



HHS Public Access

Author manuscript

Psychiatr Rehabil J. Author manuscript; available in PMC 2022 November 07.

Published in final edited form as:

Psychiatr Rehabil J. 2020 June ; 43(2): 132–139. doi:10.1037/prj0000389.

Examining Factors Associated with Perceived Recovery among WRAP Users

Ryan Petros, PhD,

University of Washington School of Social Work, 4101 15th Ave NE Seattle, WA 98105, USA

Phyllis Solomon, PhD

University of Pennsylvania School of Social Policy and Practice, 3701 Locust Walk Philadelphia, PA 19104, USA

Abstract

Objective: Wellness Recovery Action Plan (WRAP), an illness self-management intervention used internationally, enhances perceived recovery for adults with psychiatric disabilities, but the magnitude of positive change is modest at best. As part of a larger study about how adults with serious mental illness learn and use illness self-management strategies through WRAP, this paper reports on an investigation of the relationship between problem-solving and perceived recovery for WRAP users and addresses the question: To what extent is degree of problem-solving confidence associated with degree of perceived recovery for WRAP users?

Methods: An anonymous online survey was administered to adults with serious mental illness (N=82) who had completed WRAP in the previous 6–24 months, with standardized scales to measure perceived recovery, problem-solving appraisal and confidence, self-reflection and insight, symptoms, and social support. Data were analyzed using multiple regression.

Results: Problem-solving confidence ($p=.013$) and social support ($p<.001$) were associated with degree of perceived recovery, and the model accounted for 40% of the variance.

Conclusions and Implications for Practice: While WRAP alone is modestly efficacious, it may be that adding a problem-solving intervention for small groups of adults with serious mental illness will increase the magnitude of change in perceived recovery by enhancing problem-solving confidence and increasing ongoing social support through group processes.

Keywords

Mental Illness; Problem-Solving; Social Support; Self-Management; WRAP

Wellness Recovery Action Plan (WRAP) may be the most widely used illness self-management (ISM) intervention for adults with serious mental illness (Cook et al., 2012b; Roberts & Wolfson, 2004). WRAP is often considered an evidence-based practice with numerous trials indicating efficacy at enhancing recovery, self-advocacy, and hope (Cook et

petrosr@uw.edu, 1-206-221-8157.

Compliance with Ethical Standards

The authors declare that they have no conflict of interest.

al., 2012a, 2012b, 2010, 2009; Fukui et al., 2011; Higgins et al., 2012; Jonikas et al., 2013; Petros & Solomon, 2015; Starnino et al., 2010); however, the magnitude of average change is “relatively modest” (Cook et al., 2012b, p. 888; Jonikas et al., 2013, p. 266). While WRAP may have clinical significance for some, the overall effect size of the intervention is generally small.

Currently, there is insufficient literature to describe the mechanisms of change for WRAP participants. Because there is no explicit theoretical underpinning of the intervention, it is difficult to know how the intervention causes change, why the outcomes are only modest, and what additional strategies may enhance its impact. In a parent study (Petros, 2017), we examined inside the “black box” of the intervention to identify how people learn and use WRAP. Qualitative findings from the parent study underscore the importance of problem-solving and self-reflection/insight for participants to generalize WRAP to everyday use. This paper reports on a quantitative follow-up to investigate the extent to which self-reflection/insight and problem-solving were associated with recovery outcomes, controlling for social support and symptom severity.

Wellness Recovery Action Plan (WRAP)

WRAP is typically offered in small-groups, with 8–12 weekly sessions (Cook et al., 2012b; Copeland, 2010; Roberts & Wolfson, 2004). Participants develop a series of action plans designed to reestablish, maintain, and enhance wellness. The first step to building action plans is to engage in self-reflection. Participants build insight about signs of personal wellness and indicators of incipient decrements to wellness. Subsequently, they identify strategies for promoting wellness that are personalized, effective, and easily accessible. Those strategies populate the action plans that participants develop, including a proactive plan for daily use and a reactive plan for when participants encounter threats to wellness.

Research on WRAP’s efficacy may provide an indication of areas where additional support is needed. In one clinical trial, hope scores increased only for the “agency” subscale – hope in one’s personal ability to initiate and sustain actions; no increase was found for the “pathways” subscale – hope in one’s personal ability to devise strategies to meet goals (Cook et al., 2012b). This suggests that although WRAP engenders the belief that personal effort can result in advanced recovery and wellness, participants may require additional support to develop and enact strategies to attain recovery goals (Cook et al., 2012b).

Overarching Study

The larger mixed methods study by Petros (2017) employed a sequential exploratory design, where a primary qualitative phase was used to gather data to describe a phenomenon, and a subsequent quantitative phase was used to test hypotheses generated during the qualitative phase (Creswell, 2014; Kettles, Creswell, & Zhang, 2011). The initial qualitative phase gathered data to describe how WRAP-users learned and utilized WRAP’s ISM framework and to identify possible facilitators and barriers to effective use of self-management strategies.

Participants in the study reported WRAP helped them learn to engage in self-reflection and build insight into personalized, effective wellness strategies, which they used to pursue recovery. However, participants reported that once programming had ended, they sometimes did not notice when they struggled with their recovery. Rather, people in their social networks were the first to notice their problems. Once alerted to problems, participants felt they could implement their tools to restore wellness and resume their journey toward recovery. Thus, self-reflection and insight appear vital to identifying effective recovery strategies. In addition, those with more robust social support were more likely to implement those strategies or better able to utilize self-reflection to know when to use the recovery-strategies they developed.

