### Supplemental Table 1. Selected Articles on Recovery in Community Integration and Normative Life Roles

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Study Objectives</th>
<th>Level/Design/Participants</th>
<th>Intervention and Outcome Measures</th>
<th>Results</th>
<th>Study Limitations</th>
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<tr>
<td>Anzai et al. (2002)</td>
<td>To examine effectiveness of the Community Reentry Model when adapted for Japanese psychiatric patients in teaching the knowledge and skills required to live and participate in the community</td>
<td>Level I RCT Participants</td>
<td>Intervention Group 1: Community Reentry Module, a highly structured curriculum that consists of sessions on medication, relapse, finding housing and psychiatric care in the community, reducing stress, and coping Group 2 (control): Conventional occupational rehabilitation program; consists of arts and crafts, reality-orientation groups, and work assignments in the hospital Outcome Measures • Hospital discharge rates • Rehabilitation Evaluation Hall and Baker (REHAB) Scale • 21-item instrument from Community Reentry Module</td>
<td>Group 1 had significant increase in knowledge and skills on a 21-item instrument at 1-yr follow-up. Group 2 showed no significant gains. 10 of 14 Group 1 members were discharged from the hospital; only 3 Group 2 members were discharged. At 1-yr follow-up the Community Reentry group lost some skills but were still significantly higher than baseline On the REHAB scale, Group 1 had improved scores; Group 2 had no change.</td>
<td>Small group sizes Conducted in Japan Focus of measurement was medication management that was specifically taught to one group but not the other</td>
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<tr>
<td>Bartels et al. (2004)</td>
<td>To assess the effectiveness of a combined ST and HM intervention for older adults with severe mental illness</td>
<td>Level II Nonrandomized controlled trial Participants N = 24 ≥60 years old with a diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, other psychotic disorder, or treatment-refractory depression and persistent functional impairment requiring ongoing support HM + ST (intervention): n = 12 HM only (control): n = 12 Intervention ST: Hour-long group skills training 2×/wk adapted from manualized skills training programs delivered by a nurse case manager HM: Assessment and monitoring of routine and chronic health care needs and promotion of preventive health care Delivered by same nurse case manager Outcome Measures • Independent Living Skills Survey • Social Behavior Schedule • Brief Psychiatric Rating Scale • Scale for the Assessment of Negative Symptoms • Geriatric Depression Scale • Mini-Mental State Exam • Preventive health care</td>
<td>After 1 yr, the HM + ST group had better functional outcomes with medium to large effect sizes with respect to independent living skills, social skills, and health management compared with those receiving HM alone. After 2 yr, both groups had improved preventive health care.</td>
<td>Lack of randomization Pilot study had a small sample size.</td>
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<tr>
<td>Bickes, DeLoache, Dicer, &amp; Miller (2001)</td>
<td>Examine the effectiveness of occupation-based verbal therapy vs. occupation-based experiential therapy on the money management skills of consumers of community mental health services</td>
<td>Level II Nonrandomized controlled trial Participants N = 14 consumers from a community mental health day support program Diagnoses included schizophrenia, personality disorders, and mood disorders</td>
<td>Intervention COPM was administered to determine which occupation clients were most interested in. Clients identified money management. Group 1: Occupation-based experiential group Group 2: Occupation-based experiential group Occupational therapy groups conducted 3×/wk for 2 wk by two certified occupational therapy assistant students.</td>
<td>No significant difference was found between the verbal group and the experiential group on the COTE or the MEDLS. Overall performance of both groups improved significantly on the COTE but did not improve significantly on the MEDLS.</td>
<td>Short time frame of intervention may have been inadequate to allow for experiential learning to occur. Small sample size Lack of control group Experiential groups occurred in simulated environment instead of community.</td>
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<tr>
<td>Brown, Goetz, Van Sciver, Sullivan, &amp; Hamera (2006a)</td>
<td>To examine the efficacy of a psychiatric rehabilitation weight loss program</td>
<td>Level II Nonrandomized controlled trial N = 36 participants from a support program for people with psychiatric disabilities with a BMI ≥ 25 n = 21 experimental group n = 15 control group</td>
<td>Interventions Experimental group: 12-wk manualized intervention combining evidence-based weight loss and psychiatric rehabilitation strategies Control group: Participants recruited after start on experimental group—no intervention provided</td>
<td>At follow-up, the intervention group improved significantly on body weight, BMI, waist circumference, and the physical activity subscale of the Health Promoting Lifestyle Profile II. The intervention group lost 6 lb, and the control group gained 1 lb. There were no differences between groups at follow-up for blood pressure, total and nutrition subscale of the Health Promoting Lifestyle II.</td>
<td>Small sample size, lack of randomization</td>
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<tr>
<td>Cook et al. (2010)</td>
<td>To evaluate the outcomes of statewide initiatives to teach self-management of mental illness to people in mental health recovery</td>
<td>Level III Pretest–posttest design N = 341 participants in a peer-led self-management program in Vermont and Minnesota</td>
<td>Intervention Wellness Recovery Action Planning (WRAP), in which participants identify internal and external resources for facilitating recovery and use these tools to create an individualized plan</td>
<td>Significant changes were observed in both WRAP programs on post-test in hopefulness for recovery, warning signs of decompensation, use of wellness tools, awareness of symptom triggers, having a crisis plan and a plan for dealing with symptoms, having a social support system, and the ability to take responsibility for wellness.</td>
<td>Two programs used slightly different outcome measures. No follow-up after the completion of the program Survey measure has not been tested. Lack of control group</td>
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Dilk & Bond (1996) To analyze the effectiveness of skills training for people with severe mental illness

