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Illness Management and Recovery: A Review of the Literature

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Abstract

Objective—Illness Management and Recovery (IMR) is a standardized psychosocial intervention that is designed to help people with severe mental illness manage their illness and achieve personal recovery goals. This literature review summarizes the research on consumer-level effects of IMR and articles describing its implementation.

Methods—In 2011, the authors conducted a literature search of Embase, MEDLINE, PsycINFO, CINAHL, and the Cochrane Library by using the key words “illness management and recovery,” “wellness management and recovery,” or “IMR” AND (“schizophrenia” OR “bipolar” OR “depression” OR “recovery” OR “mental health”). Publications that cited two seminal IMR articles also guided further exploration of sources. Articles that did not deal explicitly with IMR or a direct adaptation were excluded.

Results—Three randomized-controlled trials (RCTs), three quasi-controlled trials, and three pre-post trials have been conducted. The RCTs found that consumers receiving IMR reported significantly more improved scores on the IMR Scale (IMRS) than consumers who received treatment as usual. IMRS ratings by clinicians and ratings of psychiatric symptoms by

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independent observers were also more improved for the IMR consumers. Implementation studies (N=16) identified several important barriers to and facilitators of IMR, including supervision and agency support. Implementation outcomes, such as participation rates and fidelity, varied widely.

Conclusions—IMR shows promise for improving some consumer-level outcomes. Important issues regarding implementation require additional study. Future research is needed to compare outcomes of IMR consumers and active control groups and to provide a more detailed understanding of how other services utilized by consumers may affect outcomes of IMR.

Illness Management and Recovery (IMR) is a standardized psychosocial intervention that is designed to help people with severe mental illness better manage their illness and achieve personally meaningful goals (1,2). IMR was created in conjunction with the National Implementing Evidence-Based Practices (NIEBP) project (3), with the aim of incorporating empirically supported illness self-management strategies into a single program.

IMR is organized into modules, each covering a different topic. The modules are premised on the stress-vulnerability model of mental illness (2,4), in which mental illness is thought to be affected by both biological vulnerabilities and psychosocial stressors. Therefore, the modules include information on mitigating these vulnerabilities and stressors as well as developing "recovery strategies," such as relapse prevention plans. The third edition of IMR includes 11 modules covering the following topics: recovery, practical facts about mental illness, the stress-vulnerability model, building social support, using medication effectively, drugs and alcohol, reducing relapses, coping with stress, coping with persistent symptoms, getting your needs met in the mental health system, and living a healthy lifestyle. Each module uses a combination of motivation-based, educational, and cognitive-behavioral strategies and requires several sessions to teach. IMR can be delivered in a group or an individual format over approximately six months to one year.

Resource materials have been developed to facilitate the implementation of IMR (5). They include a practitioner's guide; the IMR workbook, with educational handouts for each topic; an IMR fidelity scale; outcome measures; informational brochures for different stakeholders, such as consumers, family members, clinicians, and policy makers; and introductory and demonstration videos. The program and the resource materials are now publicly available for free from the Substance Abuse and Mental Health Services Administration (SAMHSA) Web site.

IMR has established a strong empirical foundation by incorporating evidence-based strategies for improving illness self-management. Unlike other practices in the NIEBP project, the IMR program and resource materials had not been previously evaluated as a complete package. Since SAMHSA made the materials available online, IMR has been increasingly implemented nationally and internationally and has been the focus of growing research. This article provides a systematic review of research on the IMR program, including the effects of IMR on consumer outcomes and service utilization, implementation of IMR, and modifications of the program.