Participants shared examples of how WRAP helped them to solve problems in daily living that threatened recovery. Some were generally confident in their ability to solve problems, while others said they preferred to have assistance developing specific solutions to new problems that arose after WRAP programming ended, even requesting an advanced-level training or ongoing support group to share problem-solving strategies. Thus, problem-solving confidence may be related to recovery outcomes.

Self-Reflection and Insight

Self-reflection refers to the meta-cognitive processes of “inspecting and evaluating one’s own thoughts, feelings, and behavior,” while insight refers to a person’s ability to understand those same thoughts, feelings, and behaviors (Roberts & Stark, 2008, p. 1054). Successful use of self-management strategies requires the ability to metaphorically “step back” and look at what one is experiencing (i.e., identify and understand one’s thoughts, feelings, and behaviors) and systematically evaluate these thoughts, feelings, and behaviors to know (i.e., understand) if and how they are related. For example, a person experiencing depression must first identify the feeling of sadness and then consider how one’s behavior contributes to the feeling. Those behavioral contributions are related to the recovery strategies a person may employ to advance recovery. Specifically, a person who notices that extensive negative self-talk contributes to depression may develop strategies for cognitive restructuring. WRAP encourages such self-reflection to enhance insight about effective, personalized recovery strategies.

Problem-Solving

Problem-solving broadly refers to the cognitive-behavioral process by which a person identifies and enacts solutions to problems (D’Zurilla & Goldfried, 1971; D’Zurilla, Maydeu-Olivares, & Gallardo-Pujol, 2011; Nezu, 2004; Nezu, D’Zurilla, Zwick, & Nezu, 2004; Sands & Gellis, 2012). People with serious mental illness sometimes struggle with general problem-solving (Bellack, Sayers, Mueser, & Bennett, 1994; Chang, D’Zurilla, & Sanna, 2004; Davidson et al., 1999) and may not be able to resolve barriers to recovery and wellness goals without support. More specifically, the confidence people have in their problem-solving skills, or problem-solving self-efficacy, may impact the effectiveness of the strategies they develop to reach recovery goals. People with greater self-efficacy generally develop more effective strategies for goal attainment and are more committed to achieving

their goals (Locke & Latham, 2002). Thus, confidence in one's problem-solving abilities may be associated with how effectively a person uses self-management strategies. While WRAP encourages pursuit of recovery and wellness goals, the programming includes no formal problem-solving content or skills training.

Conceptual Rationale for Study Hypotheses

Investigating problem-solving is attractive because there is evidence that adults with serious mental illness can improve in this domain (Bellack et al., 1994; Chang et al., 2004; Eack, 2012; Medalia, Revheim, & Casey, 2002; Morris, Bellack, & Tenhula, 2004; Nezu, Nezu, & D'Zurilla, 2013). For this survey, the researchers sought to examine the extent to which problem-solving confidence and self-reflection/insight were associated with perceived recovery outcomes. The investigators wanted to isolate the effects of problem-solving and self-reflection/insight; however, social support was inextricably linked to problem-solving and self-reflection according to participants in the qualitative phase of the study. Thus social support was used as a control to account for its own direct relationship to perceived recovery. Moreover, positive social support as well as the extent to which a person is troubled by symptoms may be instrumental to a person's degree of perceived recovery (Corrigan, Giffort, Rashid, Leary, & Okeke, 1999; Corrigan & Phelan, 2004; Griffith, 1985; Hendryx, Green, & Perrin, 2009; Markowitz, 2001; McCorkle, Rogers, Dunn, Lyass, & Wan, 2008; Pernice-Duca, 2010; Sands & Gellis, 2012). As such, both variables were used as controls. Finally, it may be that problem-solving appraisal (perceived general effectiveness) moderates the relationship between self-reflection/insight and perceived recovery: people with highly effective problem-solving abilities may be better able to utilize self-reflection with larger gains in insight than those with less effective problem-solving abilities. Consequently, the following hypotheses were tested:

1. A higher degree of problem-solving confidence and self-reflection/insight will be associated with a higher degree of perceived recovery, controlling for social support and symptom severity.
2. The relationship between self-reflection/insight and degree of perceived recovery will be moderated by degree of positive problem-solving appraisal, controlling for social support and symptom severity.

Methods

Ethics

All study protocols were approved by the appropriate ethics committees: the institutional review boards of the University of Pennsylvania and the city of Philadelphia. All research activities have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

Sample and Data Collection

Data were collected through an anonymous online Qualtrics survey of adults with serious mental illness who had completed WRAP programming within the previous 6–24 months.