Level I Meta-analysis

Articles published between 1970 and 1992, doctoral dissertations, and master's theses

Studies with at least 5 participants, Levels I, II, and III

**Intervention**

Training programs taught these skills: general interpersonal, assertiveness, prevocational, ADLs, micro interpersonal, dating, affective management, cognitive.

Training approaches were either behavioral or cognitive–behavioral. Settings included both inpatient and outpatient.

**Outcome Measures**

Skill acquisition, symptom reduction, personal adjustment (GAFS), hospitalization, vocational readiness

Sixty-eight studies were included in the review. Skills training was found to be moderately to strongly effective in teaching inpatients interpersonal and assertiveness skills and reducing psychiatric symptoms. Effect sizes varied by outcome measures, with context-specific measures resulting in larger outcomes than skill usage and role functioning.

Research studies rarely evaluated use of trained skills.

Limited number of studies examining skills training in settings other than psychiatric hospitals

Many of the outcome measures were similar to the studied interventions, so the authors warn against the generalizability of the results.

Gender and ethnicity were not evenly represented.

Duncombe (2004) To answer the question, Is there a difference between learning the functional living skill of cooking for people with serious and persistent schizophrenia when it is taught in a clinic or in their home

Level I RCT

**Participants**

N = 44

Diagnosis of nonparanoid schizophrenia or schizoaffective disorder living in group homes or supported apartments that had kitchens available

Participants were assigned in 22 pairs matched on cognitive level and randomly assigned to one of two groups.

**Intervention**

*Group 1: Cooking skills training in the home*

*Group 2: Cooking skills training in the clinic*

Participants received treatment individually 4x in the designated context with a 1-wk lapse between each session.

**Outcome Measure**

KTA–M

Both groups posted significant improvement between their pretest and posttest scores on the KTA–M. The results did not show a significant difference in the level of learning between the two groups in the different contexts.

Qualitative differences in the two settings may have affected the results. The clinic was quiet with minimal distractions. The kitchens in the group homes were cluttered and distracting. Multiple intervention sites resulted in inconsistencies in the research. The KTA–M may have had a ceiling effect.

Frank et al. (2005) To compare interpersonal and social rhythm therapy (IPSRT) and intensive clinical management (ICM) in the treatment of bipolar I disorder.