Methods

In June 2011 we searched Embase, MEDLINE, PsycINFO, CINAHL, and the Cochrane Library (Cochrane Central Register of Controlled Trials, the Health Technology Assessment database, and the Database of Abstracts of Reviews of Effects) by using the keywords "illness management and recovery," "wellness management and recovery," or "IMR" AND ("schizophrenia" OR "bipolar" OR "depression" OR "recovery" OR "mental health"), generating 37 references after removal of duplicates. We also searched for publications citing two seminal IMR articles (1,2), resulting in 223 publications after removal of duplicates. The inclusion criteria for our review included publications that dealt explicitly with IMR or described the program of study as an adaptation of IMR. Publications that simply described the creation of the IMR program were excluded. We also excluded reports that were not published in peer-reviewed journals to ensure the highest scientific rigor.

Twenty-six studies met inclusion criteria, including nine that measured consumer outcomes and 16 that examined implementation or adaptations of IMR. One study, by Roe and colleagues (6), was a qualitative follow-up of a prior study (7) and did not report unique quantitative consumer outcomes; however, because it provided implementation outcomes (completion rates), we included it in the review of implementation studies.

Results

Consumer outcomes and service utilization

Randomized controlled trials (RCTs)—Three RCTs compared IMR with treatment as usual (7–9) (Table 1). Hasson-Ohayon and colleagues (7) examined outcomes at 13 community agencies in Israel that offered IMR for eight months. Levitt and colleagues (8) examined outcomes of IMR at a residential program in New York City and conducted follow-up after six months. Finally, Färdig and colleagues (9) examined outcomes of IMR at six Swedish psychosocial rehabilitation centers and conducted follow-up after 21 months. Treatment as usual varied considerably both within and between studies, but generally it included outpatient case management, pharmacological treatment, and access to other rehabilitation services.

All three RCTs used the consumer and clinician versions of the Illness Management and Recovery Scale (IMRS), which was created in conjunction with the IMR implementation tool kit (5) to provide a practical measure of a consumer's progress during his or her participation in IMR. Parallel versions of the scales have been developed for consumers and their key clinician, with questions reflecting specific IMR program targets, such as progress toward goals, knowledge of mental illness, relapse prevention plan, and substance use.

Both Levitt and colleagues (8) and Färdig and colleagues (9) reported that IMRS scores improved more among consumers assigned to IMR than to treatment as usual (medium effect sizes for both). Hasson-Ohayon and colleagues (7) also reported significantly greater improvement in IMRS scores among consumers assigned to IMR versus treatment as usual, but only if the analyses were limited to sites with high IMR fidelity (Table 2).

The RCTs also used other means to evaluate improvement. In one RCT (9), participation in IMR was associated with increased use of social support and problem solving and decreased use of avoidance and self-control, four subscales of the Ways of Coping Scale (10). Another RCT (7) measured coping with the Coping Efficacy Scale, however, and found no differences in improvement between the consumers assigned to IMR or treatment as usual (11). Consumers assigned to IMR versus treatment as usual did not report greater improvement on measures of symptoms (Modified Colorado Symptom Index [8,12]), recovery (Recovery Assessment Scale [RAS] [9,13]), quality of life (Manchester Short Assessment of Quality of Life [9,14]), or social support (Multidimensional Scale of Perceived Social Support [7,15]). Notably, there were no time effects for outcomes between the consumers who were assigned to IMR or treatment as usual.

Outcomes evaluated by independent assessors were generally more encouraging. Two RCTs examined observer ratings of psychiatric symptoms among consumers assigned to IMR or treatment as usual, and both reported greater reduction of symptoms among the IMR consumers (8,9). The effect sizes were small (8) and medium (9). Independent assessors also reported better psychosocial functioning among consumers assigned to IMR on an abbreviated version of Heinrich's Quality of Life Scale (8).

There were no significant differences in hospitalization among consumers assigned to IMR or treatment as usual (7–9). Hospitalization was measured by self-report (8), record review (9), and an unreported method (7). No differences were found between consumers assigned to IMR versus treatment as usual in improvement of employment rate (8) or in changes to medication dosage (9). Finally, IMRS ratings by clinicians in all three RCTs indicated greater improvement among consumers assigned to IMR versus treatment as usual, although clinicians were not blind to condition (7–9). The effect sizes were small and medium.