WRAP is meant to shape a person's self-directed pursuit of recovery once programming has ended; thus, it was important to find participants who had finished WRAP programming recently enough to remember, but not so recently that they had no time to put the strategies into action. Recruitment took place between January and April of 2017 using a snowball sampling approach: an email with the survey link was sent to staff members of community-based mental health agencies in Philadelphia, New York City, and New Jersey with an invitation to forward the email to others for recruitment purposes. Mental health providers have connections to people with serious mental illness who have accessed WRAP programming and can often share computer access for those who otherwise have limited access. A sample size of 82 was obtained. There were no exclusion criteria; inclusion criteria were as follows:

1. Adults (at least 18-year-old) who self-identify having serious mental illness (report having a schizophrenia spectrum diagnosis, major depression, bipolar disorder)
2. Have completed WRAP programming within the previous 6–24 months per self-report

The survey began with an informed consent agreement and ended with an option to enter a mailing address to receive a \$10 gift card to Target. The 72 respondents who chose to receive the gift card were redirected to a different survey page where they entered contact details that were not connected to their survey responses.

The survey took approximately 20 minutes to complete. It included five standardized measures and eight items regarding basic demographic information, including gender, age, and mental health diagnosis. Three items solicited respondents' experience with WRAP. The first asked whether or not respondents had created a WRAP plan. The second asked how often respondents read their WRAP plans, with responses ranging from 1 ("Almost never, or not at all") to 6 ("At least once a day"). The third asked, "How much has WRAP helped your mental health to improve?" with responses ranging from 1 ("Not at all"), to 5 ("A great deal").

A response was required for each survey item before respondents could move to subsequent items; thus data were only missing if a person exited the survey before finishing. An a priori decision was made to use surveys in which respondents completed items for at least the first three standardized instruments representing the dependent and two independent variables: recovery, problem-solving, and self-reflection/insight.

Survey Inclusion and Missing Data

Although 82 respondents were included in the analysis, 117 people clicked on the link for the survey. Of those, three declined participation in the study, and nine were ineligible: one for being under 18-years-old, three for not having serious mental illness, and five for not having completed WRAP within the requisite timeframe. Another 15 answered fewer than five items. Eight respondents answered more than five items but did not complete the first three scales. For the 82 included, one survey had missing data: the last nine items were

incomplete on the social support scale; data were imputed based on the mean value for each item.

Standardized Instruments.—The survey included five standardized measures, which have all been used previously with adults with serious mental illness.

Recovery. Recovery was measured using the Recovery Assessment Scale (RAS) short form, a 24-item Likert-type scale. The original 41-item scale (Corrigan et al., 1999) is made up of five factors that comprise recovery, but only 24 loaded onto the factors (Corrigan, Salzer, Ralph, Sangster, & Keck, 2004), resulting in a short form retaining the original factor structure with each subscale's Cronbach's alpha greater than .7 (McNaught, Caputi, Oades, & Deane, 2007). Items include, "My symptoms interfere less and less with my life" and "I have my own plan for how to stay or become well" (McNaught et al., 2007). In this study, only the total scale score was used, and the Cronbach's alpha was .95.

Self-reflection and insight. The Self-Reflection and Insight Scale (SRIS) is a 20-item Likert-type scale with subscales for self-reflection and insight (Grant, Franklin, & Langford, 2002). The test-retest reliability of the subscales ranged from .77-.78 (Grant et al., 2002), and Cronbach's alphas ranged from .83-.87 (Roberts & Stark, 2008). The subscales were evaluated against existing instruments to demonstrate discriminant and convergent validity, performing as expected with some overlap between the self-reflection subscale, anxiety, and stress (Grant et al., 2002). The SRIS includes items like, "I rarely spent time in self-reflection" and "I usually know why I feel the way I do" (Grant et al., 2002). In this study, the SRIS had an overall Cronbach's alpha of .80 with subscales for self-reflection and insight ranging from .76 to .78, respectively.

Problem-solving. Problem-solving appraisal and problem-solving confidence were measured using the Problem-Solving Inventory (PSI). The PSI is a 32-item scale that measures personal appraisal of one's problem-solving abilities and the way in which a person navigates problems in daily living – either by avoiding the problem or by approaching it directly to attempt a resolution (Heppner & Petersen, 1982; Heppner, Witty, & Dixon, 2004). The PSI has three major subscales: problem-solving confidence, approach-avoidance style, and personal control (Heppner & Petersen, 1982; Heppner et al., 2004). A positive problem-solving appraisal (represented by a high total score of the PSI) represents a high degree of problem-solving confidence, a style of confronting problems directly rather than avoiding them, and a belief that one has control of both emotions and behaviors while solving one's problems. The PSI has an overall Cronbach's alpha of .9, and subscale alphas range from .72-.85 (Heppner & Petersen, 1982). Scale items include "I am usually able to think up creative and effective alternatives to solve a problem" and "Many problems I face are too complex for me to solve" (Heppner & Petersen, 1982). In this study, Cronbach's alpha of the overall scale was .90, with subscales ranging from .78 - .84.

Social support. Social support was measured with the Medical Outcomes Study Social Support Survey (MOS), a 19-item Likert-type scale. The MOS focuses on the degree of functional aspects that relationships serve in a person's life (Sherbourne & Stewart, 1991). A factor analysis demonstrated the scale contains four major subscales of social support

functions, with Cronbach's alphas of .72-.87 (Sherbourne & Stewart, 1991). The MOS asks question about how often various kinds of support are available, such as, "Someone to help if you were confined to bed" and "Someone to give you good advice about a crisis" (Sherbourne & Stewart, 1991). In this study, only the total scale score was used, and the Cronbach's alpha was .97.

