Chinese Version of the Recovery Self-Assessment Scale: Psychometric Evidence from Rasch Analysis and Reliability Estimates

Abstract

Aim. This study aims to develop a Chinese version of the Recovery Self-Assessment (RSA), which assesses the recovery orientation of hospital-based mental health services.

Methods. We conducted forward and backward translations of the RSA. After making modifications suggested by a team of content experts, the Chinese Recovery Self-Assessment Service User version (CRSA-R) was ready for testing. We recruited 350 people with mental illnesses who regularly attend hospital, day, and outpatient mental health services. The participants completed the CRSA-R, and convergent measures on hope and mental well-being.

Results. The Rasch analysis provides support for five of the six factors, and suggests that the "Life Goal" factor could be further split into two factors of "Life Goals for My Recovery" and "Life Goals Supported by Staff." We identified three misfit items (items 6, 12, and 17) that could be considered for removal in the future. Both the internal consistency and test-retest reliability are between satisfactory and very good within each subscale, with the exception of the Choice subscale. The seven subscales had low positive correlations with measures of hope and mental well-being, which supported the convergent validity of CRSA-R.

Conclusion. The results supported the factor structure, reliability, and convergent validity of the CRSA-R.

Keywords: Mental health, Recovery, Recovery Self-assessment, Rasch, Psychometric

Introduction

Mental health recovery is a journey of healing, which enables a person with a mental illness to live a fuller and more meaningful life in their community, and make choices to reach their full potential (Whitney & Drake, 2010). Mental health services have faced ongoing criticism that they place too much emphasis on the person's sick role instead of paying more attention to the person's illness experience and recovery process (Slade, 2009). In many modern societies, traditional mental health systems focus on symptom management, since the societies have low expectations for the recovery of people with severe mental illnesses (Maassen, Schrevel, Dedding, Broerse, & Regeer, 2017). The recovery model advocates that persons with mental illnesses can progress beyond the impact of mental illness and develop new meaning and purpose in their lives. Over the past two decades, there has been a paradigm shift within mental health services toward recovery-oriented practice, which has been widely adopted around the world in countries such as the USA, Australia, New Zealand, and the UK (Ramon et al., 2007).

The recovery model advocates that persons with severe mental illnesses have self-determination, autonomy, and choice in their own care and recovery; it is imperative for service providers to adopt a consumer-driven approach that encourages the participatory involvement of service users. Service users are one of the key stakeholders in the planning and evaluation of recovery-oriented services, in addition to service providers, service administrators and caregivers (Ostrow & Adams, 2012). Over the years, practitioners and researchers around the world have developed a number of self-completed questionnaires to evaluate the recovery orientation of mental health services and the outcomes of recovery-oriented services. Among the eleven instruments reviewed by Burgess, Pirkis, Coobs, & Rosen (2011), the Recovery Self-Assessment (RSA) (O'Connell et al., 2005) is one of the four instruments that met the criteria for

a quality assessment instrument of recovery practice: 1) the instrument measures areas that are directly relevant to recovery orientation, 2) it is manageable and easy to administer, 3) it has gone through an appropriate process of development and validation, 4) it includes a consumer perspective, 5) it is applicable to the local context, and 6) it is acceptable to consumers. In addition, the RSA is also one of the most widely used instruments globally (Williams et al., 2012).

The present study selected the RSA for conducting ongoing evaluation of recovery-oriented services in Hong Kong for several reasons. First, the RSA is versatile; it has been applied in both hospital and community-based services (Salyers et al., 2007), and could assess both individuals' recovery as well as the recovery-orientation of the service (Burgess et al., 2011). Second, there is a wealth of evidence supporting the psychometric properties of the RSA worldwide. Several countries, such as the USA (Campbell-Orde et al., 2005) and Australia (Burgess et al., 2011), recommended the use of the RSA for regulatory evaluation of recovery services. Third, the RSA Revised version (RSA-R) has four parallel versions – person in recovery, family/significant other/advocate, provider, and administrator versions – which enables a more comprehensive evaluation of recovery-oriented services by various stakeholders (Campbell-Orde et al., 2005; O'Connell et al., 2007). Lastly, the RSA has been translated and applied in many non-English speaking countries and cultural contexts without the need for major modifications (Chiba et al., 2010; Rosenberg et al., 2015; Ye, Pan, Wong, & Bola, 2013).

