The relation between objective and subjective domains of recovery among persons with schizophrenia-related disorders

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ARTICLE INFO

ABSTRACT

In recent years, growing emphasis has been placed on the vision of recovery, which is broadly organized into two types: clinical objective versus personal subjective. The purpose of the present study was to investigate the relation between objective clinical recovery as defined by symptom severity and level of functioning, and subjective personal recovery as defined by quality of life, domains of personal confidence and hope, willingness to ask for help, reliance on others and no domination by symptoms. One hundred and fifty-nine persons diagnosed with schizophrenia or schizoaffective disorder completed measures of recovery, quality of life, perceived social support and emotional loneliness. Clinicians used the Modified Brief Psychiatric Rating Scale and the Global Assessment Functioning Scale to assess the severity of symptoms and level of functioning. Results revealed no direct correlation between total score of observer ratings of symptoms and total score of subjective self-report of being in recovery. The relationship between total score of symptoms and total score of subjective self-report of recovery was moderated by the age of onset. Magnitude of the self-report of subjective recovery was related to higher levels of reported social support and lower levels of reported loneliness. Finally, analyses suggested that the impact of social support and loneliness upon self-reported recovery was mediated by quality of life. Taken together, results are consistent with literature suggesting that clinical objective recovery is not synonymous with personal subjective recovery yet can be conceptualized as complementary.

1. Introduction

The introduction of the vision of recovery to mental health care has been inspiring and influential. It has drawn attention to the fact that many people with serious mental illness (SMI) can live personally meaningful lives as integral members of their communities, despite and beyond the limits of their psychiatric disorder. Even though recovery has been widely embraced by state and federal authorities in several countries (Slade, 2009), it is still an evolving concept, the definitions and dimensions of which require further development (Noordsy et al., 2002; Liberman and Kopelowicz, 2005; Roe et al., 2007). At present, definitions of recovery can be broadly organized into two types, which have been labeled as objective versus subjective (Lysaker et al., 2006) or clinical versus personal (Slade, 2009). The former refers to the more scientific–professional view of recovery as an outcome based on whether operationally defined criteria are met.

The latter alludes to the more consumer-experience-based approach that views recovery as an ongoing process of identity change, including a broadening of self-concept (Silverstein and Bellack, 2008). Generally speaking, many in the scientific community view recovery as an outcome defined by emphasis on reduction of clinical symptoms (e.g., psychosis, negative symptoms, cognitive disorganization, depression and anxiety) and more commonly as improved everyday functioning (role and social functioning, self-care and independent living skills). A recently proposed consensus definition of "clinical remission" (Andreasen et al., 2005) has included definitions for remission of a set of specific clinical symptoms. Similar attempts have been made to develop a remission criterion for functional disability (Harvey and Bellack, 2009). Such attempts have focused on role functioning, which includes major social roles that involve some form of productive activity that are impaired by SMI. Although few would argue against the importance of defining and studying the intensity of symptoms and level of functioning, these efforts clearly fall short of representing a broader picture of what one would hope for in life. "Subjective" or "personal" recovery is about reclaiming autonomy and self-determination regardless of whether one does or does not clinically recover from the illness. In this respect, people with SMI can be

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"in recovery" depending on how they define what recovery means to them. Similarly, being "in recovery" refers to the process of pursuing one's personal hopes and aspirations, despite the person's presumed vulnerability to relapse. Thus, "being in recovery" (Davidson and Roe, 2007) does not necessarily require a cure, remission of one's psychiatric disorder, or a return to a pre-existing state of health. Instead, it involves changes in unique and deeply subjective domains of human experience. In this sense, recovery involves redefinition of one's illness as only one aspect of a multidimensional sense of self and connotes the process of trying to identify, choose and pursue personally meaningful aspirations (Roe and Davidson, 2005; Lysaker et al., 2010a).

Some have suggested that clinical and objective versus personal and subjective conceptualizations of recovery should be viewed as complementary rather than incompatible (Silverstein and Bellack, 2008). Each definition contributes to portraying and understanding key aspects of living with SMI, helps evaluate a person's progress along the multidimensional course of illness and recovery and guide the tailoring of individualized care. Although both of these forms of recovery offer a range of possible recovery elements, the relationship among these elements remains unclear (Slade and Hayward, 2007). Are these, for example, semi-autonomous phenomena, some of which can be achieved but not others, or is the achievement of some dependent upon the attainment of others? Several recent empirical studies have directed efforts toward identifying different aspects of recovery and investigating their relationship to one another. One such effort is that of Resnick et al. (2004), based on the analysis of data derived from a total sample of 1076 participants from two sources: the original PORT study and a VA extension of that study. Findings from this study revealed that the components of recovery are comprised of two distinct sets of phenomena, one which reflects the reduction of objective problems linked to illness and another which reflects changes in subjective experiences. The more objective set involves the absence of features of illness (e.g. symptoms), whereas the second, more subjective, category involves attitudes and life orientation (e.g. hopefulness). It is interesting to note that whereas symptom severity was inversely associated with a recovery orientation, symptom reduction was not always linked to personal recovery. For example, symptom severity was not related to hope. In another study (Clarke et al., 2009), the relationship between baseline levels of symptom distress and recovery constructs such as hope, self-confidence, sense of purpose and positive identity was mediated by goal attainment. Based on data collected from a sample of 161 persons with SMI, Lloyd et al. (2009) found that although the association between subjective and objective measures of recovery was greater than might be expected by chance, it was variable with respect to strength. On the other hand, Lysaker et al. (2006) reported that persons with more impoverished narratives of recovery appeared to experience higher levels of cognitive symptoms.

Andresen et al. (2010) compared three measures of consumer-defined recovery using four conventional clinical measures with a sample of 110 participants with a psychiatric disorder of at least six months duration. Although correlational analyses supported the convergent validity of the recovery measures, little relationship was found between consumer-defined recovery and the clinical measures, suggesting the latter measure to be a unique construct that is not comprehensively assessed by conventional clinical measures. Lysaker et al. (2010a) found that the quality of social connection among 103 adults with schizophrenia spectrum disorders was closely related to the richness of their personal narratives, even after controlling for symptoms and premorbid intellectual functioning. The authors suggest that, consistent with other studies, it is the deeply subjective aspects of recovery that enable meaningful integration within one's community. Finally, other studies have also suggested that changes in objective aspects of recovery are not synonymous with changes in subjective aspects or with one another (Drake et al., 2006; San et al.,

2007; Leung et al., 2008). The review of studies on the relation between subjective aspects of personal recovery and more objective aspects of clinical recovery provide mixed findings, which together seem to provide some support for the notion that these domains are related but semi-independent.

To explore this issue further, the present study has sought to investigate the relation between objective clinical recovery as defined by symptom severity and level of functioning, and subjective personal recovery as defined by domains of personal confidence and hope, willingness to ask for help, reliance on others and no domination by symptoms. To study this issue while taking into consideration the experience of one's social environment we also assessed social support and loneliness.

Specifically, the study attempted to address four research questions:

1) Is there a relationship between objective clinical recovery (observer ratings of symptom severity and level of functioning) and subjective personal recovery (self-report of recovery and quality of life)?
2) Do demographic variables moderate the relation between objective clinical recovery (observer-rated symptom severity and level of functioning) and subjective personal recovery (self-report of recovery and subjective quality of life)?
3) Is there a relationship between social support and loneliness and subjective personal recovery (self-report of recovery and subjective quality of life)?
4) Does subjective quality of life mediate the relationship between social support and loneliness and self-report of recovery?

2. Method

2.1. Research setting

The study was conducted at psychiatric rehabilitation residential centers in six large cities in Israel: Haifa, Tiberias, Tel Aviv, Jerusalem, Beer Sheba and Ashkelon. Approval for the study was obtained from a committee of representatives of the University of Haifa after reviewing the ethical implications of the research. Data were collected between April 2007 and December 2008.

2.2. Participants

One hundred and fifty-nine persons, whose age ranged from 19 to 66 years ($M = 43.2$, $SD = 10.7$) and were diagnosed with schizophrenia or schizoaffective disorder, participated in the study. Psychiatric diagnoses were obtained from the participants' medical files. Participants were all living in supported housing in the community and receiving rehabilitation services at one of the six centers. Inclusion criteria were fluency in Hebrew and sufficient competence to provide informed consent.

The majority were men (66.7%) who had never been married (69.8%). Most had completed at least high school education (93.2%). Their mean age during first hospitalization was 23.3 ($SD = 7.9$) and their mean number of previous hospitalizations was 5.2 ($SD = 5.7$).

2.3. Measures

2.3.1. Recovery assessment scale (RAS)

The RAS is a 41-item scale that assesses perceptions of recovery from severe mental illness. Participants endorse items (e.g., "I have a desire to succeed") on a 5-point Likert scale. The RAS has good psychometric properties and is correlated with measures of self-esteem, empowerment and quality of life (Corrigan and Phelan, 2004). The current study used a short Hebrew 20-item version and analysis was performed on 12 items that supported four out of the five factors originally identified (Roe et al., submitted for publication). A confirmatory factor analysis (Roe et al., submitted) yielded four

factors: personal confidence and hope (Cronbach's alpha = .72), willingness to ask for help (Cronbach's alpha = .91), reliance on others (Cronbach's alpha = .66) and no domination by symptoms (Cronbach's alpha = .70).

2.3.2. Modified BPRS-E (Brief Psychiatric Rating Scale Expanded).

We used the 15-item version of the BPRS-E (Brief Psychiatric Rating Scale Expanded), which is one of the most widely used measures in psychiatric outcome and clinical psychopharmacology research (Thomas et al., 2004). It was found to include four factors: thought disturbance, animation, mood disturbance and apathy (Thomas et al., 2004). A confirmatory factor analysis conducted by Thomas et al. (2004) found that their four-factor model provided the best fit to the data in comparison to other BPRS models currently available in the literature. The 15-item version is rated on a 7-point Likert-type scale (1 = not present to 7 = extremely severe). The first factor, thought disturbance (Cronbach's alpha = .70), contained the following items: delusions, grandiosity, suspiciousness and hallucinations. The second factor, animation (Cronbach's alpha = .79), included the following items: motor hyperactivity, excitement and tension. The third factor, mood disturbance (Cronbach's alpha = .80), contained an item about depression, suicidality, guilt and anxiety and the fourth factor, apathy (Cronbach's alpha = .64), included an item regarding emotional withdrawal, blunted affect, motor retardation and self-neglect. In the present study, Cronbach's alphas were .74, .71, .69 and .59 for thought disturbance, animation, mood disturbance and apathy, respectively.

2.3.3. Multidimensional scale of perceived social support (MSPSS)

This questionnaire examines social support over three dimensions: family, social and significant others. The questionnaire includes 12 items. Each item is evaluated on a 7-point scale (1 = totally disagree, 7 = totally agree). High scores on the questionnaire indicate high-level social support. For data processing, one average was calculated for the general social support index for each subject. A Hebrew translation of the MSPSS was used (Dangoor and Florian, 1994). In the present study, internal consistency (Cronbach's alpha) was .88.

2.3.4. Social and emotional loneliness scale—short version (S-SELAS)

This questionnaire is a short version of a questionnaire on social and emotional loneliness for adults. It includes 15 items. The questionnaire distinguishes between the three loneliness dimensions—social, romantic and familial. Each item on the questionnaire is evaluated on a 7-point scale (1 = totally disagree, 7 = totally agree). High scores on the questionnaire indicate a high sense of loneliness. For data processing, three averages were calculated for each subject, separately for each loneliness dimension (social, romantic and familial). In the present study, internal consistency (Cronbach's alpha) was .74, .78 and .74 for social, romantic and familial, respectively.