Symptoms.: The Modified Colorado Symptom Index (MCSI) is a 14-item self-report index measuring the presence and severity of symptoms of mental illness. The MCSI has high content validity when compared to the Brief Symptom Inventory and the Brief Psychiatric Rating Scale, and construct validity was demonstrated by comparing it to instruments such as the Brief Symptom Inventory and the Severity of Psychiatric Illness Scale (Conrad et al., 2001). The MCSI has Cronbach's alpha scores ranging from .87-.92 and contains items such as, "In the past month, how often have you felt depressed" and "In the past month, how often did you hear voices, or hear or see things that other people didn't think were there?" (Conrad et al., 2001). In this study, Cronbach's alpha was .88.

Data Analysis

Scales were recoded so the ideal responses were given the highest number, and scores were summed for each measure or subscale used in analyses. Both hypotheses were analyzed using multiple regression, and hypothesis 2 included an interaction term of PSI and SRIS. Variance inflation factors (VIF) were calculated to ensure no multicollinearity (present when $VIF > 2.5$); no scores met that criteria.

Sample size estimation.—Rothman (1990) argues against using Bonferroni adjustments for exploratory studies to minimize Type II errors and avoid overlooking important relationships. No Bonferroni adjustments were made; alpha levels were set at .05. Calculations for this project anticipated a moderate effect size of .3, based on previous studies utilizing the PSI (Heppner et al., 2004) and SRIS (Harrington & Loffredo, 2011; Lyke, 2009). To obtain power of .8 with multiple regression using four independent variables and an alpha of .05, a sample size of 84 was needed (Cohen, 1992).

Results

Characteristics of Respondents

As Table 1 demonstrates, the majority of respondents were women (68.2%) with about equal proportions of Blacks (43.9%) and Whites (40.2%). Respondents were generally in their mid-forties, and more than half (55%) were certified peer specialists (CPS) – adults with mental illness in advanced states of recovery, trained and certified to offer mental health supports. Because more CPSs were recruited than anticipated, we controlled statistically for CPS status.

The most common diagnosis was Major Depressive Disorder (32.9%), followed by Bipolar Disorder (28%) and either Schizophrenia or Schizoaffective Disorders (19.5%). The vast majority of respondents had a written WRAP plan (97.6%), and they reported reading it somewhere between once per month and once per week. On a 5-point scale about the degree

to which WRAP helped to improve respondents' mental health ("Not at all" – "A great deal"), they responded with a mean of 2.1, indicating it helped between "a little" and "a moderate amount" (closer to "a little").

Testing Hypotheses

Hypothesis 1.—Model 1 tests the relationship between perceived recovery and the independent variables, problem-solving confidence and self-reflection/insight (see Table 2 for summary statistics of study measures). The model explains 29% of the variance in degree of perceived recovery and demonstrates that problem-solving confidence is positively correlated with perceived recovery ($p < .001$). SRIS was not statistically significant (see Table 3). Model 2 added control variables of social support, symptom severity, and CPS status. The adjusted R^2 increased to approximately .4, and problem-solving confidence remained statistically significant ($p = .013$). Hypothesis 1 was partially supported: problem-solving confidence, though not self-reflection/insight, was positively correlated with degree of perceived recovery.

Hypothesis 2.—Model 3 tested a possible interaction between problem-solving appraisal and self-reflection/insight. The adjusted R^2 was .14, and the interaction term was not statistically significant, suggesting it did not add predictive value. Model 4 added control variables; although the adjusted R^2 increased, the interaction term was not statistically significant. Hypothesis 2 was not supported by the data.

Effect Size

Model 2 was the most efficient and parsimonious for predicting degree of perceived recovery, and the two statistically significant variables were social support and problem-solving confidence. To understand their relative contribution, variables were standardized to generate beta coefficients. Problem solving confidence had a beta coefficient of .36 and social support was .37, suggesting a moderate effect size for both.

Discussion

The two variables statistically associated with perceived recovery were problem-solving confidence and social support. While self-reflection and insight are essential components of illness self-management, the present analysis did not show a clear relationship with perceived recovery. It may be that for post-WRAP participants the more salient influence on recovery is having social support to improve the quality and depth of self-reflection and insight. Social supporters may provide alternative perspectives, give necessary feedback, and inspire persistence in self-reflection vis-a-vis social comparison and social cognitive theories (Festinger, 1954; McAlister, Perry, & Parcel, 2008; Solomon, 2004). Although social support was used as a control variable in the study, it was highly influential to explaining perceived recovery.

Decades of research underscore the importance of social support for people with psychiatric disabilities: recovery is directly related to social network size, satisfaction, and the degree of reciprocity within relationships (Corrigan & Phelan, 2004; Hendryx et al., 2009). Brier

and Strauss (1984) found in their study of psychiatric consumers that participants valued discussing personal problems and gathering concrete feedback, using social supports as a “sounding board” to devise solutions to problems in daily living (p. 952). However, people with psychiatric disabilities tend to have smaller social networks with limited reciprocity (Davidson et al., 2001; Froland, Brodsky, Olson, & Stewart, 2000). When people are socially isolated, they have less opportunity to collaborate with others to work out solutions to personal problems and fewer chances to reciprocate, further reducing practice opportunities to problem-solve.

