### 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>
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<th>Intervention and Outcome Measures</th>
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| Anzai et al. (2002) | 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 | Level I RCT               | 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 | 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. | Small group sizes  
Conducted in Japan  
Focus of measurement was medication management that was specifically taught to one group but not the other |
| Bartels et al. (2004) | To assess the effectiveness of a combined ST and HM intervention for older adults with severe mental illness | Level II Nonrandomized controlled trial | Intervention  
ST: Hour-long group skills training 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 | 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. | Lack of randomization  
Pilot study had a small sample size.
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| Bickes, DeLoache, Dicer, & Miller (2001) | 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 | 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 | 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 | 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. | 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. |
| Brown, Goetz, Van Sciver, Sullivan, & Hamera (2006a) | To examine the efficacy of a psychiatric rehabilitation weight loss program | 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 | 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 | 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. | Small sample size, lack of randomization |
| Cook et al. (2010)               | To evaluate the outcomes of statewide initiatives to teach self-management of mental illness to people in mental health recovery | Level III Pretest–posttest design  
*N = 341* participants in a peer-led self-management program in Vermont and Minnesota | 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 | Significant changes were observed in both WRAP programs on post-test in helpfulness 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. | 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 |
### Dilk & Bond (1996)

**Purpose:** To analyze the effectiveness of skills training for people with severe mental illness.

**Level:** Level I

**Methods:**
- 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, microinterpersonal, dating, affective management, cognitive.

**Training approaches:**
Behavioral or cognitive–behavioral.

**Settings:**
Both inpatient and outpatient.

**Outcome Measures:**
- Skill acquisition, symptom reduction, personal adjustment (GAFS), hospitalization, vocational readiness

**Findings:**
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.

**Limitations:**
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)

**Purpose:** 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:** Level I

**Methods:**
- RCT
- 

**Participants**
- Group 1: Cooking skills training in the home
- Group 2: Cooking skills training in the clinic

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

**Outcome Measure**
KTA–M

**Findings:**
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:**
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)

**Purpose:** To compare interpersonal and social rhythm therapy (IPSRT) and intensive clinical management (ICM) in the treatment of bipolar I disorder.

**Level:** Level I

**Methods:**
- RCT
- 

**Participants**
- Group 1: Acute/maintenance phase: n = 43 ICM/ICM
- Group 2: Acute/maintenance phase: n = 48 IPSRT/ICM

**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

**Findings:**
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:**
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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<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>Treatment with risperidone or haloperidol as well as behaviorally oriented clinic-based social skills training either alone or in conjunction with in vivo amplified skills training (N = 31)</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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<tr>
<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></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 authors reported a moderately small sample size; exclusion of patients with comorbid conditions may limit generalizability.</td>
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Grave, Falloon, Widen, & Skogvoll (2006)

To evaluate the benefits derived from continued integrated biomedicalex and psychosocial intervention for recent-onset schizophrenia

Level I
RCT

Participants
* N = 50 people with schizophrenia.
* IT: n = 30

Standard treatment: n = 20

**Intervention**
Standard treatment: Patients received regular clinic-based case management with antipsychotic drugs, supportive housing and day care, crisis inpatient treatment, rehabilitation that promoted independent living and work activity, brief psychoeducation, and supportive psychotherapy.

IT: Patients treated by multidisciplinary team independent of the standard treatment program. In addition to standard treatment, IT cases 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.

IT group was superior to ST in reducing negative symptoms, minor psychiatric episodes, and in stabilizing positive symptoms, but did not reduce hospital admissions or major psychotic recurrences. More IT patients than standard treatment patients had better 2-yr outcomes.


To evaluate the effectiveness of a skills training program designed to teach disease management to Latinos with schizophrenia treated in a community mental health center

Level I
RCT

Participants
* 92 Latino outpatients 18–60 yrs old and family members
* ST group: n = 45; 39 completed
* Customary outpatient care: n = 47; 45 completed

**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.**

**Outcome Measures:**
* PANSS
* LA County Department of Mental Health Management Information System
* Independent Living Skills Survey
* Quality of Life Interview
* Rating of Medication Influences Scale

The results indicate that those in the ST 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.