Quasi-controlled and pre-post trials—Three studies compared consumers receiving IMR with a nonrandomized control group. Fujita and colleagues (16) compared a group of consumers who were receiving IMR at a day treatment program in Japan with a convenience control group at another location. In two separate analyses, using partially overlapping samples, Salyers and colleagues (17,18) compared outcomes among clients of assertive community treatment (ACT) teams in Indiana who were or were not receiving IMR. In the first study, two teams were randomly assigned to provide IMR training and consultation (17). The second study analyzed data from a convenience sample of teams providing IMR (18). In both studies, ACT team members relied on their own clinical judgment to determine who should receive IMR.

Three studies examined change over time among consumers receiving IMR (2,19,20). Only results that differed from those of the RCTs are discussed. Pre-post trials showed improvement over time in consumer reports of recovery (2,19,20), generally measured by the RAS, whereas Färdig and colleagues (8) found no improvement among IMR consumers with the same scale. Two studies found decreased reporting of psychiatric symptoms among IMR consumers (2,16), whereas Levitt and colleagues (8) found no improvement. In short, the effects of IMR on consumer-reported recovery and symptoms remain promising but require further exploration.

Although satisfaction with services was not measured in any of the RCTs, three other studies measured satisfaction (2,17,19). Two of the studies measured satisfaction over time and found no statistically significant differences (17,19). One study measured satisfaction only at follow-up, so measuring change over time was not possible (2).

Salyers and colleagues' (17,18) studies of ACT consumers are notable in two regards. First, consumer and clinician reports indicated no advantage for IMR on any outcome except substance abuse. IMRS ratings by clinicians indicated that both the IMR consumers and the control groups improved over time, and IMRS ratings by consumers indicated that neither group improved. Second, the authors reported lower hospitalization rates among ACT consumers who received IMR.

In summary, extant research suggests an advantage for IMR over treatment as usual for IMRS ratings by both consumers and clinicians and for ratings of psychiatric symptoms by observers (but not by consumers). Evidence from pre-post trials indicates that self-ratings of recovery improved more among IMR consumers than a control group, but the one RCT that evaluated whether IMR was associated with improved consumer ratings of recovery did not confirm this hypothesis. Evidence is lacking for IMR's effects on more distal outcomes, such as quality of life, social support, and community integration and role functioning. Additional research is necessary to determine the differential effects of treatment setting and consumer population.

Implementation and adaptation

Sixteen studies reported on the implementation or the modification of IMR. These studies included results from the NIEBP project (21–25) and thorough descriptions of IMR implementation efforts at a psychiatric rehabilitation center (26), a state psychiatric hospital (27), and community mental health centers in the United States and Israel (28). Others focused on the adaptation of the IMR model, either for use in a novel setting or for a novel purpose (29–31) or for overcoming perceived barriers to implementation (32,33). Finally, several studies examined staff perceptions of IMR training (34–36).

NIEBP—The NIEBP project was the first large-scale study to examine the implementation of IMR (21,23). This project included using comprehensive implementation support during the implementation of IMR and other evidence-based practices. Comprehensive implementation support comprises a site implementation coordinator, training, and fidelity monitoring (24). The study lasted two years, and evaluation focused on fidelity and qualitative measurement of the implementation process.

Adaptations of IMR—Several groups have developed programs that are based on IMR. Bullock and colleagues (33) adapted IMR and combined it with another program—the Ohio Medication Algorithm Project—in order to create Wellness Management and Recovery (WMR). The WMR program covers many of the same topics as IMR and focuses on consumer empowerment and goal setting. Reported differences from IMR include a ten-week curriculum (delivered in two-hour group sessions, once per week), a requirement for a peer cofacilitator, and an emphasis on cultural competence. In a longitudinal, mixed-methods program evaluation, WMR graduates showed significant improvement on self-

reported recovery and reduction in symptoms compared with baseline (33). These changes were maintained at a follow-up assessment conducted between three and six months following discharge.