The relationship between problem-solving confidence and recovery has not been robustly studied; however, research suggests that adults with psychiatric disabilities experience deficits in problem-solving skills (Bellack et al., 1994; Chang et al., 2004; Davidson et al., 1999). It may be that people with effective problem-solving skills are better able to generalize ISM strategies beyond the timeframe and setting of WRAP programming, resulting in more goal attainment and higher perceived recovery over time. Those with less effective problem-solving skills may struggle to resolve barriers to recovery goals and experience minimal improvement as a result. In this way, problem-solving confidence may reflect awareness of actual problem-solving skill.

It is also possible that confidence alone, regardless of problem-solving skill, explains variance in perceived recovery. People with higher self-efficacy set more difficult goals and persevere longer as they struggle to achieve their goals, whereas a person with lower confidence in problem-solving may interpret initial failure as a reason to give up rather than a challenge to overcome (Locke & Latham, 2002; Brown & Latham, 2000). Furthermore, performance on goal-directed activity is strongest when commitment to achieving a goal is high, and commitment is related to the belief that goals are attainable (Locke & Latham, 2002). Thus a person who fails initially may interpret the goal as unattainable, resulting in reduced commitment and poor performance. The feedback loop reinforces low confidence by accumulating evidence of failed attempts and abandoned goals.

Whether from actual skill, confidence alone, or both, all interpretations comport with qualitative research of WRAP users who identified that additional support is needed to adapt self-management plans prospectively and to resolve barriers to recovery when new problems arise once WRAP programming ends (Petros, 2017). It may be that support is necessary to compensate for actual deficits in problem-solving skills or because people lack the confidence that their problem-solving prowess will result in goal attainment. Previous research suggests that WRAP increases hope in personal agency – the ability to do what it takes to attain goals; however, the increases in hope scores are minimal, and it may be that such increases are insufficient to meaningfully impact problem-solving confidence.

One possible means to enhance WRAP and other ISM programs is to target problem-solving directly in small groups of peers experiencing serious mental illness. Problem-Solving Therapy (PST) and problem-solving skills training interventions have been used effectively to treat adults with depression to improve problem-solving skills and reduce symptoms (Cuijpers, van Straten, & Warmerdam, 2007; Gellis & Kenaley, 2008; Nezu et al., 2013), but has been employed to a lesser degree with people with schizophrenia-spectrum disorders

(Lieberman, Eckman, & Marder, 2001; Nezu et al., 2013). Targeting problem-solving in a group setting is compelling for several reasons. When people with shared experiences of mental health challenges come together for mutual support, they can provide a solid foundation for one another from which to pursue recovery (Adame & Leitner, 2008; Petros, 2017; Schutt & Rogers, 2009) and can serve as sounding boards for each other as they work through real-time problems. Conceptually, such strategies make use of the helper therapy principle: when people help others, they help themselves by realizing they are capable of providing help while simultaneously building mastery over the skills used in the helping process (Corrigan, 2006; Riessman, 1965; Schutt & Rogers, 2009; Skovholt, 1974; Solomon, 2004). Empirically, self-efficacy increases when people have sufficient training to increase mastery and experience success (Locke & Latham, 2002). Moreover, the opportunity to assist others solve problems may strengthen bonds amongst group members, as reciprocal problem-solving support is directly related to satisfaction with social networks (Wong, Matejkowski, & Lee, 2011). Thus, a group problem-solving intervention may enhance problem-solving confidence and social support, resulting in advanced recovery outcomes.

There are several limitations. The purpose of this exploratory study was to examine possible correlates to perceived recovery for the purposes of intervention development. Thus no random sampling was employed, and the results may not generalize to other WRAP users with serious mental illness. The sample was not fully representative of the general population of adults with serious mental illness. Our sample largely came from the Philadelphia area and the local Mental Health Association (now Mental Health America), which serves adults with serious mental illness in Philadelphia and is the major trainer of CPSs. Most WRAP users are people with psychiatric disabilities who access services in the public mental health sector and programs like Mental Health America. In our sample, there were more women than men, and there was a larger percentage of CPSs than we anticipated. Because of the assumption that CPSs are in advanced states of recovery and may be somehow different than others with psychiatric disabilities, we controlled statistically for CPS status. When we ran the analyses without adding CPS status, the main findings and conclusions did not change. Intentionally, only WRAP users were recruited (rather than users of other ISM programs) who had completed programming within the previous 6–24 months to enable a more cohesive sample of respondents. Furthermore, the survey took place online, which required respondents to have the skill and digital access to complete the survey independently or have the requisite support of someone else who possessed access and skill to help. Also, the sample size minimally met the number needed according to the power calculation, and it is possible that a larger sample may have resulted in additional statistical significance in the models. Additionally, the cross-sectional design limits the ability to attribute directionality to the relationship between independent and dependent variables; it is possible that the relationship is bidirectional or that reductions in perceived recovery cause problem-solving confidence to decrease and social support to diminish.

Conclusion

Problem-solving confidence and social support were associated with degree of perceived recovery for adult WRAP users with serious mental illness. While WRAP and other self-

management programs may be transformative for some, others experience minimal benefit. Strategies to enhance the benefits of WRAP and other ISM programs could be targeted widely or more specifically to subgroups of people with lower levels of problem-solving confidence and social support. Future research may include development and testing of interventions that strengthen social support and problem-solving confidence, which may improve recovery outcomes and enhance self-management.