Level I RCT

**Interventions**

Participants randomized to groups based on ICM or IPSRT in the acute phase followed by ICM or IPSRT in the maintenance phase. IPSRT stresses the importance of maintaining daily routines and identifying potential rhythm disruptors. ICM is a manual-driven approach to the medical management of bipolar I disorder.

No difference between groups in time to stabilization was found. Participants in IPSRT in the acute phase survived longer without a new episode regardless of treatment approach in the maintenance phase. In addition, those in IPSRT had higher regularity of social rhythms at the end of acute treatment.

Variables that were later found to be associated with outcome, such as marital status and medical burden, were not distributed equally among the maintenance study conditions.
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<tr>
<td>Glynn et al. (2002)</td>
<td>To compare the effectiveness of clinic-based skills training with skills training augmented with formal practice within the community to demonstrate generalizabilities</td>
<td>Level I RCT</td>
<td>Time to stabilization in the acute phase and time to recurrence in the maintenance phase; Social Rhythm Metric</td>
<td>Participation in clinic-based plus in vivo amplified skills training was associated with significantly greater improvements in instrumental role functioning and overall adjustment as assessed with the Social Adjustment Scale–II. Both conditions showed improvements on the Quality of Life Scale instrumental role, intrapsychic motivation, common objects, and overall composite scores. Participants who participated in clinic-based plus in vivo amplified skills training improved more quickly, and often to higher levels, than the clinic-based skills training alone.</td>
<td>28% loss of participants over 60 wk without clear explanation of intent-to-treat analyses Two intervention groups varied in intensity of their treatment; participants in in vivo amplified skills training received more contact with mental health professionals.</td>
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<td>Granholm et al. (2005)</td>
<td>The comparison of usual treatment vs. usual treatment plus cognitive–behavioral social skills training on social functioning, psychotic and depressive symptoms, cognitive insight, and skill mastery</td>
<td>Level I RCT</td>
<td>Cognitive–behavioral social skills training group: Received 24 wkly, 2-hr group psychotherapy sessions including homework forms and workbooks and received training modules. Control group: Received treatment as usual</td>
<td>At end of 6 mo, participants in the cognitive–behavioral social group performed social functioning activities more frequently than the other group; however, they showed no significant improvement when performing everyday functional activities after treatment. Group receiving usual treatment alone showed increased score on</td>
<td>Authors reported a moderately small sample size; exclusion of patients with comorbid conditions may limit generalizability.</td>
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<tr>
<td>Study</td>
<td>Participants</td>
<td>Intervention Details</td>
<td>Outcome Measures</td>
<td>Notes</td>
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<td>Grawe, Falloon, Widen, &amp; Skogvoll (2006)</td>
<td>N = 50 people with schizophrenia; IT: n = 30; ST: n = 20</td>
<td>IT: Patients treated by multidisciplinary team independent of the standard treatment program. Patients received structured family psychoeducation, cognitive-behavioral family communication and problem-solving skills training, intensive crisis management provided at home, and individual cognitive-behavioral strategies for residual symptoms and disability.</td>
<td>The results indicate that those in the IT group had more skills acquisition and generalization than those in the control group. There was no statistically significant difference between groups for quality of life, caregiver burden, adherence to medication, and attitude toward medication. Rehospitalization and family measures had no statistical significance between groups; however, more people were rehospitalized in the control group at 9- and 15-mo reports.</td>
<td>Moderately small sample size</td>
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<tr>
<td>Kopelowicz, Zarate, Smith, Mintz, &amp; Liberman (2003)</td>
<td>92 Latino outpatients 18–60 yrs old and family members; ST group: n = 45; 39 completed; IT group: n = 47; 45 completed</td>
<td>ST: Customary outpatient care; IT: 3 mo skills training or customary care then followed for a total of 9 mo. Program was culturally adapted through input of patient's key relatives.</td>
<td>The results indicate that those in the IT group had more skills acquisition and generalization than those in the control group. There was no statistically significant difference between groups for quality of life, caregiver burden, adherence to medication, and attitude toward medication. Rehospitalization and family measures had no statistical significance between groups; however, more people were rehospitalized in the control group at 9- and 15-mo reports.</td>
<td>Relatively limited follow-up</td>
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**Supplemental Table 1. Selected Articles on Recovery in Community Integration and Normative Life Roles (cont.)**