Another adaptation of IMR, Wellness Self-Management (WSM), departs from traditional IMR in three key ways (32). Most significant, consumers receiving WSM do not set long-term recovery goals. In addition, the program curriculum places greater emphasis on "wellness action steps" than on homework assignments. WSM is currently offered by over 100 mental health agencies in New York. The published evaluation reports improvement in goal progress but did not provide enough information to qualify as an outcome study.

Factors affecting implementation—The Consolidated Framework for Implementation Research (37) provides a useful structure for discussing the implementation and adaptation of IMR. It outlines five domains that influence implementation of a practice: intervention characteristics, outer setting, inner setting, implementation process, and characteristics of individuals providing the practice.

IMR is a complex intervention, involving the integrated use of high-level clinical skills, such as motivation-based and cognitive-behavioral strategies. The manual used to teach the IMR curriculum was generally considered a strength of IMR by trainees who were surveyed about use of the manual; they often appreciated its structured, manualized approach (34). Although it provides structure, the IMR curriculum allows a fair degree of flexibility of pace and usage of techniques, providing guidelines—rather than prescriptions—for suggested activities during sessions and as homework. Some IMR modifications, including WMR and WSM, have increased the prescriptive nature of the curriculum, introducing substantially briefer time frames for program completion (32,33). Some have added topics to the curriculum, including an increased emphasis on medications (33), general medical health (31,32), and anger management (29).

Inner setting, or the programmatic or clinical context in which a practice is implemented, was highlighted in a number of studies as the most important facilitator of implementation. Agency-level factors are the aspect of the inner setting that was mentioned most often in empirical examinations of IMR trainees (34) and reported most often by the NIEBP project (22). In particular, agency culture (38), such as policies and procedures, were highlighted. Several authors emphasized that supervision of IMR is designed to provide a format for continued learning and reinforcement of the clinical techniques (21,22,26,27,34). Several sources also highlighted the importance of adapting clinical documentation to support IMR (26,27,34). Bartholomew and Kensler (27) emphasized the importance of communicating consumers' current efforts taking place in IMR with other staff, such as setting clearly defined recovery goals and delineating skills that should be taught to other members of the treatment team.

Agency philosophy, particularly an agency's embrace of recovery, may affect IMR implementation. Because IMR may require an agency to make a fundamental shift toward recovery-oriented practice, Isett and colleagues (25) recommended agencywide training in IMR and also noted the importance of fit between IMR and other programs within a setting.

Notably, in studies of recovery-related staff training, including IMR training, the training was positively associated with staff optimism regarding consumers and perceived recovery orientation (35,36).

Outer setting, or factors external to the agency, has also been identified as important in implementing IMR. Statewide consensus building was considered key in the NIEBP project (24). Similarly, state technical assistance has been associated with increased reports of full implementation (34). Funding is also crucial. As described by Rychener and colleagues (26), high expectations for productivity make it difficult for staff to disengage from billable services long enough to engage in nonbillable activities that support IMR, such as supervision, membership on a steering committee, or training. However, the authors reported that this cost was partly offset by increased billable productivity attributable to IMR, given that clinicians who were previously providing brief case management were able to deliver IMR services for longer periods.

All published accounts of IMR implementation describe a multifaceted process involving training, IMR-specific supervision, technical assistance, and fidelity monitoring. Implementation support was generally very robust and spanned domains of implementation. Implementation across studies generally included some form of external facilitation, including academic detailing (26,27,39) or technical assistance (17,19,21,32,33). In New York, a learning collaborative served many of the same functions as a state technical assistance center but was funded in part by financial commitments from participating agencies (32).