Acknowledgements:

This work was funded by a Ruth L. Kirschstein National Research Service Award through the National Institute of Mental Health.

References

- Adame AL, & Leitner LM (2008). Breaking out of the mainstream: The evolution of peer support alternatives to the mental health system. *Ethical Human Psychology and Psychiatry*, 10(3), 146–162.
- Bellack AS, Sayers M, Mueser KT, Bennett M (1994). Evaluation of social problem solving in schizophrenia. *Journal of Abnormal Psychology*, 103(2), 371–378. [PubMed: 8040506]
- Breier A, & Strauss JS (1984). The role of social relationships in the recovery from psychotic disorders. *American Journal of Psychiatry*, 141, 949–955. [PubMed: 6465369]
- Brown T, & Latham G (2000). The effects of goal setting and self-instruction training on the performance of unionized employees. *Relations Industrielles/Industrial Relations*, 55(1), 80–95.
- Chang EC, D’Zurilla TJ, & Sanna LJ (Eds.). (2004). *Social problem solving: Theory, research, and training*. Washington, DC: American Psychological Association.
- Cohen J (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159. [PubMed: 19565683]
- Conrad KJ, Yagelka JR, Matters MD, Rich. AR, Williams V, & Buchanan M. (2001). Reliability and validity of a Modified Colorado Symptom Index in a national homeless sample. *Mental Health Services Research*, 3(3), 141–153. [PubMed: 11718206]
- Cook JA, Copeland ME, Corey L, Buffington E, Jonikas JA, Curtis LC, ... & Nichols WH. (2010). Developing the evidence base for peer-led services: Changes among participants following Wellness Recovery Action Planning (WRAP) education in two statewide initiatives. *Psychiatric Rehabilitation Journal*, 34(2), 113–120. [PubMed: 20952364]
- Cook JA, Copeland ME, Floyd CB, Jonikas JA, Hamilton MM, Razzano L, ... & Boyd S. (2012a). A randomized controlled trial of effects of wellness recovery action planning on depression, anxiety, and recovery. *Psychiatric Services*, 63(6), 541–547. [PubMed: 22508435]
- Cook JA, Copeland ME, Hamilton M, Jonikas J, Razzano L, Floyd C, ... & Grey D. (2009). Initial outcomes of a mental illness self-management program based on wellness recovery action planning. *Psychiatric Services*, 60(2), 246–249. [PubMed: 19176420]
- Cook JA, Copeland ME, Jonikas JA, Hamilton MM, Razzano LA, Grey DD, ... & Boyd S. (2012b). Results of a randomized controlled trial of mental illness self-management using Wellness Recovery Action Planning. *Schizophrenia Bulletin*, 38(4), 881–891. [PubMed: 21402724]
- Copeland ME (2010). *WRAP plus*. Dummerston, VT: Peach Press.
- Corrigan PW (2006). Impact of consumer-operated services on empowerment and recovery of people with psychiatric disabilities. *Psychiatric Services*, 57(10), 1493–1496. [PubMed: 17035571]
- Corrigan PW, Gifford D, Rashid F, Leary M, & Okeke I (1999). Recovery as a psychological construct. *Community Mental Health Journal*, 35(3), 231–239. [PubMed: 10401893]
- Corrigan PW, & Phelan SM (2004). Social support and recovery in people with serious mental illnesses. *Community Mental Health Journal*, 40(6), 513–523. [PubMed: 15672690]
- Corrigan PW, Salzer M, Ralph RO, Sangster Y, & Keck L (2004). Examining the factor structure of the recovery assessment scale. *Schizophrenia Bulletin*, 30(4), 1035–1041. [PubMed: 15957202]
- Creswell JW (2014). *Research design: Quantitative, qualitative, and mixed methods approaches* (4th ed.). Los Angeles, LA: SAGE Publications.