2.3.5. Manchester short assessment of quality of life (MANSA)

This questionnaire is an abbreviated version of the Lancaster Questionnaire Life Quality Profile (LQLP). It includes 12 subjective items that obtain satisfaction with life as a whole: job, financial situation, number and quality of friendships, leisure activities, accommodation, personal safety, people with whom the person lives, sex life, relationships with family, physical health and mental health. Each item in the questionnaire is evaluated on a 7-point scale (1 = totally disagree, 7 = totally agree). High scores on the questionnaire indicate high quality of life. For data processing, one average was calculated for the quality of life index for each subject. In the present study, internal consistency (Cronbach's alpha) was .77.

2.3.6. The global assessment functioning scale (GAF)

The Global Assessment Functioning Scale (GAF), adapted from GAS (Endicott et al., 1976) is known as a global rating scale that yields a single score ranging from 0 to 100 that represents a subject's overall functioning on a psychological sickness to health continuum. Scores are based on behaviors rather than diagnostic categories and are best understood as measures of overall severity of psychiatric disturbance. GAS ratings are shown to be particularly sensitive to changes in clinical functioning or severity of psychiatric disturbance in several reported studies (Endicott et al., 1976). These ratings discerned changes in clinical functioning experienced by patients during hospitalization with significantly greater sensitivity than either the Mental Status Examination Record or the Psychiatric Status Schedule, both of which are multidimensional and symptom-based (Endicott et al., 1975). According to Endicott et al. (1976), the inter-rater reliability ranges between .69 and .91. Findings of criteria-related validity (1976) showed that higher ratings on this scale were significantly positively associated with lower rates of rehospitalization in a sample of inpatients.

2.4. Procedures

Research participants were administered the RAS scale and completed an additional five face-to-face interview-based measures, which were administered by MA students in community mental health. The instruments were translated into Hebrew and back translated into English to evaluate the accuracy of the Hebrew translation (Brislin, 1980). Differences were then reconciled by comparing the original and back translations.

2.5. Data analysis

The data were analyzed using the Predictive Analytics SoftWare (PASW, Version 17.0). After exclusion of respondents whose data was incomplete, the analysis was performed on the data collected from 151 participants. Missing values were 5% and were not replaced.

Analyses were performed in four steps. First, to explore the relationships between objective clinical recovery (symptom severity and functioning) and subjective personal recovery (self-reported recovery and quality of life), we performed Pearson correlations. Second, hierarchical regression analysis was used to evaluate whether demographic and clinical variables (gender, age, age at diagnosis and number of hospitalizations) moderate the relationship between objective clinical recovery (symptom severity and functioning) and subjective personal recovery (self-reported recovery and quality of life) (Jaccard et al., 1990). In the third step, we used Pearson correlations again to explore the relationships between loneliness, social support and subjective personal recovery (self-reported recovery and quality of life). Finally, to examine whether Quality of Life (QoL) moderates the relation between the social variables (social support and loneliness) and self-reported recovery, we performed linear regression analysis (Baron and Kenny, 1986) and Sobel test (Sobel, 1982). Given the many analyses performed, significance was set at the .05 level and all tests of significance were two-tailed.

3. Results

3.1. Relationship between objective clinical recovery and subjective personal recovery

Correlations between objective clinical recovery (BPRS and GAF) and subjective personal recovery (RAS and QoL) were explored and are reported in Table 1. As can be seen in Table 1, there is no significant correlation between the total score of symptoms (BPRS Total) and the total score of recovery (RAS Total) and between functioning (GAF) and the total score of recovery (RAS Total). Analysis of the subscales revealed a significant negative correlation between mood (on the BPRS) and hope (on the RAS), (r = −.21, p<.05) and between animation (on the BPRS) and willingness to ask for help (on

Table 1
Pearson correlations between objective clinical recovery (BPRS and GAF) and subjective personal recovery (RAS and QoL), N = 134.

	RAS total	RAS hope	RAS help	RAS others	RAS symptoms	QOL
BPRS Total	−.09	−.16	.03	−.01	−.07	−.20*
BPRS Mood	−.17*	−.21*	−.07	.03	−.15	−.24**
BPRS Thought	.02	−.04	.12	−.02	.01	−.13
BPRS Apathy	−.07	−.09	−.11	.01	−.01	−.05
BPRS Animation	−.02	−.12	.18*	−.04	−.05	−.12
GAF	.14	.14	.06	.11	.05	.16*

* $p < .05$.
** $p < .01$.

the RAS), ($r = .18$, $p < .05$). In addition, a significant negative correlation between total score of symptoms (BPRS) and quality of life (QoL) was found ($r = −.20$, $p < .05$), in which mood on the BPRS was again the only subscale that was related to QoL ($r = −.24$, $p < .01$). In addition, a significant positive correlation was found between functioning (GAF) and quality of life (QoL) ($r = .16$, $p < .05$).

3.2. Demographic and clinical variables as moderating variables between objective clinical recovery and subjective personal recovery

To understand this finding better, we examined whether demographic and clinical variables (gender, age, age at diagnosis and number of hospitalizations) moderate the relation between objective clinical recovery (BPRS and GAF) and subjective personal recovery (RAS and Qo). First, we examined whether demographic and clinical variables moderate the relationship between symptoms (BPRS) and self-reported recovery (RAS). Four hierarchical regression analyses were performed to examine this model (for each of the four demographic and clinical variables). In the analysis, symptoms and each of the demographic/clinical variables were the independent variables and self-reported recovery was the dependent variable. The interaction effect of symptoms and each of the four demographic/clinical variables was estimated by the product of symptoms and the demographic/clinical variable. The analysis was carried out in two steps. Symptoms and one of the demographic/clinical variables were entered into the regression at step 1 and the product term variable was entered at step 2. The analysis revealed that the interaction effect between symptoms and age of diagnosis was significant ($p < .01$), suggesting that age of diagnosis moderates the relationship between symptom severity and self-reported recovery. Results of this analysis are summarized in Table 2.

To examine whether the age at first diagnosis influences the relation between symptom severity and self-reported recovery, we divided the study participants into two groups: those who were diagnosed before they were 18 years old and those who were diagnosed when older than 18. In Israel, age 18 reflects transition into adulthood, which is manifested in the right to vote. We then examined the correlation between symptom severity and recovery

Table 2
Hierarchical regression for the interaction between symptoms and age of diagnosis (predicted variable: (RAS total score)).

Predictor variable	B	S.E	β	t
Step 1: BPRS total score	−.04	.06	−.07	−0.73
Age at diagnosis	.05	.07	.07	0.70
Step 2: BPRS total score	.01	.06	.01	0.10
Age at diagnosis	.08	.06	.11	1.17
BPRS × age at diagnosis	.22	.08	.26	2.67*

* $p < .01$.

among each of these two groups. A significant negative correlation was found between symptom severity and recovery for the group with relatively earlier onset ($r = −.33$, $p < .05$) but not for the group with relatively later onset ($r = .08$, $p > .05$).

Similar analysis was performed to examine whether demographic and clinical variables (gender, age, age at diagnosis and number of hospitalizations) moderate the relationship between: 1. symptom severity (BPRS total score) and quality of life (QoL); 2. functioning (GAF) and self-defined recovery (RAS total score); 3. functioning (GAF) and quality of life (QoL). These analyses did not reveal any significant interactions, which suggests that demographic/clinical variables (gender, age, age at diagnosis and number of hospitalizations) do not moderate these relationships.

3.3. Relationship between social variables and personal subjective recovery

The correlations between social variables (loneliness and social support) and subjective personal recovery (RAS and QoL) are presented in Table 3. As can be seen, social support was significantly correlated with self-reported recovery and quality of life ($r = .33$, $p < .001$; $r = .31$, $p < .001$; respectively) whereas loneliness was negatively correlated with self-reported recovery and quality of life ($r = −.32$, $p < .001$; $r = −.42$, $p < .001$; respectively).