IMR generally has been provided by professional clinicians, although some treatment settings utilize consumer providers (17,20,33). Many implementation efforts began with a pilot group, generally the most willing and enthusiastic clinicians, and expanded to additional programs and clinicians (26,27,32,40). Because IMR is a manualized program, clinicians must be willing to adapt to a more structured intervention (26). Clinicians with paternalistic or medical-model philosophies may be more resistant to IMR. For example, for the implementation described by Rychener and colleagues (26), the agency placed a new emphasis on clinical supervision and fidelity monitoring, and clinicians who were unaccustomed to such a high level of oversight had difficulty making the adjustment. However, despite a given clinician's preconceptions, IMR may provide a platform for paternalistic practitioners to challenge their beliefs and increase their recovery orientation (35,36).

Implementation outcomes—IMR studies reported three types of implementation outcomes: feasibility, fidelity, and penetration (Table 3). Feasibility—the extent to which a practice can be used or carried out within a setting (41)—is often measured by recruitment, retention, and participation rates (42). One factor relevant to feasibility is the program length. IMR was initially conceptualized as a three- to six-month program, although more recent literature (19) has suggested that it takes nine to 12 months.

Among the nine studies reporting dropout rates for IMR (2,7,9,16–20,26), the median rate was 24%, and rates were rather consistently within the 18%–30% range (2,7,17,19,20,26).

Fujita and colleagues' (16) and Färdig and colleagues (9) found particularly low dropout rates (14% and 5%, respectively). Participants in Färdig and colleagues' sample were enrolled in the study on the basis of consistent attendance of prior (non-IMR) services, and training and consultation focused heavily on consumer engagement (personal communication, Färdig R, 2012). Despite consistency among studies, dropout rates varied substantially between sites within the same study. For example, in two studies, dropout rates ranged from 10% to 50% (19) and from 24% to 40% (2), depending on the site.

Program completion was generally defined as having received all IMR modules, and seven studies reported completion rates (2,16–18,20,26,28). The median rate of completion was 63%, although the weighted mean was much lower (36%). Unlike dropout rate, completion rates varied substantially among studies (range 15% – 86%). Salyers and colleagues (17) found a particularly low completion rate (15%) in their two-year examination of ACT teams; this rate increased to 47% in a retrospective examination of all ACT programs in the state providing IMR over a five-year span (18). A trend was detected among sites providing IMR with a group versus individual format; all studies providing a group format were at or above the median completion rate. Notably, completion rates were generally highest for small trials with only one or two sites (2,16,20,28); however, a single-site study by Rychener and colleagues (26) reported the lowest completion rates.

Three studies (8,9,16) reported the percentage of sessions attended by clients. The average attendance was 52% (8), 75% (9), and 82% (16) of sessions.

Fidelity, or the level of adherence to the program model, was examined by eight studies (7,8,16–19,21–23,27). Fifty percent of sites in the NIEBP project achieved average scores greater than 4, the criterion for “successful implementation” (21,23). An additional 25% achieved average scores greater than 3, the criterion for “moderate implementation.” In general, scores progressed during the two-year study period, with the largest gain realized in the first six months. Improvement continued for the remainder of the first year, and the scores were sustained during the next year.

Hasson-Ohayon and colleagues' (7) multisite RCT found cross-site variability in fidelity, ranging from 2.7 to 4.8, with eight of 11 sites reaching “moderate” fidelity (23). Notably, the authors found that IMRS outcomes among consumers improved more at high-fidelity sites than at low-fidelity sites. Subsequently, with the exception of the study by Bartholemew and others (28), the five studies that measured fidelity reported that all sites reached successful implementation (8,16,17,19).

Penetration, or “the integration of a practice within a service setting” (42), can be measured by the number of eligible consumers receiving a service or the number of clinicians adopting the practice. Two related studies examined penetration at the consumer level and found that only 26% (17) and 29% (18) of consumers receiving ACT also received IMR.

In summary, IMR appears to be feasible, although not easy, to implement, with consumer acceptability comparable to that of other evidence-based practices. Completion rates were better for group versus individual IMR and for smaller trials with fewer sites. Nonetheless, both median dropout rates (about 24%) and completion rates (63%) leave much room for

improvement. Acceptable rates of fidelity were found in later trials, but earlier, more geographically diffuse trials found substantial variability. Only a few trials examined penetration, but for those that did, penetration was found to be poor.