- Cuijpers P, van Straten A, & Warmerdam L (2007). Problem solving therapies for depression: A meta-analysis. *European Psychiatry*, 22(1), 9–15. [PubMed: 17194572]
- Davidson L, Chinman M, Kloos B, Weingarten R, Stayner D, & Tebes JK (1999). Peer support among individuals with severe mental illness: A review of the evidence. *Clinical Psychology: Science and Practice*, 6(2), 165–187.
- Davidson L, Haglund KE, Stayner DA, Rakfeldt J, Chinman MJ, & Kraemer Tebes J (2001). “It was just realizing... that life isn’t one big horror”: A qualitative study of supported socialization. *Psychiatric Rehabilitation Journal*, 24(3), 275–292. [PubMed: 11315214]
- D’Zurilla TJ, & Goldfried MR (1971). Problem solving and behavior modification. *Journal of Abnormal Psychology*, 78(1), 107–126. [PubMed: 4938262]
- D’Zurilla TJ, Maydeu-Olivares A, & Gallardo-Pujol D (2011). Predicting social problem solving using personality traits. *Personality and Individual Differences*, 50(2), 142–147.
- Eack SM (2012). Cognitive remediation: A new generation of psychosocial interventions for people with schizophrenia. *Social Work*, 57(3), 235–246. [PubMed: 23252315]
- Festinger L (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117–140.
- Froland C, Brodsky G, Olson M, & Stewart L (2000). Social support and social adjustment: Implications for mental health professionals. *Community Mental Health Journal*, 36(1), 61–75.
- Fukui S, Starnino VR, Susana M, Davidson LJ, Cook K, Rapp CA, & Gowdy EA (2011). Effect of Wellness Recovery Action Plan (WRAP) participation on psychiatric symptoms, sense of hope, and recovery. *Psychiatric Rehabilitation Journal*, 34(3), 214. [PubMed: 21208860]
- Gellis ZD, & Kenaley B (2008). Problem-solving therapy for depression in adults: A systematic review. *Research on Social Work Practice*, 18(2), 117–131.
- Grant AM, Franklin J, & Langford P (2002). The self-reflection and insight scale: A new measure of private self-consciousness. *Social Behavior and Personality*, 30(8), 821–835.
- Griffith J (1985). Social support providers: Who are they? Where are they met? And the relationship of network characteristics to psychological distress. *Basic and Applied Social Psychology*, 6(1), 41–60.
- Harrington R, & Loffredo DA (2011). Insight, rumination, and self-reflection as predictors of well-being. *The Journal of Psychology*, 145(1), 39–57. [PubMed: 21290929]
- Hendryx M, Green CA, & Perrin NA (2009). Social support, activities, and recovery from serious mental illness: STARS study findings. *The Journal of Behavioral Health Services & Research*, 36(3), 320–329. [PubMed: 19011972]
- Heppner PP, & Petersen CH (1982). The development and implications of a personal problem-solving inventory. *Journal of Counseling Psychology*, 29(1), 66–75.
- Heppner PP, Witty TE, & Dixon WA (2004). Problem-solving appraisal and human adjustment: A review of 20 years of research using the Problem Solving Inventory. *The Counseling Psychologist*, 32(3), 344–428.
- Higgins A, Callaghan P, deVries J, Keogh B, Morrissey J, Nash M, ... & Carter T. (2012). Evaluation of mental health recovery and Wellness Recovery Action Planning education in Ireland: A mixed methods pre–post evaluation. *Journal of Advanced Nursing*, 68(11), 2418–2428. [PubMed: 22272944]
- Jonikas JA, Grey DD, Copeland ME, Razzano LA, Hamilton MM, Floyd CB, ... & Cook JA. (2013). Improving propensity for patient self-advocacy through Wellness Recovery Action Planning: Results of a randomized controlled trial. *Community Mental Health Journal*, 49(3), 260–269. [PubMed: 22167660]
- Kettles AM, Creswell JW, & Zhang W (2011). Mixed methods research in mental health nursing. *Journal of Psychiatric and Mental Health Nursing*, 18(6), 535–542. [PubMed: 21749560]
- Lieberman RP, Eckman TA, & Marder SR (2001). Rehab rounds: Training in social problem solving among persons with schizophrenia. *Psychiatric Services*, 52(1), 31–33. [PubMed: 11141525]
- Locke EA, & Latham GP (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705. [PubMed: 12237980]
- Lyke JA (2009). Insight, but not self-reflection, is related to subjective well-being. *Personality and Individual Differences*, 46(1), 66–70.