In fact, two studies have developed a Chinese version of the RSA-R for use in some community mental health settings in Hong Kong. Some initial psychometric properties were collected (Ye et al., 2013), and cross-validation of the RSA-R with other mental health recovery measures and convergent measures (like hope) were conducted. However, it was necessary to

address several gaps in clinical application and validation research of the Chinese RSA-R. First, in the studies by Ye et al. (2013) and Bola, Chan, Chen, & Ng, 2016), one translated the RSA while the other translated the RSA-R respectively. Both studies attempted to validate the RSA or RSA-R as one of the instruments in a battery of recovery measures for use in community mental health settings. However, both studies did not clearly report on the translation process or the review of content validity and cultural relevance of the RSA or RSA-R for use with Chinese populations. This study aims to conduct forward and backward translation, as well as a detailed expert panel review of quality of translation, content validity, and cultural relevance before pilot test of the RSA-R person-in-recovery version.

Second, there are uncertainties in the factor structure of the RSA in both the Chinese and English versions, despite many studies that have tried to explore and confirm the factor structure. For the English version, two key studies came up with similar groupings of items under the following five factors: 1) goal/success orientation and hope, 2) reliance on others, 3) personal confidence, 4) no domination by symptoms, and 5) willingness to ask for help (Corrigan et al., 2004; McNaught et al., 2007). A study of the Japanese version of the RSA replicated this five-factor structure (Chiba et al., 2010); however, this factor structure is quite different from the original theoretical design of the instrument (O'Connell et al., 2005). Furthermore, the study on the translated Chinese version by Ye et al. (2013) did not find a stable factor structure, and used the RSA total score for further analyses. In a recent attempt, Barbic et al. (2015) developed a 12-item RSA brief version using the Rasch measurement model. While there is support for the unidimensionality and reliability of this brief version, the authors commented that there is a need to re-visit the categorization of items under the original theory, as well as the selection of items used to form the brief version. In summary, there was a strong need to re-examine the factor

structure of the RSA. The current study uses Rasch analysis to evaluate the construct validity of the CRSA-R on the basis that it could examine whether it is appropriate to treat the CRSA-R as a unidimensional scale, and evaluate how items contribute to diversity of opinion among respondents.

Third, there is a need to examine the convergent validity and test-reliability of the Chinese version of the RSA (Williams et al., 2012). Two previous RSA studies on the Chinese population provided some initial estimates on the internal consistency and reliability of the total score, and its correlations with quality of life and several recovery measures (Bola et al., 2016; Ye et al., 2013). The present study will also provide estimates of internal consistency and test-retest reliability of the scale and subscales, as well as providing evidence on its validity with convergent measures of mental well-being and hope. With the additional psychometric information from this study, clinicians and researchers would have a better understanding of how ready the Chinese version of RSA is for further application in clinical practice and research.

Method

This study aims to translate the Service User version of the Recovery Self-Assessment into Chinese (abbreviated CRSA-R) and evaluate the dimensionality of the translated version using the Rasch measurement model approach. We also aim to provide estimates of internal consistency and test-retest reliability, as well as evidence for its convergent validity.

Participants

We selectively recruited a sample of persons with mental illness who are attending occupational therapy services in six different settings under the Hong Kong Hospital Authority.

All participants met the following inclusion criteria: 1) aged above 18 years, 2) diagnosed with a psychiatric disorder, and 3) regularly attends rehabilitation programs in in-patient, outpatient, or day rehabilitation services. Among the participants (N = 350), around half were male (n = 168, 48%) and the remainder were female (Table 1). Participants had a mean age of 42.63 years (SD = .66). Almost half (49.1%) of the participants had a high school education, while 15.8% had a tertiary education. The key diagnoses of the participants were schizophrenia, schizotypal and delusional disorder (65.6%), and mood disorders (25.8%). In-patients (44%) and day-patients (40%) made up the main proportions of the sample, while the rest were outpatients (16%). The mean duration of living with psychiatric illness was 13.3 years (SD = .58), with a range of less than 1 year to a maximum of 45 years.

Instruments

Chinese Recovery Self-Assessment, Service User version (CRSA-R). After obtaining permission from the original author of RSA, we translated the Recovery Self-Assessment (RSA-R) Personal in Recovery version into Chinese (the CRSA-R). A team of five mental health experts reviewed the first draft of the translated instrument. After some revisions, the second draft was reviewed by 25 mental health professionals and a final version was drafted. We hired a language expert to conduct a backward translation of the CRSA-R into English. We compared the back translated version (in English) with the original English version, and final improvements were made to the translated Chinese version.

Adult Hope Scale (AHS). The AHS is a 12-item self-completed questionnaire designed to measure a person's level of hope (Snyder et al., 1991). The scale has two subscales: 1) the Agency subscale, which measures the person's goal-directed energy in initiating and sustaining actions, and 2) Pathways, which measures the person's belief in generating activities to pursue

and reach goals. We anticipated the CRSA-R would have significant positive correlations with the convergent measure of AHS, as we expected a recovery-oriented environment to cultivate higher hope in the service users.

Chinese Warwick-Edinburgh Mental Well-being Scale (C-WEMWBS). This seven-item instrument was designed to measure the mental well-being of subjects. Both validation studies of the original English and Chinese versions of the WEMWBS reported a unidimensional factor structure, as well as excellent reliability and construct validity (Brown, et al., 2009; Bass, Dawkin, Muncer, Vigurs, & Bostock, 2015; Ng, et al., 2014). We anticipated mental well-being to be a convergent measure with recovery orientation of mental health services.

Procedure

We obtained ethics approval from the Research Ethics Review Committee of the Hospital Authority and The Hong Kong Polytechnic University to conduct this project. We briefed potential participants who fulfilled the selection criteria, covering information on the purpose and procedures of the study, and how they could participate. We then invited them to join, and required that those who agreed to participate in the study signed a consent form. The participants completed a set of questionnaires that included the CRSA-R, AHS, and C-WEMWBS, and provided some basic background information. Two hundred and ninety six (84.6%) out of 350 participants agreed to complete the CRSA-R for a second time to provide data to evaluate the test-retest reliability. The mean duration between the first and second completion of the CRSA-R was 13.8 (SD = 7.7) days.

Statistical analysis

Rasch analysis was used to evaluate the construct validity of the CRSA-R, specifically for its unidimensionality or the extent to which the CRSA-R items measure a single construct defining recovery orientation. Based on item response theory, Rasch analysis is a probabilistic model that examines a matrix of person-ability versus item-difficulty on a common scale and converts ordinal scores obtained from rating scales into interval-level measures or so-called 'logits' (Bond & Fox, 2007). The unidimensionality of a scale can be assessed by using the residuals derived from Rasch measures that achieve interval-level scaling. Rasch analysis has been recently applied to aid in the validation of the recovery outcome in people with mental illnesses (Barbic, Kidd, Davidson, McKenzie, & O'Connell, 2015; Hancock, Scanlan, Honey, Bundy, & O'Shea, 2015; McGuire, Kean, Bonfils, Presnell, & Salyers, 2014). As the CRSA-R uses a five-point Likert scale (*strongly disagree* to *strongly agree*) across all items, the Rasch Rating Scale Model (Andrich, 1978) was applied and the WINSTEPS software version 3.73 (Linacre, 2011) was used to conduct the analysis.

To examine the unidimensionality, a Rasch-based principal component analysis (PCA) of residuals with item goodness-of-fit analysis was conducted. The unidimensionality of the CRSA-R items is supported if the Rasch identified construct (principal component) account for >50% of the total variance, and if the size of the first contrast (the largest secondary component after the principal component is removed) is less than 2.0 eigenvalue (Raîche, 2005). We would use Rasch-based goodness-of-fit statistics to examine how well the CRSA-R items fit with the model's expectations for hierarchical difficulties. The two types of fit statistics, infit and outfit are reported using mean square (MnSq) and standardized Z values (Zstd). Infit and outfit with MnSq <1.4 in combination with Zstd values of <2.0 are indicators of acceptable model fit (Bond & Fox, 2007; Chien & Bond, 2009). Items with MnSq > 1.4 and Zstd > 2 indicate that the item

responses are misfitting, and the item may belong to a different construct. Such misfitting items were excluded from the CRSA-R in a stepwise manner until all retained items demonstrated acceptable fit criteria. The model should meet the standard of explaining more than 50% of the variance, with eigenvalue smaller than 2 in the first contrast of the PCA analysis of residuals.

Once the CRSA-R items are confirmed for the unidimensionality, these items were calibrated along a hierarchical order from low to high recovery orientation based on logits. Similarly, the participants' levels of recovery orientation were also calibrated hierarchically and were placed together with the items' difficulty calibrations on the same linear interval-level measurement continuum. Floor and ceiling effects were examined by investigating the percentage of participants who achieved the lowest and highest scores in the CRSA-R. A threshold of 15% was used similarly to a previous study (Hobart & Thompson, 2001). Lastly, Rasch analysis provides item and person reliability indices for describing the reliability of the CRSA-R items and participants. (Bond & Fox, 2007). The interpretation of item and person reliability coefficients is similar to Cronbach's α, which is ≥ 0.90 indicating excellent, 0.90 > α ≥ 0.80 indicating good, and 0.80 > α ≥ 0.70 indicating acceptable (Bond & Fox, 2007; Portney & Watkins, 2009).

Results

Rasch Analysis and Principal Component Analysis of Residuals of CRSA-R as a whole.

The results showed that the items as a whole did not fit with the Rasch model's expectations of hierarchical ordering from "easy" to "difficult." For example, the total variance explained by the Rasch measure accounts for 41.1% and the first contrast has an Eigenvalue of 3.6, which is more than 2.0 as a sign for multidimensionality. Eight items also exhibited as

potentially misfit (Infit and Outfit MnSq > 1.4 or Infit & Outfit Zstd > 2.0). The above evidence suggested that the C-RSA is not a unidimensional scale, which led to the decision to examine the specific pattern of factor loading (based on the Rasch principal component analysis of residuals) under each of the subscales separately.

Principal Component Analysis (PCA) of Residuals of CRSA-R subscales.

Regarding the dimensionality of CRSA-R items under each subscale, the Rasch analysis supports five out of the six subscales (Table 2). The PCA results for the "Life Goal" subscale were not quite satisfactory because the total variance explained by the Rasch measure was 43%, with the first contrast having an Eigenvalue of 2.1, and there were two items (12 and 17) showing as misfit. After iteratively removing these two misfit items, the PCA of residuals results remained unsatisfactory. Therefore, we split the remaining nine items into two sub-domains of the "Life Goal" subscale, based on the factor loading of PCA of residuals. One sub-domain includes items 3, 7, 8, and 9 (labelled "Life Goals for My Recovery") and the other includes items 16, 18, 28, 31, and 32 (labelled "Life Goals Guided by Staff"). The PCA results of residuals were satisfactory for the two sub-domains and we did not find misfit items in either sub-domain (see Appendix A). Based on this analysis, we suggest dividing the "Life Goals" domain into two unidimensional sub-domains.

The PCA result of residuals for the "Choice" dimension was acceptable, indicated by a total explained variance of 39.7% and Eigenvalue of 1.6 for the first contrast. Two items (4 and 6), showed a slight misfit with the Rasch model's expectations. After we removed item 6, the PCA results improved (a total explained variance of 43.6%). Thus, we suggest removing item 6 in this subscale, and retaining the other four items in this subscale.

The PCA results of residuals for the rest of the four subscales, including the Individually-Tailored Service (ITS), Diversity of Treatment Options (DTO), Involvement, and Invite dimension, are satisfactory. The total variance explained by the Rasch measure is substantial (46.2–69.3%), and the first contrast has the eigenvalue of < 2.0. There are no items showing a significant misfit with the Rasch model's expectations. We suggest using these four subscales without further change.

In addition, no subscales of the CRSA-R revealed the floor effects (0.3–3.4%). However, obvious ceiling effects were found in all the subscales of the CRSA-R except for the Choice (13.4%) and DTO (14.6%) subscales. Specifically, 32.9% of the participants achieved the maximum scores in the Invite subscale that includes merely two items, and 15.4–19.1% obtained the maximum scores in the rest of the four subscales including the ITS , Involvement, and two new Life Goal subscales.

Reliability

From the results of Rasch analysis (Table 2), item reliability of the subscales ranged from 0.73 to 0.98 and all the estimates were acceptable to excellent. For person reliability, the estimates were generally lower than item reliability and ranged from 0.48 to 0.75. We also estimated the reliability of the CRSA-R using the classical test model (Table 3), and Cronbach's α is 0.95 for all 30 items. The Cronbach's α of the seven subscales ranged from 0.61 to 0.90, which indicated fair to very good internal consistency of the subscales. Test-retest reliability of the subscales was acceptable to very good, as indicated by ICCs ranging from 0.77 to 0.94.

Convergent Validity

The seven CRSA-R subscales had positive and significant correlations with the Agency (r ranges from .29 to .42) and Pathway subscale of the Adult Hope Scale (r ranges from .27 to .39) (Table 4). The correlations are mostly of low to moderate strength. The CRSA-R subscales also have significant positive correlations with the SWEMWBS, with r ranging from .19 to .36.

Relationship between Demographic Profile and CRSA-R scores

The CRSA-R had low but significant correlations with age, education level, and duration of illness. CRSA-R subscales had significant positive correlations with age, with r ranging from .14 to .27. Six of the seven CRSA-R subscales (excepting the "Invite" subscale) also had significant positive correlations with duration of illness, with r ranging from .14 to .20. In general, this suggests that older age and longer duration of illness is associated with higher CRSA-R ratings by the participants. On the other hand, higher education is associated with lower scores in five of the seven CRSA-R ratings, as the correlations between them are negative and significant (r ranging from .14 to .27). We did not find significant differences in the CRSA-R subscale scores among participants attending in-patient, outpatient, and day patient services. The F-value varies from .12 to 2.59, with p-values ranging from .08 to .89.

Discussion

There are several important observations ensuing from this validation study. First, the results clearly showed that the CRSA-R is not a unidimensional scale, and it would not be meaningful to use the total score of all items to interpret the recovery orientation of the service. This is consistent with the original conceptualization and design of the RSA that recovery is a multidimensional construct (O'Connell, Tondora, Croog, Evans, & Davidson, 2005). Second, the

analysis found that three items (6, 12, and 17) have a misfit with the Rasch model. This indicates that some item responses may be erratic, may belong to different constructs, or are unlikely to differentiate the responses of participants as good as other items within the same subscale. We discussed the proposal to remove these items with expert panel members, but most panel members suggested that the items should be retained as these items represent important aspects of the subscales they measure. Therefore, we suggest that these items should be used with caution under the "Life Goals" or "Choice" subscales.

Third, the Rasch analysis and principal component analyses of residuals suggested only one major change to the factor structure. We proposed to divide the "Life Goals" subscale into two subscales, which we renamed as "Life Goals for My Recovery" and "Life Goals Supported by Staff." The "Life Goals for My Recovery" subscale includes four items that are phrased as "staff members encourage, believe, or are confident that the person could recover (item 3, 7), could manage one's symptoms (item 8), and make choices about daily living (item 9)." For the "Life Goals Supported by Staff" subscale, the items include phrases that indicate "the staff member helps or encourages me to ... (do different things)," like set up life goals (item 16), other activities (item 18), achieves life goals (item 28). The two other items in this subscale are related to the resourcefulness of staff members (item 31) and whether they come from a diverse background (item 32). In sum, we recommend splitting the "Life Goals" subscale into the two subscales of "Life Goals for My Recovery" and "Life Goals Guided by Staff" in future use, and the CRSA-R would have a 7 instead of 6 subscales. This contrasts with a previous exploratory factor analysis of another version of Chinese RSA (Ye et al., 2013), which could not find sufficient evidence in support for a multi-dimensional factor structure of the RSA.

Fourth, we found that most of the subscales of the CRSA-R had satisfactory to good internal consistency and test-retest reliability. The overall Cronbach's α of all items is 0.95, which is comparable to estimates from previous local studies on the RSA and RSA-R (Bola et al., 2016; Ye et al., 2013). Only the four-item "Choice" subscale had internal consistency (Cronbach's α = .61) and test-retest reliability (ICC = .77) that were lower than common standards. Upon examining the "Cronbach's α if item deleted" measure, there appeared to be no gain in internal consistency if any one of the four items was removed – item total correlations of the four items ranged from .30 to .47. In further application of the CRSA-R, we advise noting that the reliability of the Choice subscale is less satisfactory than other subscales.

Fifth, there are several observations from the correlation studies between CRSA-R and the two convergent measures of hope (AHS) and mental well-being (SWEMWBS). Both measures had low and significant correlations with CRSA-R. This is consistent with expectations that a recovery-oriented service environment could promote the hope and mental well-being of clients. This provides support to the convergent validity of the CRSA-R. In previous local studies of the Chinese RSA and RSA-R, researchers focus on exploring relationships among several recovery-oriented measures and quality of life measure. (Bola et al., 2016; Ye et al., 2013). The current study adds new information on the convergent validity of the CRSA-R.

Lastly, there are low but significant correlations between CRSA-R scores in demographic variables. Age and duration of illness had a positive correlation while education and duration of illness had a negative correlation. These results suggest that persons who are older and have had a longer duration of illness would be may have a more positive evaluation of the recovery orientation of the services. As age and duration of illness had a high correlation, we could not be sure if age or duration was the key factor contributing to this positive correlation with CRSA-R

scores. Persons in recovery with a higher level of education could have higher expectations or be more critical in the evaluation of the recovery-oriented services. Few studies documented the association of CRSA-R scores with the demographic background variables, and in future studies could further examine the potential influence of these variables on the person's view of recovery-oriented services.

Study Limitations

This study has several limitations. First, the study only covers some of the key aspects of a full validation study, including investigations of the factor structure; reliability; and convergent validity. Due to limitations on resources and in order for the CRSA-R to be ready for program evaluation within a reasonable period, we could only include these key aspects. Second, all participants of this study were recruited from hospital care settings. Most participants were in-patients or day patients within the Hospital Authority in Hong Kong, while the two existing local studies recruited participants from community mental health services. The results of this current study may not be directly comparable with previous studies on the Chinese RSA-R. Third, the test-retest period is almost two weeks on average. Although the two-week test-retest period is commonly used in validation studies, we cannot completely ensure that every participant had a uniform test-retest period, since there were practical difficulties such as the attendance of some participants to outpatient settings.

Conclusion

This study has provided support to the factor structure, reliability, and convergent validity of the CRSA-R. The Rasch analysis suggests that the CRSA-R includes seven unidimensional subscales, and we identified three misfit items that could be removed from the scale. The internal

consistency and test-retest reliability are satisfactory to very good for most subscales, except that the four-item "Choice" subscale has relatively low internal consistency and reliability. As expected, the CRSA-R scores have significant positive correlations with convergent measures of hope and mental well-being. Only minor revisions would be needed before the CRSA-R could be adopted in the evaluation of recovery-oriented mental health services.

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Table 1. Characteristics of Study Participants (N = 350)

Variables	Categories	n (%)
Sex	Male	168 (48.0%)
	Female	182 (52.0%)
Educational Level	No formal education	1 (0.3%)
	Primary P 1-6	42 (12.1%)
	Secondary Form 1-3	79 (22.7%)
	Secondary Form 4-7	171 (49.1%)
	Tertiary education	55 (15.8%)
Diagnosis	Organic, including symptomatic, mental disorders (F00-F09)	2 (0.6%)
	Mental and behavioral disorders due to psychoactive substance use (F10-F19)	15 (4.3%)
	Schizophrenia, schizotypal and delusional disorders (F20-F29)	229 (65.6%)
	Mood or affective disorders (F30-F39)	90 (25.8%)
	Neurotic, stress-related, and somatoform disorder (F40-F48)	6 (1.7%)
	Disorders of adult personality and behavior (F60-F69)	3 (0.9%)
	Mental retardation (F70-F79)	4 (1.1%)
Service attended	In-patient	154 (44.0%)

Variables	Categories	n (%)
	Out-patient	56 (16.0%)
	Day-patient	140 (40.0%)

Table 2. Summary of Results of Rasch Analysis and Principal Component Analysis

Subscales	Items under each subscale	Items suggested for removal	Total % of variance explained (eigenvalue for 1st contrast)	Person (Item) Reliability
Life Goals for My Recovery	3, 7, 8, 9	12, 17	56.6% (1.5)	0.75 (0.73)
Life Goals Guided by Staff	16, 18, 28, 31, 32		52.0% (1.7)	0.66 (0.89)
Choice	4, 5, 10, 27	6	43.6% (1.6)	0.48 (0.98)
Individually-Tailored Service	11, 13, 19, 30	---	51.3% (1.6)	0.68 (0.90)
Diversity of Treatment Option	14, 15, 20, 21, 26	---	46.2% (1.6)	0.65 (0.94)
Involvement	22, 23, 24, 25, 27, 29	---	53.3% (1.5)	0.74 (0.93)
Invite	1, 2	---	69.3% (0)	0.72 (0.86)

Table 3. Reliability Estimates of the CRSA-R

RSA-R subscales	Number of items	Internal Consistency (Cronbach's α)	Test-retest Reliability (ICC)
Life Goals for My Recovery	4	.82	.77
Life Goals Guided by Staff	5	.87	.91
Choice	4	.61	.77
Individually-Tailored Service	4	.82	.87
Diversity of Treatment Option	5	.81	.88
Involvement	6	.90	.94
Invite	2	.78	.80
All items	30	.95	.98

Table 4. Correlations between CRSA-R and convergent measures or demographic variables

Convergent measures and demographic variables	Life Goals subscales						
	Life Goal for My Recovery	Life Goals Guided by Staff	Choice	Individually -Tailored Service	Diversity of Treatment Option	Involvement	Invite
Adult Hope Scale (AHS)							
Agency Subscale	.43**	.35**	.32**	.32**	.34**	.29**	.34**
Pathway Subscale	.39**	.36**	.31**	.31**	.35**	.28**	.27**
SWEMWBS	.36**	.24**	.22**	.25**	.26**	.19**	.25**
Age	.27**	.22**	.20**	.22**	.21**	.14*	.26**
Education Level	-.20**	-.22**	-.15*	-.19**	-.19**	-.11	-.11
Duration of Illness	.20**	.17*	.15*	.19**	.17**	.14*	.08