Discussion

This review yielded a substantial amount of research on IMR. Nine studies of client outcomes and 16 implementation studies have been published since the creation of the program. Research has spanned numerous treatment settings across several continents. Outcomes research examined whether there were changes in consumer outcomes before and after participating in IMR, with three RCTs comparing IMR to treatment as usual.

IMR appears to be a successful and well-tolerated intervention for people with severe mental illness. The most consistently positive findings were improved scores on the IMRS, which was specifically designed to assess IMR outcomes and objectively rated symptoms. Other evaluations of consumer-reported recovery were generally—but not uniformly—positive. Other subjective and objective outcomes varied considerably among studies.

Although the current research is promising, modifications to future studies could greatly enrich the information gleaned about IMR and its potential applications. First, the three RCTs did not compare IMR consumers to an active control group; therefore, the results cannot disentangle specific effects of IMR from common factors. Moreover, “treatment as usual” was often poorly delineated; therefore, it is unclear whether adding IMR to a treatment regimen would have added benefits. Other services utilized by participants before and concurrently with IMR should be tracked and taken into account before implementing new programs.

Second, IMR is a complex and multifaceted intervention, with potential effects on multiple consumer domains and various mechanisms of action. The studies generally included multiple outcomes, but they did not provide a clear linkage between the relevant element of IMR and its putative outcomes. Future research should include analyses informed by the modified stress-vulnerability model, which serves as the theoretical foundations of IMR (2,43).

Regarding any effects on reduction of hospitalization, results were mixed. Two explanations seem plausible. Either IMR and ACT worked synergistically to reduce risk of hospitalization or ACT clinicians, either intentionally or unintentionally, chose to provide IMR to consumers with the least risk of rehospitalization. The low rates of hospitalization in the three RCTs suggest that well-stabilized outpatients were included, reducing the likelihood of finding reductions in hospital use. Also, no study has looked at the effects of IMR on reducing relapses or hospitalizations after a recent hospitalization, when people are more vulnerable to rehospitalization. In addition, the studies generally did not report on the effects of potential consumer-level variables—for example, illness severity, intellectual capability, and other services received—and agency-level variables—for example, climate and culture and client-to-staff ratio—that could moderate consumer outcomes.

Although implementation outcomes suggest that IMR can be successful, implementation success and acceptance merit further exploration. Dropout rates were generally consistent (between 20% and 30%) and were within the range found in studies of cognitive-behavioral therapy for psychosis (generally between 35% and 55%) (44) and general outpatient services (45). Extant studies did not examine predictors of dropout; studies generally have had little success at identifying consistent predictors of dropout among consumers. Completion rates varied more than dropout rates, with the lowest rates found in two studies of ACT teams. Because consumers receiving ACT experience severe illnesses, they may require a longer period to complete the IMR curriculum. Two related studies also found a lower hospitalization rate for the consumers receiving IMR, so it would be premature to determine that IMR is not useful for ACT consumers (17,18). It is also unclear to what extent socioeconomic factors, such as literacy and multiple role pressures, affect acceptability of IMR.

All studies that measured fidelity considered it acceptable, although Hasson-Ohayon and colleagues (7) found low fidelity at some sites, which was also true at some sites in the NIEBP project. Low fidelity was found by studies that spanned across state lines and by one trial that was conducted in an inpatient setting. Geographical dispersion may be a limitation for consistently rigorous training and technical assistance.

Fidelity scores are lower for IMR than for some other practices, such as assertive community treatment and supported employment (21,23). Some authors have emphasized that the IMR fidelity scale relies heavily on clinical techniques, such as motivational, cognitive-behavioral, and educational teaching techniques (21,23). In contrast, fidelity scales for assertive community treatment, supported employment, and other programs are defined more in structural terms, such as team composition and location of services. Investigators have suggested that the difference in emphasis leads to lower fidelity ratings for IMR and other practices that rely on clinical techniques, such as integrated dual-disorder treatment and family psycho-education (21,23).

Although fidelity is considered an important implementation outcome, the IMR fidelity scale has several limitations. Like most fidelity scales, it has had little psychometric validation and the cutoff for “implementation” was determined on the basis of expert opinion rather than empirical validation. In addition, the scale focuses on program-level fidelity, which does not take into account variation among clinicians in IMR competence. To this end, a group is currently validating an IMR competence tool—the IMR Treatment Integrity Scale (46).

Implementation studies identified several important barriers and facilitators of IMR; however, methodologies preclude drawing conclusions regarding the effect of particular factors on specific implementation outcomes. The most consistent results were the importance of agency factors, in particular regular supervision, and contact with outside training and consultation. Future studies should examine the interplay between various implementation domains. It should also be noted that no study reported costs of implementation, an important practical consideration.

Conclusions

IMR was initially called an evidence-based practice on the basis of research on its components; research on IMR as a package is promising, indicating positive effects on consumers' perceptions of recovery and illness management. Differences in the methodologies of outcomes studies make it impossible to draw firm conclusions regarding IMR's effectiveness in comparison with other programs. As of yet, no population has emerged that does not generally benefit from the program, although little research has examined the relationship between consumer characteristics and response to IMR. More work is necessary to adapt IMR to special populations, such as persons who are involved with the criminal justice system.

IMR programs can be implemented with acceptable fidelity, but that may require substantial and comprehensive implementation support. Agency support, including supervision, and external consultation appear to be key facilitators of implementation. Future research should include active control groups, employ more psychometrically rigorous outcome measures, and examine key moderators of participation and outcomes.

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Table 1

Studies of Illness Management and Recovery (IMR) outcomes

Study	Follow-up	Participants[a]		Program setting	Format	IMR length	Clinicians	Training
		IMR	Control					
Randomized controlled trial (RCT)								
Hasson-Ohayon et al., 2007 (7)	Graduation	119	91	13 Israeli psychiatric rehabilitation centers	Weekly group	8–11 months	13 “interested” clinicians	48 hours
Levitt et al, 2009 (8)	5 and 12 months	54	50	3 multiunit supportive housing programs	Twice weekly group	41 sessions	Not available (NA)	NA
Färdig et al, 2011 (9)	9 and 21 months	21	20	6 Swedish psychiatric outpatient rehabilitation centers	Weekly group	9 months (mean=30 sessions)	12 “interested” clinicians	5 days
Quasi-controlled trial								
Fujita et al., 2010 (16)	Graduation	25[b]	10	Outpatient clinics at 2 Japanese hospitals	Weekly or biweekly group[c]	Mean=28 sessions	Various professions	2 days
Salyers et al., 2010 (17)	24 months	183	141	4 assertive community treatment (ACT) teams	Individual	NA	Peer specialist and ACT case managers	2 days
Salyers et al., 2011 (18)	5 years	144	354	5 ACT teams	Individual	Median=9 months	Peer specialist and ACT case manager	2 days
Pre-post trial								
Mueser et al., 2006 (2)	3 months after IMR	32	—	Community mental health centers (CMHCs) in US and Australia	Group and individual	8 months[d]	Various professions	2 days
Salyers et al., 2009 (19)	12 months	156[e]	—	6 CMHCs in Indiana; various programs	Group and individual	NA	Varied by site	2 days plus supplemental training
Salyers et al., 2009 (20)	9 months	11	—	ACT team, CMHC	Individual	NA	Peer specialist	40 hours

[a] The control group for the RCTs was treatment as usual. Fujita et al. (16) used a wait-list control group. For Salyers et al. (17) four ACT teams were randomly assigned to provide IMR training and peer support (N=2) or to maintain treatment as usual (N=2).

[b] Includes 4 participants who received IMR after participating in the control group

[c] Two consumers opted to receive individual rather than group IMR.