3.4. Quality of life as mediating variable between social variables and self-reported recovery

To examine whether quality of life (QoL) mediates the relation between the social variables (social support and loneliness) and self-reported recovery (RAS), we performed a regression analysis (Baron and Kenny, 1986) and Sobel test (Sobel, 1982). These analyses were performed twice, once with social support as the independent variable and once with loneliness as the independent variable.

The impact of quality of life on the relation between support and self-reported recovery: First, we investigated the direct effect of social support on recovery. A significant correlation was found between these two variables ($\beta = .33$, $p < .001$). We then conducted a regression to test whether social support predicts QoL. A significant correlation was found ($\beta = .31$, $p < .001$). The third stage comprised a regression, to test whether self-reported recovery can be predicted by social support and QoL. The regression revealed a significant correlation between QoL and self-reported recovery when controlling for social support ($\beta = .48$, $p < .001$) and a significant correlation

Table 3
Pearson correlations between social variables (loneliness and social support) and subjective personal recovery (RAS and QoL).

	RAS total	RAS hope	RAS help	RAS others	RAS symptoms	QoL
Social support total	.33***	.20*	.21**	.39***	.09	.31***
Social support — family	.18*	.16	.13	.13	.07	.24**
Social support — social	.25**	.18*	.18*	.37***	.00	.29***
Social support — others	.32***	.14	.20*	.39***	.14	.18*
Loneliness total	−.32***	−.19*	−.13	−.36***	−.15	−.42***
Loneliness — social	−.22**	−.16*	−.05	−.41***	−.01	−.40***
Loneliness — familial	−.24**	−.17*	−.25**	−.16*	−.06	−.24**
Loneliness — romantic	−.21*	−.11	−.02	−.17*	−.21**	−.23**

* $p < .05$.
** $p < .01$.
*** $p < .001$.

between social support and self-reported recovery when controlling for QoL ($\beta = .18$, $p<.05$). Even though the correlation between social support and self-reported recovery was significant, as can be seen, it was reduced from $\beta = .33$ to $\beta = .18$ when controlling for QoL. The Sobel test revealed that this difference was significant ($Z = 3.44$, $p<.001$), supporting the role of QoL as mediating the relation between social support and recovery.

The impact of quality of life on the relation between loneliness and self-reported recovery: At the first stage, we tested the direct effect of loneliness on self-reported recovery. A significant correlation was identified ($\beta = -.32$, $p<.001$). At the second stage, we conducted a regression to test whether loneliness predicts QoL. A significant correlation was identified ($\beta = -.42$, $p<.001$). The third stage comprised a regression to test whether loneliness and QoL predicts self-reported recovery. Results of the regression revealed a significant correlation between QoL and self-reported recovery when controlling for loneliness ($\beta = .49$, $p<.001$) but did not reveal a significant correlation between loneliness and self-reported recovery when controlling for QoL ($\beta = -.12$, $p>.05$). As can be seen, the correlation between loneliness and self-reported recovery decreased from $\beta = -.32$ to $\beta = -.12$ when controlling for QoL. The Sobel test revealed that this difference is significant ($Z = -4.26$, $p<.001$), which provides support for QoL mediating the relation between loneliness and self-reported recovery.

4. Discussion

Although the construct of recovery is receiving growing attention, the conceptualization of its components and the relationships between them remain unclear. With an eye to examining this larger issue, the purpose of the present study was to explore the relationships between objective and subjective aspects of recovery and between social support and loneliness and subjective elements of recovery. Results of this study did not reveal a relationship between the global symptom severity and global subjective self-report of being in recovery. Interestingly, the relationship between symptoms and self-report of recovery was moderated by the age of onset. Specifically, global symptom severity was related to self-report of recovery only among persons whose first onset was before age 18. This finding is consistent with research that found that early onset is associated with other unfavorable future outcomes such as lower level of future social functioning (Vila-Rodriguez et al., 2011) and later cognitive impairments and impulsivity traits (Kao and Liu, 2010). The current study revealed that early onset is also negatively correlated with later subjective sense of being in recovery.