**Moderately small sample size**
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<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</td>
<td><strong>Intervention</strong> 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. <strong>Control</strong>: Similar exposure to computer and clinician, with nonspecific cognitive challenge</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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<td>Liberman et al. (1998)</td>
<td>To compare community functioning of outpatients with severe and recurrent schizophrenia</td>
<td></td>
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<td>The cohort receiving the social skills training achieved significantly higher levels of community functioning.</td>
<td>Limited accounting of attrition in results</td>
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<tr>
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<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>
<td>Level I RCT</td>
<td>N = 80 community-dwelling patients with schizophrenia. All had at least 2 acute episodes of schizophrenia or symptoms lasting for at least 2 yrs. Skills training: n = 43 Supportive group therapy: n = 37</td>
<td>Group 1: Behaviorally oriented social skills training group Group 2: Supportive group therapy Both groups participated 2x/wk for 6 mo and weekly for 18 mo.</td>
<td>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.</td>
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<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>
<td>Level I Meta-analysis</td>
<td>26 RCTs with 1,151 patients with schizophrenia, schizophreniform disorder, or schizoaffective disorder</td>
<td>Studies included were of psychosocial interventions designed to improve cognitive performance.</td>
<td>The results indicated significant improvements for all outcomes. Cognitive performance and psychosocial functioning showed medium effect sizes and symptoms showed a small effect size. The effects of cognitive remediation on psychosocial functioning were stronger for those studies that paired cognitive remediation with psychiatric rehabilitation, rather than for those that examined cognitive remediation alone.</td>
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<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>
<td>Level II Non-RCT</td>
<td>In-home social and independent living skills program including the following components: medication and symptom management,</td>
<td>PANSS scores showed a significant Phase x Treatment interaction effect for the intervention.</td>
<td>Limited outcome measures Lack of randomization</td>
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| Persistent form of schizophrenia following treatment with occupational therapy or skills training | 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 | Participants in the social skills training group performed significantly better on the total scores of the Independent Living Skills assessment. Differences were most marked at 6 mos but diminished and were not significant at 12 and 24 mos. | Outcome Measures Independent Living Skills Survey Social Activities Scale Profile of Adaptation to Life |

| Marder et al. (1996) | To determine the effectiveness of behaviorally social skills training versus supportive group therapy in supporting the development of social adjustment in participants with schizophrenia | Level I RCT | N = 80 community-dwelling patients with schizophrenia. All had at least 2 acute episodes of schizophrenia or symptoms lasting for at least 2 yrs. Skills training: n = 43 Supportive group therapy: n = 37 | Group 1: Behaviorally oriented social skills training group Group 2: Supportive group therapy Both groups participated 2x/wk for 6 mo and weekly for 18 mo. | 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. |
| McGurk, Twamley, Sitzer, McHugo, & Mueser (2007) | To evaluate the effects of cognitive remediation for improving cognitive performance, symptoms, and psychosocial functioning in schizophrenia | Level I Meta-analysis | 26 RCTs with 1,151 patients with schizophrenia, schizophreniform disorder, or schizoaffective disorder | Studies included were of psychosocial interventions designed to improve cognitive performance. | The results indicated significant improvements for all outcomes. Cognitive performance and psychosocial functioning showed medium effect sizes and symptoms showed a small effect size. The effects of cognitive remediation on psychosocial functioning were stronger for those studies that paired cognitive remediation with psychiatric rehabilitation, rather than for those that examined cognitive remediation alone. |
| Moriana, Alarcon, & Herruzo (2006) | Determine the outcomes and effectiveness of a social and independent living skills intervention developed by Liberman, Wallace, Blackwell, Kopelowicz, Vaccaro, & | Level II Non-RCT | In-home social and independent living skills program including the following components: medication and symptom management, | PANSS scores showed a significant Phase x Treatment interaction effect for the intervention. | Limited outcome measures Lack of randomization |
Supplemental Table 1. Selected Articles on Recovery in Community Integration and Normative Life Roles (cont.)

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| Mintz (1998) | Provided in an in-home setting in Spain | 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 | Recreation for leisure, basic conversational skill, and community reentry  
Control: Participants attended day treatment program  
Outcome Measure: PANSS | Very expensive to carry out because of the intensity of the contacts. |
| Schindler (1999) | To examine the effectiveness of an activity group, structured discussion, and control group for social interaction skills of persons with psychiatric disabilities | 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 | Intervention  
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  
Outcome Measures:  
• Global Assessment Scale  
• Social Functioning Index | The activity group showed a significant improvement in social interaction skills compared with the structured verbal discussion and control groups.  
Small sample size  
Other activities may have been taking place during study period. |
| Schindler (2005) | To examine whether adults diagnosed with schizophrenia demonstrated improved task, interpersonal skills, and social roles when involved in an individualized intervention based on the Role Development Program (RDP), in comparison to an intervention based on a multidepartmental activity program (MAP) | Level II  
Nonrandomized controlled trial  
*N = 84 participants, 42 per group  
100% men with diagnosis of schizophrenia disorder | 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. | 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. |
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
- N = 30 adults with severe mental illness at 3 mental health centers in the Midwest

** 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**
- Role Functioning Scale
- Task Skills Scale
- Interpersonal Skills Scale

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.

**Intervention**
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.

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

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.