[d] Weighted mean of time to program completion across sites

[e] Participants included in analysis had complete baseline and follow-up data.

Table 2

Outcomes of Illness Management and Recovery (IMR), by type of study[a]

Outcome	Randomized control			Quasi-controlled		Pre-post		
	Hasson-Ohayon et al. (7)	Levitt et al. (8)	Färdig et al. (9)	Fujita et al. (16)	Salyers et al. (17,18)	Mueser et al. (2)	Salyers et al. (19)	Salyers et al. (20)
Consumer report								
IMR Scale	NS	.36	.29		NS	.83	.84	
Recovery			NS	NS	NS	.64	.35	.91
Coping	NS		.14–.19[b]			NS		
Knowledge about mental illness	.14[c]					.63		NS
Psychiatric symptoms		NS				.50		
Satisfaction with services					NS		NS	
Quality of life, community functioning, and social support	NS		NS	1.46				
Clinician report								
IMR Scale	.28	.39	.34		NS		.84	
Quality of life, community functioning, and social support		.52		NS				
Psychiatric symptoms				NS				
Substance abuse		NS			__[d]			
Observer-rated psychiatric symptoms		–.20	.38					
Objective outcome								
Hospitalizations and emergency visits	NS	NS	NS		__[e]			
Employment		NS			NS			
Medication dosage			NS					
Incarceration or homelessness					NS			

[a] Results reflect comparisons from baseline to the longest follow-up period. Studies reported only one scale for each category. Only significant ($p<.05$) effect sizes (Cohen's d) are reported. Effect sizes for Färdig et al. (9) are reported as η^2. A blank cell indicates the variable was not measured. NS, not significant.

[b] Range from the four of eight subscales of the Ways of Coping Scale with significant results

[c] Knowledge and goals subscale of the consumer-reported IMR Scale

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[d] Results were significant for Salyers et al. (18), but the variable was not measured for Salyers et al. (17). Effect sizes were not reported.

[e] Results were significant for Salyers et al. (18) but not for Salyers et al. (17). Effect sizes were not reported.

Table 3
Implementation studies of Illness Management and Recovery (IMR), by outcome

Study	Dropout rate (%)	Sessions attended (%)	Graduation or completion rate (%)	Fidelity (M±SD)[a]
Hasson-Ohayon et al., 2007 (7)	18[b]			2.66–4.77[c]
Levitt et al., 2009 (8)	"Low exposure rate"[d]	52		4.38±1.19
Färdig et al., 2011 (9)	5	75		
Fujita et al., 2010 (16)	14	82	86	4.90±.17
Mueser et al., 2006 (2)	28[e]	Range[f]	73	
Salyers et al., 2009 (19)	30[g]			4.5±.3
Salyers et al., 2009 (20)	18		65	
Salyers, et al., 2010 (17)	26		15	4.40±.28
Salyers, et al., 2011 (18)	25		47	≥4.0[h]
Rychener et al., 2009 (26)	22		17	
Bartholomew et al., 2010 (27)				3.62
Roe et al., 2007 (28)	38[i]		63[j]	
NIEBP (21–23)[i]				3.58±1.07
All studies				
Mean (weighted)	24	64	36	4.05±.93[k]
Median	24	75	63	

[a] Possible average scores range from 1.0 to 5.0. Scores represent the average across study sites. When measured at several points, the last time is reported.

[b] Reported for IMR and control participants combined. Excluded from mean rate of dropout

[c] Excluded from weighted mean for fidelity

[d] A specific rate was not reported.

[e] Mean rates across site ranged from 24% to 40%.

[f] In the United States, 8 of 9 attended ≥50% of sessions, and 6 of 9 attended all sessions. In Australia, 6 of 10 attended all sessions.

[g] Mean rate reported across sites (range 10%–50%)

[h] Excluded from mean rate of fidelity

[i] Dropout and completion rates were reported for the Israeli, but not for the United States, sample

[j] NIEBP, National Implementing Evidence-Based Practices

[k] Weighted by number of programs