hypothesized that those staff who had attended recovery training would have more recovery-oriented attitudes. In the analysis we controlled for race, gender, length of service at the BHO, facility and whether staff regularly engaged in conversations with residents. This last was measured using a three-item scale asking whether staff had recently discussed recovery with clients, a patient complaint or grievance, or other patient matters. The conversation scale was reliable, with a Chronbach's alpha of .808. The RSA itself had a Chronbach's alpha of .943.

Race, gender, facility and length of service all fell short of statistical significance and were eliminated from the model. This left the two intervention variables and the conversation scale. The results of the final model, including the intervention variables, are given in Table 1:

Table 1: Attendance at recovery training, attendance at meeting with clients present and conversation with clients as predictors of assessment of the recovery orientation of the BHOs.

Variable	Coefficient	Standard Error	T value	Probability	R^2 change with inclusion of variable
Intercept	3.329	.154	21.654	<.001	----------
Conversation with clients	.273	.099	2.766	<.001	.133
Attended recovery training	.207	.200	1.033	.308	.017
Attended meeting with clients	-.138	.169	-.814	.420	.014

Neither of the interventions was statistically significantly correlated with staff assessment of the recovery orientation of the facilities. The very low values of R^2 show that this finding is not simply the result of low statistical power. On the other hand the conversation scale was a statistically significant predictor of staff assessment of recovery orientation, accounting for about 13 percent of the variability in recovery attitudes. Of course, the direction of causality cannot be established from this survey—do those staff who have more conversations with clients come to have a more positive attitude toward recovery, or do those who initially have such an attitude talk more with clients?

Because the response rate was extremely low to the survey and in order to gain a fuller understanding of staff views of recovery for clients in the hospital, the researchers conducted qualitative, face-to-face interviews in April and June 2008, with 15 staff in a variety of positions (e.g., nurse, social worker, line staff, psychologist) at one site and 16 at the other site. The interview covered the following questions:

1) How would you describe the goals of treatment for clients in the hospital? How are goals different for clients who are here a short time versus those who stay awhile? To what extent (if any) does recovery conflict with other treatment goals?

2) To what extent do clients experience recovery?

3) How do you define "mental health recovery"? How do you think this compares to the ODMH definition of recovery?

4) What do you think hospital staff can do to help with client recovery?

5) How does the hospital environment help clients' recovery? How does the hospital environment interfere with clients' recovery?

6) Tell me about a typical conversation you have with other staff about the idea of mental health recovery.

7) How much of a say should clients have in the treatment they receive at the hospital? What are the differences that influence how much say they have?

8) What would you say are the biggest influences on your ideas about mental health recovery?

Respondents' description of treatment goals for the most part focused on client stabilization, safety, and discharge criteria, with returning to the community as a major goal. A few respondents, however, provided a more holistic view of meeting clients' individual needs. Goals for short-term clients were described as related to resolution of a crisis or acute situation in contrast to goals for long-term clients with chronic mental illness or forensic status. Most respondents remarked that recovery is an individual process that manifests differently for different clients. In this view, some clients will be fortunate if they are able to return to baseline yet others will be able to accomplish many goals in life. Some viewed recovery as fairly fatalistic, stating clients needed to accept that they will always have a mental illness and to focus on medication and treatment compliance. Still others stated that the long-term clients had more time to become stable in the hospital resulting in a better prognosis for recovery. Staff stated that recovery does not conflict with other treatment goals, identifying this as a contradiction because, in their view, all efforts of the hospital fall under the umbrella of recovery.

Although varied somewhat among respondents, definitions of recovery seemed to revolve around the eradication of psychiatric symptoms or equated recovery with a cure for mental illness. Few respondents described a comprehensive meaning for recovery where multiple aspects of a client's life were examined. Most respondents reported that their definitions, as compared to the ODMH definition, were similar but stated in layperson's language.

Staff asserted that one of the most influential interventions that can be provided to clients is actually quite simple, being compassionate. Respondents claimed that what is underrated is treating clients as they would want to be treated, listening, demonstrating empathy, and being genuinely interested in their well-being. Similarly, educating, encouraging, and motivating clients also was viewed as effective.