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<tr>
<td>Kurtz, Seltzer, Shagan, Thime, &amp; Wexler (2007)</td>
<td>To evaluate the effects of a treatment with computer-assisted cognitive remediation that included explicit training in attention verbal and nonverbal working and episodic memory and language processing exercises</td>
<td>Level I RCT; single blind Participants N = 42 outpatients with schizophrenia or schizoaffective disorder. Cognitive remediation: n = 23 Computer training: n = 19</td>
<td>Intervention 12 mo standardized course of cognitive remediation consisting of a sequence of computerized cognitive exercises designed to improve attention, verbal and nonverbal memory and language processing through repeated drill and practice. Control: Similar exposure to computer and clinician, with nonspecific cognitive challenge Outcome Measures • Working memory: Digit Span, Arithmetic and Letter-Number sequencing subtests from the WAIS-III • Verbal episodic memory: Logical memory • Speed of information processing: Digit Symbol and Symbol Search subtests from the WAIS-III, Trail Making test, Grooved Pegboard and Letter Fluency • Visual episodic memory: Rey Complex Figure Test, Reasoning, Penn Conditional Exclusion Test, Booklet Category Test</td>
<td>Cognitive remediation yields significant improvement in working memory. Other domains show similar progress across both groups. No significant differences were evident between cognitive remediation or computer skills training groups for demographic, clinical, or treatment variables. Analyses of variance for each of the 5 neurocognitive domains revealed main effects of time for working memory, verbal episodic memory, spatial episodic memory, processing speed and reasoning and executive function, suggesting that participants in both groups improved.</td>
<td>Small sample size Relationships among some variables remain unclear. Study did not include an independent measure of cognitive challenge based on performance of functional activity.</td>
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<tr>
<td>Liberman et al. (1998)</td>
<td>To compare community functioning of outpatients with severe and</td>
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<td>The cohort receiving the social skills training achieved significantly</td>
<td>Limited accounting of attrition in results</td>
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<tr>
<td>Study</td>
<td>Objective</td>
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<tr>
<td>Marder et al. (1996)</td>
<td>To determine the effectiveness of behaviorally social skills training versus supportive group therapy in supporting the development of social adjustment in participants with schizophrenia</td>
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<tr>
<td>McGurk, Twamley, Sitzer, McHugo, &amp; Mueser (2007)</td>
<td>To evaluate the effects of cognitive remediation for improving cognitive performance, symptoms, and psychosocial functioning in schizophrenia</td>
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<tr>
<td>Moriana, Alarcon, &amp; Herruzo (2006)</td>
<td>Determine the outcomes and effectiveness of a social and independent living skills intervention developed by Liberman, Wallace, Blackwell, Kopelowicz, Vaccaro, &amp;</td>
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**Level I**

- **RCT, blinded**

**Participants**

84 community men living with persistent forms of schizophrenia

Mean age = 37.1

**Intervention**

6 mo intensive clinic-based treatment in 1 of 2 groups

**Skills training:** Modules taught by an occupational therapist and paraprofessionals included: basic conversation, recreation for leisure, medication management, and symptom management

**Psychosocial occupational therapy:** Expressive, artistic, and recreational activities

**Outcome Measures**

- Independent Living Skills Survey
- Social Activities Scale
- Profile of Adaptation to Life

Participants in the social skills training group performed significantly better on the total scores of the Social Adjustment Scale II and on the personal well-being subscale. The advantage of social skills group was greatest when combined with active drug supplementation. Groups showed no difference between them for psychotic exacerbation.

Study participants were all male.

Limited number of studies addressing long-term follow-up

**Level II**

- Non-RCT

**Intervention**

In-home social and independent living skills program including the following components: medication and symptom management,

PANSS scores showed a significant Phase × Treatment interaction effect for the intervention.

Limited outcome measures

Lack of randomization
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<td>Mintz (1998) provided in an in-home setting in Spain</td>
<td>Participants N = 64 patients with schizophrenia recruited from a mental health facility in Spain All patients were receiving outpatient psychiatric treatment and neuroleptics, n = 32 in each group</td>
<td>recreation for leisure, basic conversational skill, and community reentry Control: Participants attended day treatment program</td>
<td>Observation Measure PANSS</td>
<td>Very expensive to carry out because of the intensity of the contacts</td>
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<tr>
<td>Schindler (1999) To examine the effectiveness of an activity group, structured discussion, and control group for social interaction skills of persons with psychiatric disabilities</td>
<td>Level II Nonrandomized controlled trial N = 25 participants with severe psychiatric disability n = 9 structured discussion group n = 6 activity group n = 10 control group</td>
<td>Activity group: Guided purposeful tasks to provide a focus for skill development Structured verbal discussion: Set topic or agenda (e.g., use of leisure time) Control group: Provided with table games All took place 5 times/wk for 2 wk</td>
<td>The activity group showed a significant improvement in social interaction skills compared with the structured verbal discussion and control groups.</td>
<td>Small sample size Other activities may have been taking place during study period.</td>
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<td>Schindler (2005) To examine whether adults diagnosed with schizophrenia demonstrated improved task, interpersonal skills, and social roles when involved in a individualized intervention based on the Role Development Program (RDP), in comparison to an intervention based on a multidepartmental activity program (MAP)</td>
<td>Level II Nonrandomized controlled trial N = 84 participants, 42 per group 100% men with diagnosis of schizophrenia disorder</td>
<td>Intervention Group 1 (comparison): MAP—a nonindividualized, therapeutic intervention designed to encourage the productive use of time and socialization in a group setting. Does not address social roles or skills imbedded in social roles Group 2 (experimental): RDP—an enhancement of the MAP—uses individualized theory-based interventions to help each participant develop task and interpersonal skills within meaningful social roles. Frequency: Both groups received 15 min/wk of individual attention. Other meeting times are not reported.</td>
<td>Participants in the RDP demonstrated greater improvement in social roles, task skills, and interpersonal skills than did participants in the MAP. Results may not generalize to other treatment settings. Staff involved in the RDP may not be typical of staff in other treatment settings. Full validity studies had not been conducted on two of the assessment instruments.</td>
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Starino et al. (2010)  
To examine the effect of participating in an illness self-management recovery program on the ability of participants with severe mental illness to achieve key recovery-related outcomes  

Level III  
Pretest–posttest design  

Outcome Measures  
- Role Functioning Scale  
- Task Skills Scale  
- Interpersonal Skills Scale  

Intervention  
Participation in a WRAP group, peer-led sessions that focus on wellness tools, creating a list of daily maintenance activities, identifying illness triggers and early warning signs, and developing a crisis plan  

Outcome Measures  
- State Hope Scale  
- Modified Colorado Symptom Index  
- Recovery Markers Questionnaire  

A significant positive time effect was found for hope and recovery orientation. The change in symptoms did not reach statistical significance.  

Small sample size, lack of control group, limited follow-up period

Tungpunkom & Nicol (2008)  
To review the effectiveness of life skills programs with standard care or other comparable programs therapies for people with chronic mental health problems  

Level I  
Systematic review of 4 randomized trials  

Participants: Total of 318 participants between ages 18 and 60 with mental illness  
Dementia, substance abuse, alcoholism, organic brain syndrome, and serious suicidal risk were excluded.  

Outcome Measures  
- Most of the scales used in the analysis focused on psychiatric symptoms (mood, depression, and positive and negative symptoms).  

Functional Measures  
- Quality of life  

The elements of life skills programs include training in managing money, organizing and running a home, domestic skills, and personal self-care and related interpersonal skills.  

This review shows that no evidence indicates that such programs are helpful or harmful with respect to functional outcomes and quality of life.  

Limited number of RCTs in this area. Studies included were short-term interventions.