Whereas the total symptom score was not related to subjective recovery, it is important to mention that the dimensions of mood and animation were related to two recovery domains (hope and willingness to seek help). These findings are consistent with other recent research showing depressive symptomatology, but not psychotic symptoms, to be highly correlated with subjective quality of life (Kurtz and Tolman, 2011).

Magnitude of the self-report of subjective recovery was also related to higher levels of reported social support and lower levels of loneliness. Further analyses revealed that the impact of social support and loneliness on self-reported recovery were mediated by quality of life. Taken together, results are consistent with literature suggesting that recovery in the sense of reduction or elimination of symptoms is not synonymous with self-assessment as being in a state of recovery (Lloyd et al., 2009; Andresen et al., 2010; Lysaker et al., 2010a, 2010b, 2010c). Results further suggest that the relationship between objective and subjective indicators of recovery might be different for persons with different courses of illness. Regarding the factors that might shape the subjective experience of recovery, results suggest that lower levels of loneliness and greater perceived social support might lead to improved quality of life, which may lead to a greater

sense of personal recovery. Of note, the correlational nature of the data rules out drawing any causal conclusions, and alternative hypotheses cannot be ruled out, for example, that a greater sense of recovery allows for lower levels of loneliness and connection to others. In addition to studies using a cross-sectional design, future longitudinal research is needed to track the relationships between these variables over time and which might contribute to understanding their ongoing dynamic interactions.

The study limitations should be noted. First, most participants were men enrolled in rehabilitation, in a non-acute phase of illness and not in the midst of an initial episode of illness. It is, therefore, unknown whether similar relationships among the variables measured here apply to persons who refuse treatment or who are experiencing an earlier or acute phase of illness. Thus, future research including a broader range of participants at different stages of recovery is needed. In addition, it is important to note that the current study did not include other variables found to be associated with subjective quality of life, such as insight and neurocognitive functioning (e.g., Brekke et al., 2001; Hasson-Ohayon, Walsh, Roe, Kravetz & Weiser, 2006; Kurtz and Tolman, 2011), which could have shed light on the current findings. Finally, with replication results of this study may have several clinical and theoretical implications. For one, clinical objective recovery is not synonymous with personal subjective recovery yet can be conceptualized as complementary. Second, effective rehabilitation needs to take into account the person's age at onset of the illness. Responding to an illness that began earlier in life may be a somewhat different process than responding to an illness that began relatively later in life. Providing psychosocial therapies, rehabilitation services, supported employment and encouraging family involvement as soon as possible have been recognized as potentially crucial to change the trajectory of schizophrenia and reduce long term disability and are thus key elements of the recent Recovery After an Initial Schizophrenia Episode (RAISE) NIMH research project. Given the semi-independence of recovery outcomes it is also possible that effective forms of rehabilitation need to be guided by ongoing assessments of multiple aspects of both objective and subjective aspects of recovery. Services, for instance, may be better informed if providers and consumers are considering not only symptoms and global function as indices of outcome but also the consumer's experience of their social environment and their overall sense of themselves as a person (Slade, 2002; Lysaker et al., 2010b). Such assessments might provide not only an index of the presence or absence of certain beliefs or experiences but also a richer sense of how the person with the illness is making sense of their strengths and challenges. Thus, assessments of ongoing recovery include the standard instruments used to assess psychopathology and to tap perceived quality of life but also methods that seek to elicit person's narratives of themselves and their conditions. Here we see great promise for instrument such as the Scale to Assess Narrative Development (Lysaker et al., 2010a). The need for more complete assessments is certainly consistent with emerging literature on the need for further development of rehabilitation and psychotherapeutic interventions focused on the person who is experiencing and trying to live a life in the midst of severe mental illness (Roe and Lachman, 2005; Lysaker et al., 2010b).

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