The investigators sought to further understand the role of the hospital environment on recovery. Staff described the hospital setting as both helpful and a hindrance to client recovery. Respondents stated that the inpatient unit provided structure, kept clients safe, and gave them respite from their struggles outside the hospital, with staff creating a supportive, nurturing atmosphere critical for clients' recovery. The drawbacks of the inpatient setting were the locked unit, restrictions on daily activities that would normally be permitted outside the hospital such as smoking, and eating and sleeping at times convenient to the client. Interestingly, the very structure that was described by some staff as helpful was seen by others as interfering with recovery.

The prevalence of staff discussion surrounding recovery was explored as well, and respondents noted that although they do not frequently use the word "recovery" in conversations with other staff, they do collaborate on how various elements of the model may be enhanced

with a particular client. Moreover, family dynamics, placement, job prospects, and social skills were a few of the recovery components that respondents reported conversing about with other staff.

An overwhelming majority of respondents argued that clients should definitely have input in the treatment they receive on the inpatient unit; however staff also articulated some of the factors that influence how much say a client has in the treatment they receive. Symptomology such as psychosis, aggression, and threats to harm self or others negatively affected degree of input in treatment. Conversely, clients' knowledge, insight and understanding of their illness and reason for admission were positively related to the amount of say they had in treatment delivery.

When asked about the biggest influences on staff ideas about recovery, respondents indicated that their own experiences on the inpatient unit provided the evidence of recovery. Observing clients improve from time of admission to discharge became a powerful indicator of recovery success. In addition, staff trainings, educational materials, and research also were reported to have impact on staff ideas of recovery.

Relationship of Recovery and Rights Initiative to Incidents in Units

One of our hypotheses had been that the Recovery and Rights Initiative would reduce adverse incidents on the units. The Ohio Department of Mental Health tracks incidents at all BHOs, and we analyzed these records from the two short term units at the Toledo facility and both units at Appalachian BHO Athens. Incidents are divided into major and minor incidents, with major incidents being those that result in significant harm such as an assault that resulted in hospitalization. Major incidents are quite rare in these facilities—in the two year period between January 1, 2006 and December 31, 2007 which this analysis covers, the two Toledo units experienced 36 major incidents between them, while the two Athens units experienced 8 major incidents between them. Particularly at Athens, these records were simply two sparse to permit data analysis. For this reason, and because the distinction between major and minor represents the outcome of the incident rather than the nature of the incident, we combined major and minor incidents for this analysis.

The number of incidents per day is a count variable, which is right skewed and censored at zero. There are two techniques commonly used for such variables, Poisson regression and negative binomial regression. Negative binomial regression is typically chosen if the data is "overdispersed," that is, if the variance of the variable is substantially larger than the mean, which indicates that the variable is not Poisson distributed. All of the time series of incidents were overdispersed, and so negative binomial regression was used in the analysis.

The results of this analysis fail to show a consistent change in the number of incidents recorded on units following implementation of the RRI. Incidents rose slightly on the North unit of Appalachian Athens Behavioral Health Care. On the other units any change in the number of incidents per day was too small to reach statistical significance.

All units demonstrated statistically significant positive autocorrelation, the relationship between the previous day's incidents and today's. This raises the possibility that a better

understanding of the sources of such autocorrelation could lead to a reduction in the actual number of incidents per unit. It should be noted that no previous studies of incidents have accounted for autocorrelation. Since the current data is statistically significantly autocorrelated, our study raises the possibility that those studies that have not controlled for autocorrelation may have fallen victim to type I errors. For instance, in a study of crowding and aggression on psychiatric wards, Nijman & Rector (1999) found a small but statistically significant correlation while failing entirely to take into account autocorrelation. It is entirely possible that, had they controlled for autocorrelation, their finding would not have been statistically significant.

Table 2: Change in incidents at Northcoast Toledo Unit 200 following the Recovery and Rights Initiative

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-.179	.0884	-.352	-.005	4.078	1	.043
Incidents, lagged one day	.109	.0316	.047	.171	11.846	1	.001
Recovery and Rights Initiative	.075	.1043	-.129	.280	.523	1	.470

Table 3: Change in incidents at Northcoast Toledo Unit 400 following the Recovery and Rights Initiative

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-.821	.1100	-1.036	-.605	55.717	1	.000
Indicents, lagged one day	.207	.0614	.087	.327	11.392	1	.001
Recovery and Rights Initiative	-.161	.1355	-.427	.105	1.414	1	.234

Table 4: Change in incidents at Appalachian Athens North Unit following the Recovery and Rights Initiative

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-.202	.0957	-.390	-.015	4.464	1	.035
Incidents, lagged one day	.108	.0306	.048	.168	12.506	1	.000
Incidents, lagged two days	.074	.0308	.014	.134	5.777	1	.016
Recovery and Rights Initiative	.212	.1054	.005	.418	4.027	1	.045

Table 5: Change in incidents at Appalachian Athens South Unit following the Recovery and Rights Initiative

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-.463	.0967	-.652	-.273	22.926	1	.000
Incidents, lagged one day	.117	.0369	.045	.190	10.122	1	.001
Recovery and Rights Initiative	.196	.1166	-.033	.424	2.818	1	.093

Change in Restraints and Seclusions following the RRI

Kolmogorov-Smirnov tests indicated that restraints were Poisson distributed on all units. This is itself good news; Poisson distributed variables are typically uncommon. It was hoped that the RRI might lead to a reduced number of restraints on the units. However, it was also noted at the outset that this would be a challenge, since the number of restraints was quite low even before the intervention. Poisson regression was used to analyze changes in the number of restraints following the RRI. Control variables used were restraints on the previous day, incidents on the current and previous day and admissions on the current and previous day. Nonsignificant control

variables were eliminated from all models. The results of the analysis are detailed in the tables below:

Table 6: Changes in restraints following RRI on Northcoast Toledo unit A200.

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-2.768	.1891	-3.138	-2.397	214.127	1	.000
Restraints on previous day	.237	.0724	.095	.379	10.714	1	.001
Incidents on current day	.390	.0345	.322	.457	127.442	1	.000
Intervention	1.057	.1961	.673	1.442	29.073	1	.000

Table 7: Changes in restraints following RRI on Northcoast Toledo unit A400.

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-3.093	.2328	-3.549	-2.637	176.514	1	.000
Restraints on previous day	.586	.1356	.320	.852	18.665	1	.000
Incidents on current day	.434	.0478	.340	.527	82.296	1	.000
Admissions on current day	.386	.1259	.139	.632	9.374	1	.002
Intervention	.515	.2279	.068	.962	5.109	1	.024

Table 8: Changes in restraints following RRI in Appalachian Athens North Unit

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-3.266	.2514	-3.759	-2.773	168.798	1	.000
Restraints on previous day	.667	.2226	.230	1.103	8.969	1	.003
Incidents on current day	.351	.0466	.260	.443	56.894	1	.000
Intervention	.170	.2652	-.350	.690	.411	1	.522

Table 9: Changes in restraints following RRI in Appalachian Athens South Unit

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-3.302	.2721	-3.835	-2.769	147.269	1	.000
Incidents on current day	.353	.0604	.234	.471	34.097	1	.000
Intervention	-.548	.3695	-1.273	.176	2.204	1	.138

These results do not support the effectiveness of the RRI in reducing the number of restraints on these four units. The number of restraints per day on two units actually increased following implementation of the RRI, while the number on two other units remained nearly the same. We must add again, however, that these results should be judged in light of the low numbers of restraints that were occurring before the implementation of the RRI. It may be that unit staff simply could not get them any lower.

Use of seclusion on these units is very rare; in no case were there more than 15 seclusions in a unit between January 1, 2006 and December 31, 2007. We therefore combined and analyzed seclusions by facility rather than by unit, again using Poisson regression. We controlled for simultaneous incidents, admissions and restraints. The results are detailed in the following two tables.

Table 10: Change in Seclusions at Northcoast Toledo following RRI

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-3.585	.3462	-4.263	-2.906	107.226	1	.000
Incidents on day of seclusion	.290	.0872	.119	.461	11.085	1	.001
Intervention	-.675	.4030	-1.465	.115	2.804	1	.094

Table 11: Change in Seclusions at Appalachian Athens following RRI

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-4.053	.4010	-4.839	-3.267	102.168	1	.000
Incidents on day of seclusion	.256	.0742	.111	.402	11.899	1	.001
Intervention	-.642	.4833	-1.589	.305	1.765	1	.184

Both facilities experienced some reduction in the number of seclusions following the implementation of the RRI, but in neither case was the reduction statistically significant. These results should be viewed in the context of the extremely low number of seclusions even before the RRI. The facilities may well have reached a point where statistically significant reductions in seclusions are no longer feasible.

Patient Satisfaction

Patient satisfaction was captured from the NRI-MHSIP. The analysis for the NRI-MHSIP used a mixed model, with the intercept treated as a random variable across units. Other statistically significant variables also were tested as random variables, with little difference in results. Given the small number of units, we were unable to analyze contextual effects. The final model (presented to follow) used backward elimination, so only includes the statistically

significant predictors. The variables that failed to predict anything, and were thus eliminated, were race, gender and length of stay.

The NRI-MHSIP scores were the average of all answers that the terminating clients actually gave. So, if someone answered 15 questions for a total score of 45, their score would be 45/15=3. This was a fairly straightforward way to deal with missing scores. A small percentage of terminating clients left all of the questions empty and these responses were deleted from the analysis.

Table 12: Client Satisfaction following the Recovery and Rights Initiative

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	3.015768	.093276	107.638	32.332	.000	2.830872	3.200664
Previous NRIMHSIP	.151650	.023780	1620.196	6.377	.000	.105007	.198292
Voluntary Admission	-.109050	.029809	1602.542	-3.658	.000	-.167519	-.050581
Intervention	.184235	.030952	1620.202	5.952	.000	.123525	.244945

The previous NRI-MHSIP was correlated with the current NRI-MHSIP. Although this variable was included as a predictor mostly to control for autocorrelation—without it the Durbin-Watson test suggested that the residuals were autocorrelated—it does raise the interesting possibility of cohort effects in satisfaction with the facility. Voluntary status was coded as zero for voluntary and one for involuntary, so involuntary clients were on average somewhat less satisfied with the facility. The intervention was coded 0 for baseline and 1 for the intervention phase, so NRI-MHSIP was somewhat higher following intervention. This may to some extent underestimate the effect, because the line graph of changes in the NRI-MHSIP scores over time suggests some nonlinearity.

Family Member Satisfaction

Several of our hypotheses involved the Family/Visitor Survey (FVS). The FVS includes six Likert scale items:

1. I feel my family member/friend is safe and secure.
2. The hospital staff is responsive to my specific concerns.
3. I am encouraged to participate in the treatment/discharge planning process.
4. Staff provided me with information which helped me better understand the illness and treatment.
5. Staff increased my awareness of resources available in my local community.
6. How helpful was treatment that your family member/friend received?

One question that is worth asking, in light of the finding that the NRI-MHSIP scores improved following the implementation of the Recovery and Rights Initiative, is whether FVS scores improved as well. In order to test this, we ran a multilevel model allowing the intercept to vary by unit. The results are shown below:

Table 13: Family/Visitor Satisfaction following the Recovery and Rights Initiative

Parameter						95% Confidence Interval	
	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	4.318988	.129833	29.504	33.266	.000	4.053646	4.584331
Time of visit	-.146217	.086080	350.598	-1.699	.090	-.315516	.023081
Relative or Friend	-.209408	.127797	350.962	-1.639	.102	-.460753	.041937
Intervention	-.042366	.111863	350.358	-.379	.705	-.262373	.177642

The average of all answered FVS scores was the dependent variable. This meant that those visitors who did not answer any of the questions, about five percent, were deleted from the analysis. The average changed little following the intervention. Visitors who arrived later in the day tended to give somewhat lower scores, but the relationship was not statistically significant. Friends tended to give somewhat lower scores than relatives, but again the relationship was not statistically significant. Since inclusion of a non-significant parameter can bias results, the model was re-run without the intervention as a predictor variable, but again neither time of visit nor relationship reached the .05 level of statistical significance.

A further question on the FVS asks whether the visitor would like to be contacted by a staff person. Analysis using a chi square indicated that preference remained unchanged following the intervention ($p = .470$, $phi = -.037$).

We had also posited that those visitors who had been encouraged to participate in treatment and who had received more information about mental illness, treatment and resources in the community would express more satisfaction with the treatment their family member or friend was receiving. These hypotheses were supported in the course of a factor analysis that was performed on the six Likert scaled FVS questions. Correlations observed were:

Table 14: Correlation matrix of the Ohio Family Visitor Survey.

	Safety	Staff Responsiveness	Participation	Information	Awareness of Resources	Helpfulness of treatment
Safety	1					
Staff Responsiveness	.709*	1				
Participation	.588*	.672*	1			
Information	.498*	.633*	.734*	1		
Awareness of Resources	.571*	.655*	.746*	.857*	1	
Helpfulness of Treatment	.620*	.739*	.707*	.728*	.744*	1

*P < .05

While all of the questions are highly correlated with perceptions of the helpfulness of treatment, the participation, information and awareness of resources variables are actually more highly correlated than perception of safety. This emphasizes the importance of interactions between staff and visitors.

Continuity of Care

The MACSIS data was used to answer two questions. First, did the RRI make any difference in whether clients contacted their local community mental health systems following discharge? We had originally planned to use event history analysis to examine this topic, but were advised during a statistical consult not to do so due to the time structured nature of the data. We therefore use logistic regression, the dependent variable being defined as contact with a local mental health center within 30 days. If clients did make contact with a local mental health center within 30 days, the variable was coded 1, if not it was coded zero. The second question was whether the RRI made it less likely that clients returned to the hospital within 30 days. Return within 30 days was defined as a bivariate dependent variable, and analysis was done using logistic regression. Because a significant proportion of clients experienced multiple stays, logistic regressions were run as multilevel models with the particular stay being used as the higher level.

The initial model of the impact of the RRI on contact with local mental health system within 30 days included a bivariate dummy variable indicating whether the RRI had begun at the time of the client's admission, and controlled for gender, race, whether a client was committed through a civil or criminal process, whether status at discharge was judged as satisfactory or unsatisfactory, the average daily number of incidents in which the client was involved, the average daily number of incidents on the unit during the client's stay and the average daily number of restraints that occurred on the unit during the client's stay. Variables that were not significant at the $p = .05$ level were eliminated from the model. The average daily number of restraints that occurred on the unit during the client's stay was entered as a random variable at the higher level to control for variation between stays.

Table 15: Contact with Mental Health Center following the Recovery and Rights Initiative

Variable	Coefficient	Standard Error	t-value	Probability
Intercept	-1.523	.403	-3.777	.0002
Discharge Status	1.346	.402	3.349	.0009
Daily Incidents	-1.198	.360	-3.333	.0009
Incidents Occurring while on Unit	-0.136	.060	-2.254	.0247
Restraints Occurring While on Unit	.580	.221	2.622	.0090
Intervention	.372	.102	3.639	.0003

Former clients were more likely to contact their local mental health center within 30 days following the RRI. Among the covariates, those clients with a satisfactory discharge status were more likely to contact the mental health center within 30 days. Surprisingly, as more restraints occurred on the unit during the stay, clients became more likely to contact their local mental health center within 30 days. Incidents personally experienced and those that occurred on the unit during the stay, on the other hand, tended to make it less likely for clients to contact their local mental health centers.

Since it seemed possible that any relationship between the intervention and readmission within 30 days might be accounted for by whether or not clients had previously contacted their local mental health centers, this variable was included as a predictor of readmission, along with all of the predictors of contact with the local mental health center. Again, nonsignificant covariates were removed from the model. Results are given in the table below:

Table 16: Predictors of Readmission within 30 days.

Variable	Coefficient	Standard Error	t-value	Probability
Intercept	-3.934	.146	-26.891	<.0001
Contact Mental Health Center	.589	.134	4.406	<.0001
Restraints Occurring while on Unit	-1.617	.618	-2.617	.0092
Intervention	.307	.15	2.036	.0423

Discharged clients were somewhat more likely to return within 30 days following the RRI, and they were also somewhat more likely to return within 30 days if they had contacted their local community mental health center. This finding should be viewed in light of the likelihood that some of these clients may have contacted their community mental health centers in the process of being readmitted. When more restraints occurred on the unit during the clients' stay they were less likely to return within 30 days.

Discussion

The Recovery and Rights Initiative was a fairly modest intervention, involving a change in the title of Client Rights Advocates to Recovery and Rights Advocates, increased client voice, largely through inclusion in committees, and increased recovery training. The mixed results of this evaluation should be viewed with an understanding of the modesty of that intervention and the difficulty of creating changes in any organization. Further, among the limitations of this study are that it was not possible to determine any change in recovery attitudes of staff because of low response rate to the RSA and subsequent abandonment of data collection using it. It was not possible to determine which aspects of the RRI brought about change in part because some of the intended data collection did not happen (items were to have been added to the Family/Visitor Survey and the NRI-MHSIP and an instrument was to have been used by consumers on committee to document their experiences). Thus, it is not clear whether any training that may

have occurred for clients or staff had an effect, nor whether clients perceived themselves to be heard on committees.

In spite of these limitations, this study indicates that the Recovery and Rights Initiative apparently did have some of the intended effects on variables of interest. Changes did happen following the RRI. Clients expressed greater satisfaction with the BHOs, as measured using the NRI-MHSIP. Continuity of care improved, with clients being somewhat more likely to contact their local community mental health centers within 30 days of discharge. On the other hand, clients were also more likely to return within 30 days following discharge after the RRI was implemented. Family and visitor attitudes toward the BHOs remained unchanged. And these results suggest that the RRI failed to improve unit functioning. We should add, however, that these units appear to have functioned well before the RRI. In particular, levels of seclusion and restraint were quite low previous to the intervention. It may simply have been impossible to have driven them lower. Further, there is a tendency for many variables to regress to the mean—extremely low values are likely to be followed by higher values, since those are closer to the mean. This tendency probably explains the unexpected increase in incidents and restraints on some units following the RRI.

Although the RSA demonstrated that staff at least moderately agreed with ideas of recovery, their interpretation of what recovery means, elucidated in the face-to-face interviews, is somewhat at odds with the ODMH definition and others in the literature that focus more on having a full life in spite of experiencing mental illness and less on mere acceptance, symptom remission or cure. As stated earlier, this is not necessarily unexpected when staff are faced daily with clients experiencing acute exacerbations of mental illness symptoms.

The study did not fully operationalize the conceptual model, yet it is possible to draw some conclusions about the organizational change effort. Clear communication by administrators of the rationale for change and the content of change is thought to be necessary for successful organizational change. Although there were efforts made to communicate the rationale of becoming more recovery oriented, the actual change of one staff person's title was perhaps seen as inconsequential to the overall operation of the BHO. The investigators made no attempt to study organizational climate but could not help but notice factors that may have represented what Frahm and Brown (2007) referred to as employees constructing their own meaning for the change, such as expressed fear of closure of one of the facilities (a year before two BHO campuses were, in fact, closed) and a sense that changes dictated by ODMH Central Office or even the BHO's CEO were not necessarily in the best interest of staff. Such changes may have been seen as requiring more work without related increases in remuneration.

At least two themes emerge from this analysis. The first is that unexpected results are likely to emerge from interventions in complex systems such as BHO units. A good example of this is the increase in discharged clients who returned within 30 days following the RRI. Simply documenting such a change does not explain it, and it is possible that some change in the broader mental health system simultaneous to the RRI explains the increase. On the other hand, it is also possible that an increased emphasis on recovery in a BHO makes the facility more welcoming to clients, who are therefore more willing to return. Similarly, the principle of continuity of care indicates that clients should contact their local mental health centers as soon as possible

following discharge, but such contact is positively correlated with a return to the BHO within 30 days. This is unsurprising, since community mental health staff members make referral decisions, but it is worth considering this tension when planning improvements in continuity of care.

The second theme is the importance of interpersonal interactions in the operation of BHOs. Some of these interactions are formalized, part of staff members' jobs. Family and visitor satisfaction with treatment was more highly correlated with staff responsiveness, the staff's willingness to allow participation in treatment, and the information that staff provided them than it was with perceptions of client safety. Some of the interactions are informal. Those staff members who conversed more with clients had a more positive assessment of the recovery atmosphere of their facility. When more incidents occur while clients are on the unit, they are less likely to contact their local mental health agencies within 30 days of discharge. In at least one case, dynamics on the unit yield a counterintuitive result. When more restraints occur on a unit while a client is there, he/she is more likely to contact a local community mental health center within 30 days and less likely to return within 30 days.

BHOs are complex systems in which the interactions between the individuals who live and work there are at least as important in determining outcomes as planned interventions. The challenge that faces us as we intervene in these facilities is to take these interpersonal interactions into account, and potentially to use them as a means of improving the BHOs.

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