- Markowitz FE (2001). Modeling processes in recovery from mental illness: Relationship between symptoms, life satisfaction, and self-concept. *Journal of Health and Social Behavior*, 42(1), 64–79. [PubMed: 11357719]
- McAlister AL, Perry CL, & Parcel GS (2008). How individuals, environments, and health behaviors interact: Social Cognitive Theory. In Glanz K, Rimer BK, & Viswanath K (Eds.), *Health behavior and health education: Theory, research, and practice* (169–188). San Francisco, CA: Jossey-Bass.
- McCorkle BH, Rogers ES, Dunn EC, Lyass A, & Wan YM (2008). Increasing social support for individuals with serious mental illness: Evaluating the compeer model of intentional friendship. *Community Mental Health Journal*, 44(5), 359–366. [PubMed: 18481176]
- McNaught M, Caputi P, Oades LG, & Deane FP (2007). Testing the validity of the Recovery Assessment Scale using an Australian sample. *Australasian Psychiatry*, 41(5), 450–457.
- Medalia A, Revheim N, & Casey M (2002). Remediation of problem-solving skills in schizophrenia: Evidence of a persistent effect. *Schizophrenia Research*, 57(2), 165–171. [PubMed: 12223247]
- Morris SE, Bellack AS, & Tenhula WN (2004). Social problem solving and schizophrenia. In Chang EC, D’Zurilla TJ, & Sanna LJ (Eds.), *Social problem solving: Theory, research, and training* (83–98). Washington, DC: American Psychological Association.
- Nezu AM (2004). Problem solving and behavior therapy revisited. *Behavior Therapy*, 35, 1–33.
- Nezu AM, D’Zurilla TJ, Zwick ML, & Nezu CM (2004). Problem-solving therapy for adults. In Chang EC, D’Zurilla TJ, & Sanna LJ (Eds.), *Social problem solving: Theory, research, and training* (171–192). Washington, DC: American Psychological Association.
- Nezu AM, Nezu CM, & D’Zurilla TJ (2013). *Problem-solving therapy: A treatment manual*. New York, NY: Springer Publishing Company.
- Pernice-Duca F (2010). Family network support and mental health recovery. *Journal of Marital and Family Therapy*, 36(1), 13–27. [PubMed: 20074121]
- Petros R (2017). Learning and utilizing WRAP’s framework: The process of recovery for serious mental illness (Doctoral dissertation). ProQuest.
- Petros R, & Solomon P (2015). Reviewing illness self-management programs: A selection guide for consumers, practitioners, and administrators. *Psychiatric Services*, 66(11), 1180–1193. [PubMed: 26129995]
- Riessman F (1965). The “helper” therapy principle. *Social Work*, 10(2), 27–32.
- Roberts C, & Stark P (2008). Readiness for self-directed change in professional behaviours: Factorial validation of the Self-Reflection and Insight Scale. *Medical Education*, 42(11), 1054–1063. [PubMed: 19141007]
- Roberts G, & Wolfson P (2004). The rediscovery of recovery: Open to all. *Advances in Psychiatric Treatment*, 10(1), 37–48.
- Rothman KJ (1990). No adjustments are needed for multiple comparisons. *Epidemiology*, 1(1), 43–46. [PubMed: 2081237]
- Sands RG, Gellis ZD (2012). *Clinical social work practice in behavioral mental health: Toward evidence-based practice* (3rd ed.). Allyn and Bacon.
- Schutt RK, & Rogers ES (2009). Empowerment and peer support: Structure and process of self-help in a consumer-run center for individuals with mental illness. *Journal of Community Psychology*, 37(6), 697–710.
- Sherbourne CD, & Stewart AL (1991). The MOS social support survey. *Social Science & Medicine*, 32(6), 705–714. [PubMed: 2035047]
- Skovholt TM (1974). The client as helper: A means to promote psychological growth. *The Counseling Psychologist*, 4(3), 58–64.
- Solomon P (2004). Peer support/peer provided services underlying processes, benefits, and critical ingredients. *Psychiatric Rehabilitation Journal*, 27(4), 392–401. [PubMed: 15222150]
- Starnino VR, Mariscal S, Holter MC, Davidson LJ, Cook KS, Fukui S, & Rapp CA (2010). Outcomes of an illness self-management group using Wellness Recovery Action Planning. *Psychiatric Rehabilitation Journal*, 34(1), 57–60. [PubMed: 20615846]

Wong YLI, Matejkowski J, & Lee S (2011). Social integration of people with serious mental illness: Network transactions and satisfaction. *The Journal of Behavioral Health Services & Research*, 38(1), 51–67. [PubMed: 20052620]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Impact and Implications

The study found that problem-solving confidence and social support were associated with degree of perceived recovery for WRAP users with serious mental illness. Practitioners may consider the adoption of problem-solving interventions, particularly in small group formats; problem-solving interventions offered in group settings may improve problem-solving confidence while increasing social support and lead to augmented recovery outcomes.

Table 1

Demographics for Survey Respondents

	Number / Min-Max	Percent / Mean (SD)
Gender		
Men	25	30.5
Women	56	68.2
Other	1	1.2
Race/Ethnicity		
White	33	40.2
Black/AA	36	43.9
African	1	1.2
Latino/a / Hispanic	3	3.7
Asian /PI	0	0
Native	1	1.2
Multiracial	5	6.1
Other	3	3.7
Age	23–71	46.8 (11.0)
Diagnosis		
Schizophrenia	12	14.6
Schizoaffective	4	4.9
Bipolar	23	28.0
Major Depression	27	32.9
Other	16	19.5
Certified Peer Specialist?	Yes=45	Yes=54.9%
Have a written plan?	Yes=80	Yes=97.6%
Frequency of Reading Plan, 6-point scale: At least once a day (1) – Almost never, or not at all (6)	1–6	3.7 (1.6)
How helpful was WRAP, 5-point scale: Not at all (1) – A great deal (5)	1–5	2.1 (1.2)

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2

Summary Statistics of Primary Study Measures

Variable	Min-Max	Mean (SD)
RAS	26–120	98.6 (16.3)
SRIS	48–91	74.3 (10.0)
PSC ^I	17–66	49.6 (8.9)
PSI	73–187	133.9 (23.3)
MCSI	26–70	53.9 (10.3)
MOS	19–95	72.6 (18.5)

^IProblem-Solving Confidence Subscale

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

Multiple Regression Models Examining Variables Associated with Degree of Perceived Recovery

Var	Model 1		Model 2		Model 3		Model 4	
	B (SE)	p-value	B (SE)	p-value	B (SE)	p-value	B (SE)	p-value
SRIS	-.09 (.12)	(.439)	-.04 (.12)	.753	-.07 (.16)	.656	.07 (.14)	.627
PSC ¹	.60 (.12)	<.001***	.36 (.14)	.013*				
PSI					.42 (.16)	.008**	.08 (.16)	.635
MCSI			.10 (.11)	.385			.23 (.11)	.034*
MOS			.37 (.10)	<.001***			.42 (.10)	<.001***
CPS Status			.12 (.19)	.535			.16 (.19)	.415
SRIS-PSI ²					-.12 (.09)	.20	-.06 (.02)	.497
Adjusted R²	.29	<.001***	.40	<.001***	.14	.002**	.34	<.001***

¹Problem-Solving Confidence Subscale

²Interaction term: SRIS and PSI

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript