



# Ohio Mental Health Consumer Outcomes System

## Report 14: *Social Connectedness*

The purpose of this report is to report on the development of a new subscale from the Quality of Life scale on the Adult Consumer form. The report details the process of how the Social Connectedness subscale was developed, including factor analyses, decisions about item selection, and how the scale was computed. This report also includes mean-level differences in Social Connectedness by diagnosis type, and how Social Connectedness is related to other Consumer Outcomes scales. Additionally the Reliable Change Index for Social Connectedness is reported.

### SUMMARY

- This report details the development of a new subscale on Social Connectedness utilizing four items from the Quality of Life scale on the Adult Consumer form.
- Items reflecting Social Connectedness were identified in the Outcomes scales; the items were limited to the Quality of Life scale.
- An Exploratory Factor Analysis (EFA) was run on all 12 Quality of Life scale items to see if the items identified for Social Connectedness represented a unique subscale. The EFA indicated 3 factors: 1) Overall Quality of Life, 2) Financial Quality of Life, and 3) Housing Quality of Life. All four Social Connectedness items fell within EFA results indicated that the subscale was not unique; however the four Social Connectedness items did fall on the Overall Quality of Life factor.
- Reliability analyses indicated adequate reliability by gender, race, and diagnosis (overall Cronbach's  $\alpha = .73$ ).
- Mean comparisons (t-tests and ANOVAs) were run to compare differences in Social Connectedness by gender, race, and diagnosis. Males reported higher Social Connectedness scores than females. Social Connectedness scores were statistically higher for Caucasians than respondents of Unknown races; no other differences by race were significant. There were some significant mean-level differences by diagnosis.
- Social Connectedness was correlated with other Outcomes scales; Social Connectedness was negatively correlated with Overall Symptom Distress and positively correlated with Self-esteem, Power, Optimism and Control, and Overall Empowerment.
- The Social Connectedness subscale has been added to both the individual and aggregate reports included for the Adult Consumer instrument in the Reports Generator, and is tagged as "Feelings about social situation." The Reports Generator is available at: <http://www.mh.state.oh.us/oper/outcomes/data.flow.template.html>.
- The Reliable Change Index (RCI) for the Social Connectedness subscale from this analysis is 1.33. The RCI assists in determining whether the amount of change over time constitutes a "real" change, or if the change is small enough to be considered chance.

## Introduction

The State of Ohio was awarded a Transformation State Incentive Grant (TSIG) from the Substance Abuse and Mental Health Services Administration (SAMHSA) to transform the state's system of mental health services and supports. The major focus of the grant is to fund infrastructure changes consistent with the six goals of the President's New Freedom Commission on Mental Health (<http://www.mentalhealthcommission.gov/>), so that persons with mental illness can live, work, learn and participate fully in their communities.

As part of this grant, SAMHSA is interested in evaluating how these changes impact persons with mental illness. SAMHSA has identified social connectedness as one of the four domains that focus on resilience and sustaining recovery. "Perhaps more than anything else, a strong support system is essential to help people overcome challenges that might seem insurmountable when confronted alone" (Curie, 2004). Research has shown that social supports and social connectedness are associated with decreases in depression, hostility, social withdrawal, social discomfort/distress and loneliness; they are also associated with increases in self-esteem (Corrigan & Phelan, 2004; Lee, Draper, & Lee, 2004; Williams & Galliher, 2006).

Rather than add another measure, the content of the Consumer Outcomes system was reviewed for indicators of the Social Connectedness construct. The adult instrument contained items that held promising indicators. The purpose of this report is to provide information about the development of a Social Connectedness subscale within the Quality of Life scale on the Adult Consumer Form. This report provides information on how the subscale was constructed, the psychometric properties of the subscale, and some basic correlational statistics for Social Connectedness and other associated Outcomes scales.

## STEP 1: Identifying items

The first step was to identify items in the Outcomes System that were consistent with literature on social support and connectedness. Nine potential items were identified, four from the Quality of Life scale, one item from Physical Health and Stigma, one item from Symptom Distress, and three items from Empowerment. Only the four items from the Quality of Life scale were ultimately retained since these items were from the same scale. Including items from only the Quality of Life scale allows for correlating these items with the other scales (e.g., the relationship between Social Connectedness and Symptom Distress).

### Proposed Social Connectedness items:

- How do you feel about the amount of friendship in your life?
- How do you feel about the amount of meaningful activity in your life (such as work, school, volunteer activity, leisure activities)?
- How do you feel about the way you and your family act toward each other?
- How often do you have the opportunity to spend time with people you really like?

## STEP 2: Prepare the data set

A data extraction was obtained in May, 2006 of all consumers' first Outcomes administrations (Adult Consumer A: N = 113,051; Adult Consumer B: N = 102,523). The first administration is not necessarily an "intake" administration; it is an individual's first survey regardless of their time in treatment. Five percent of the sample was randomly selected to be included in the following factor and reliability analyses (N = 10,834).

### STEP 3: Exploratory Factor Analysis of the Quality of Life scale

In order to test whether the four identified items were a separate, unique subscale, distinct from other Quality of Life items, exploratory factor analyses (EFA) were conducted with all 12 Quality of Life items from the Adult Consumer instrument. Results from the EFA indicated a three-factor solution (see Table 1). The Quality of Life items appeared to measure three separate concepts:

- 1) Overall Quality of Life,
- 2) Financial Quality of Life, and
- 3) Housing Quality of Life.

All of the proposed Social Connectedness subscale items fell within Factor 1, Overall Quality of Life. These results indicated that the four items representing social connectedness were not a unique subscale, but shared variance, or shared some commonalities with other Quality of Life items. Even though these items did not constitute a unique subscale, the content of these items appeared to be face valid, that is, the items were consistent with social connectedness as conceptualized by SAMHSA. Thus the decision was to examine the internal consistency, or reliability, of the four items.

**Table 1. Quality of Life Rotated Factor Matrix**

	Factor 1 Overall Quality of Life	Factor 2 Financial Quality of Life	Factor 3 Housing Quality of Life
<b><i>How do you feel about the amount of friendship in your life?</i></b>	.655		
<b><i>How do you feel about the amount of meaningful activity in your life (such as work, school, volunteer activity, leisure activities)?</i></b>	.612	.379	
How do you feel about the amount of freedom you have?	.534		
<b><i>How do you feel about the way you and your family act toward each other?</i></b>	.435		.268
How do you feel about your health in general?	.478		
<b><i>How often do you have the opportunity to spend time with people you really like?</i></b>	.579		
How do you feel about the amount of money in your life?		.803	
How do you feel about how comfortable and well-off are you financially?		.845	
How do you feel about how much money you have to spend for fun?	.278	.734	
How do you feel about your personal safety?	.423		.472
How do you feel about the neighborhood in which you live?			.739
How do you feel about your housing/living arrangements?	.265		.617

Note. ***Bold/italicized*** items represent Social Connectedness items. Extraction Method: Maximum Likelihood. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations.

## STEP 4: Reliability Analyses of Social Connectedness items

Reliability analyses were conducted for the total sample, by gender, race, and diagnosis type (see Table 2). Reliability was adequate across all groups (Cronbach's  $\alpha = .75$  for males;  $\alpha = .71$  for females;  $\alpha$  ranged from .70 to .74 by race;  $\alpha$  ranged from .68 to .79 by diagnosis type).

**Table 2. Reliability analyses results for Social Connectedness (4 items) Adult Consumer A/B**

	Cronbach's $\alpha$		Cronbach's $\alpha$
Total	.73	Substance-Related Disorders	.79
Male	.75	Schizophrenia & Other Psychotic Disorders	.71
Female	.71	Depressive Disorders	.68
Caucasian	.73	Bipolar Disorders	.72
African American	.73	All Other Mood Disorders	.69
Other	.70	Anxiety Disorders	.69
Unknown	.74	Adjustment Disorders	.74
		Personality Disorders	.77
		All other diagnoses	.74
		Missing diagnosis	.78

## STEP 5: Compute the Subscale Scores

As the Cronbach's alpha scores were adequate, a Social Connectedness subscale using the average of the four items was computed. Respondents must have answered at least three of the questions for a score to be calculated (N = 1,101; 10.2% of the sample did not have sufficient data to compute Social Connectedness). Subscale scores ranged from 1.0 to 5.0; the higher the score the higher the level of Social Connectedness.

- Consumers responded to the questions about friendship, meaningful activity, and feelings about family on the following 5-point scale: 1 = Terrible, 2 = Mostly dissatisfied, 3 = Equally satisfied/dissatisfied, 4 = Mostly satisfied, and 5 = Very pleased.
- Consumers responded to the question about the amount of time to spend with people on a 5-point frequency scale: 1 = Never, 2 = Seldom/rarely, 3 = Sometimes, 4 = Often, and 5 = Always

## STEP 6: Mean Comparisons by Group

Table 3 and Figure 1 provide descriptive statistics (N, mean, and standard deviation) by gender and race. T-test results showed a significant difference by gender, with males having higher Social Connectedness scores than females. Analyses of Variance (ANOVAs) indicated there was also a significant difference by race. However, post-hoc comparisons showed that the only statistical difference was that the mean for Social Connectedness was higher for Caucasians, compared with the mean for respondents whose race was Unknown.

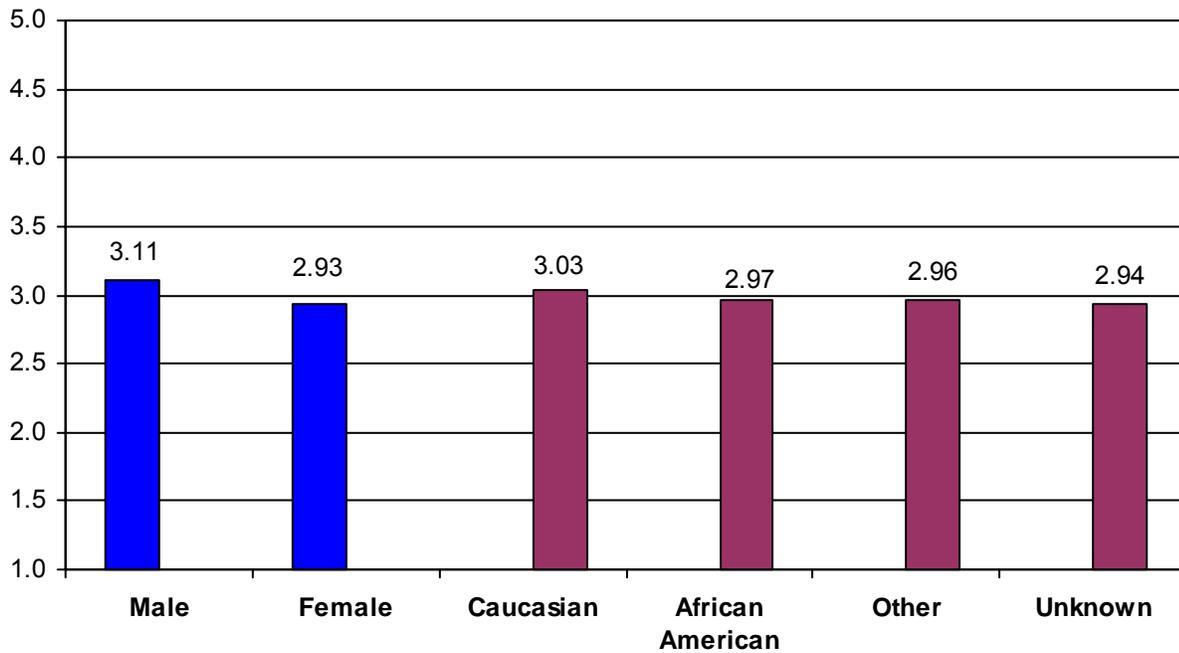
**Table 3. Comparisons of Social Connectedness by gender (*t*-test) and race (ANOVA).**

	N	M	sd	t/F
Total	9,945	3.00	.92	
Male	3,851	3.11	.94	17.21*
Female	5,781	2.93	.90	
Caucasian	6,101	3.03	.90	5.04*
African American	1,452	2.97	.93	
Other	809	2.96	.92	
Unknown	1,583	2.94	.95	

Note. A *t*-test was performed comparing males and females. ANOVAs were performed by race and by diagnosis type. Significant *t* and *F* values are indicated by \*  $p < .05$ . Significant post-hoc comparisons ( $p < .05$ ) were:

- Males had a higher mean on Social Connectedness than females.
- The only significant difference by race was between Caucasians and consumers of Unknown race (the mean for Caucasian consumers was higher).

**Figure 1. Social Connectedness by Gender and Race**



### Comparisons by Diagnosis

Table 4 and Figure 2 present the results for Social Connectedness by diagnosis. ANOVAs indicated there was a significant difference by diagnosis. The lowest average means on Social Connectedness were reported by consumers diagnosed with: Depressive Disorders, Bipolar Disorders, Anxiety Disorders and All Other Mood Disorders. The highest averages for Social Connectedness were reported by consumers diagnosed with Adjustment Disorders, and Substance-Related Disorders.

**Table 4. Comparisons of Social Connectedness by Diagnosis**

	N	M	sd	F
Total	9,945	3.00	.92	
Depressive Disorders	3,111	2.78	.86	
All Other Mood Disorders	259	2.82	.86	
Bipolar Disorders	1,184	2.85	.91	
Anxiety Disorders	771	2.95	.87	
Personality Disorders	85	3.02	.94	53.49*
Missing diagnosis	873	3.15	.97	
Schizophrenia & Other Psychotic Disorders	1,327	3.19	.88	
All other diagnoses	690	3.19	.95	
Substance-Related Disorders	381	3.25	.97	
Adjustment Disorders	1,264	3.26	.90	

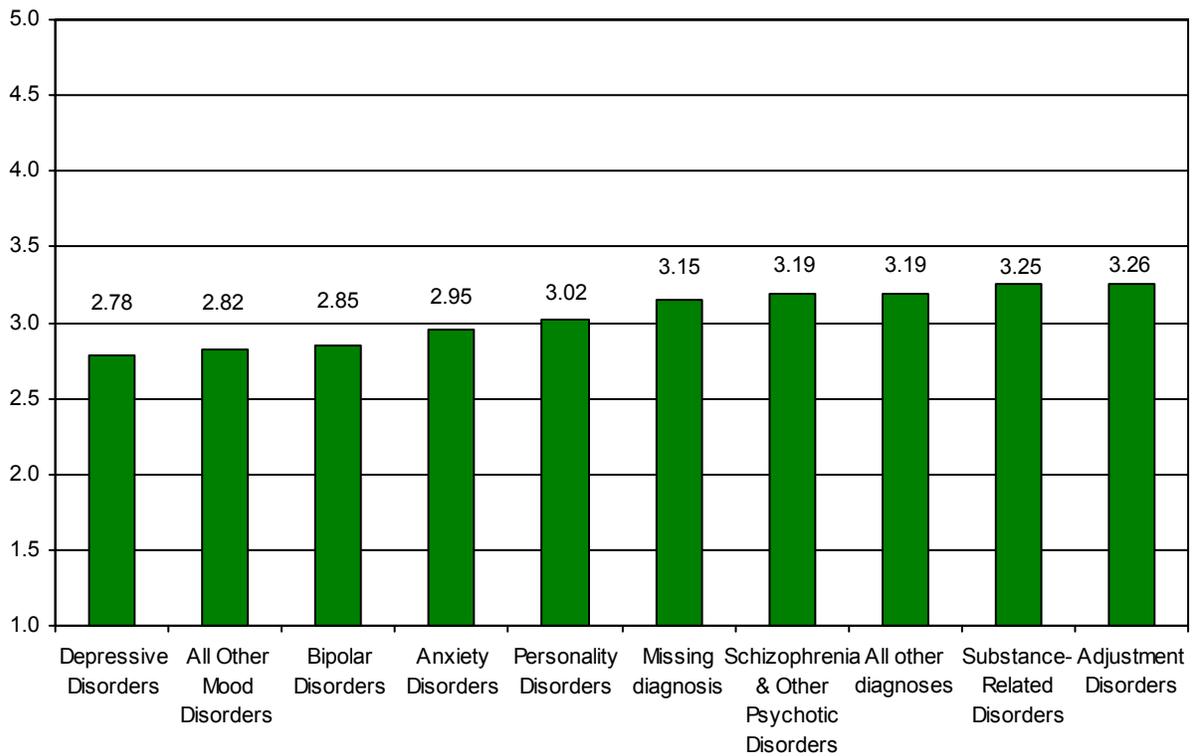
Note. A *t*-test was performed comparing males and females. ANOVAs were performed by race and by diagnosis type. Significant *t* and *F* values are indicated by \*  $p < .05$ . Post-hoc comparisons reported below were significant at  $p < .05$ .

Post-hoc comparisons showed the following results:

- Individuals with depressive disorders reported a significantly lower mean on Social Connectedness than individuals with anxiety disorders, those missing a diagnosis, schizophrenia & other psychotic disorders, individuals with other diagnoses, substance-related disorders, and adjustment disorders.
- Individuals with bipolar disorders and all other mood disorders had a significantly lower mean on Social Connectedness than individuals missing a diagnosis, with schizophrenia & other psychotic disorders, individuals with other diagnoses, with substance-related disorders, and with adjustment disorders.
- Individuals with anxiety disorders reported a significantly higher mean on Social Connectedness than individuals with depressive disorders; they also reported a significantly lower mean than individuals missing a diagnosis, with schizophrenia & other psychotic disorders, individuals with other diagnoses, substance-related disorders, and adjustment disorders.

- Individuals with personality disorders did not show any significant differences on Social Connectedness than any of the other diagnosis groups.
- Individuals missing a diagnosis, with all other diagnoses, with schizophrenia & other psychotic disorders, and substance-related disorders reported a significantly higher mean on Social Connectedness than individuals with depressive disorders, other mood disorders, bipolar disorders, and anxiety disorders.
- Individuals with adjustment disorders reported a significantly higher mean on Social Connectedness than individuals with depressive disorders, other mood disorders, bipolar disorders and anxiety disorders.

**Figure 2. Social Connectedness by Diagnosis**



## STEP 7: Social Connectedness correlations with Outcomes scales by Diagnosis

Correlations between Social Connectedness and seven other Outcomes scales were computed for all disorders, by gender, and for each disorder (see Table 5).

The strongest association was between Social Connectedness and Overall Symptom Distress. Across all disorders, Social Connectedness was negatively correlated with Symptom Distress ( $r = -.58$ ). The negative correlation showed that higher means on Social Connectedness were associated with lower means on overall Symptom Distress. This significant negative correlation was found across all types of disorders; the strongest association was for individuals with a substance-related disorder ( $r = -.69$ ).

Social Connectedness was positively correlated with Self-Esteem and Efficacy ( $r = .35$ ). The positive correlations show that higher means on Social Connectedness are associated with higher means on Self-Esteem and Efficacy. These significant positive correlations were found across all types of disorders. Again, the strongest association was for individuals with a substance-related disorder ( $r = .52$ ). Other mood disorders ( $r = .43$ ), those missing a diagnosis ( $r = .42$ ), or those with other diagnoses ( $r = .44$ ) also had strong positive correlations.

Social Connectedness was positively correlated with Overall Empowerment ( $r = .34$ ). The positive correlations show that higher means on Social Connectedness are associated with higher means on Overall Empowerment. These positive correlations were found across all types of disorders (however the correlation with personality disorders was not significant). The strongest associations were for individuals with a substance-related disorder ( $r = .53$ ) and those missing a diagnosis ( $r = .46$ ).

Social Connectedness was also positively correlated with Optimism and Control Over the Future ( $r = .26$ ). These positive correlations were found across all types of disorders except for adjustment disorders. The strongest associations were for individuals with a substance-related disorder ( $r = .36$ ), bipolar disorders ( $r = .34$ ), other mood disorders ( $r = .34$ ), individuals missing a diagnosis ( $r = .34$ ), and individuals with personality disorders ( $r = .32$ ).

Social Connectedness was positively correlated with Power/Powerlessness in the total sample ( $r = .20$ ). These positive correlations were found across most of the disorders; Social Connectedness and Power/Powerlessness were not significantly associated for individuals with other mood disorders, or personality disorders. The strongest correlation was for individuals with a substance-related disorder ( $r = .44$ ).

Social Connectedness was positively correlated with Community Activism and Autonomy in the total sample ( $r = .09$ ). This small positive correlation was not replicated across all disorders; it was only significant for individuals with bipolar and anxiety disorders, those missing a diagnosis or with another diagnosis, or for individuals with substance-related disorders.

Social Connectedness was also negatively correlated with Righteous Anger ( $r = -.07$ ) for the total sample; by type of disorder, the only significant associations with Social Connectedness were for individuals with depressive ( $r = -.07$ ) or bipolar disorders ( $r = -.11$ ).

**Table 5. Correlations between Social Connectedness and other Outcomes scales by gender and diagnosis**

		All Disorders	Males	Females	Depressive Disorders	Other Mood Disorders	Bipolar Disorders	Anxiety Disorders	Personality Disorders	Missing Diagnosis	Schizophrenia & Other Psychotic Disorders	All Other Diagnosis	Substance-Related Disorders	Adjustment Disorders
Overall Symptom Distress	<i>r</i>	<b>-.58**</b>	<b>-.59**</b>	<b>-.57**</b>	<b>-.54**</b>	<b>-.60**</b>	<b>-.55**</b>	<b>-.53**</b>	<b>-.55**</b>	<b>-.61**</b>	<b>-.50**</b>	<b>-.63**</b>	<b>-.69**</b>	<b>-.59**</b>
	N	9606	3719	5580	3056	240	1089	747	86	869	1274	663	425	1157
Self-Esteem/Efficacy	<i>r</i>	<b>.35**</b>	<b>.35**</b>	<b>.33**</b>	<b>.35**</b>	<b>.43**</b>	<b>.33**</b>	<b>.20**</b>	<b>.30*</b>	<b>.42**</b>	<b>.25**</b>	<b>.44**</b>	<b>.52**</b>	<b>.18**</b>
	N	4642	1865	5638	1555	114	662	297	46	313	1036	189	163	267
Overall Empowerment	<i>r</i>	<b>.34**</b>	<b>.34**</b>	<b>.33**</b>	<b>.32**</b>	<b>.33**</b>	<b>.33**</b>	<b>.25**</b>	.27	<b>.46**</b>	<b>.25**</b>	<b>.40**</b>	<b>.53**</b>	<b>.22**</b>
	N	4588	1843	2614	1541	114	660	292	42	307	1022	185	164	261
Optimism and Control Over the Future	<i>r</i>	<b>.26**</b>	<b>.26**</b>	<b>.26**</b>	<b>.23**</b>	<b>.34**</b>	<b>.34**</b>	<b>.23**</b>	<b>.32*</b>	<b>.34**</b>	<b>.19**</b>	<b>.29**</b>	<b>.36**</b>	.11
	N	4375	1770	2486	1453	102	631	285	41	286	995	177	148	257
Power/Powerlessness	<i>r</i>	<b>.20**</b>	<b>.20**</b>	<b>.20</b>	<b>.20**</b>	.08	<b>.14**</b>	<b>.18**</b>	-.06	<b>.21**</b>	<b>.19**</b>	<b>.30**</b>	<b>.44**</b>	<b>.28**</b>
	N	4578	1841	2600	1574	115	659	295	42	297	1022	.18	161	258
Community Activism and Autonomy	<i>r</i>	<b>.09**</b>	<b>.12**</b>	<b>.07**</b>	.05	.06	<b>.10**</b>	<b>.13*</b>	.11	<b>.29**</b>	.04	<b>.16*</b>	<b>.24**</b>	.04
	N	4728	1898	2687	1599	113	669	306	46	312	1052	190	169	272
Righteous Anger	<i>r</i>	<b>-.07**</b>	-.10	-.03	<b>-.07**</b>	.05	<b>-.11**</b>	-.02	-.20	-.10	.01	-.06	-.08	-.07
	N	4387	1757	2502	627	106	627	284	41	292	980	174	155	244

Note. Significant Correlations are bolded. \*\*Correlation is significant at  $p < .01$ . \*Correlation is significant at  $p < .05$ .

## Outcomes Reports

The Reports Generator is an add-on to the OPER Data Entry and Reports Template, a Microsoft Access database designed to capture, report on, and export the Consumer Outcomes System data. The Social Connectedness subscale has been added to the individual and aggregate reports that include the Adult Consumer instrument in the Reports Generator. These reports are designed to provide feedback to consumers, clinicians, and quality improvement staff. The label that is used to "tag" Social Connectedness is "Feelings about social situation." The label reflects the underlying construct in a similar manner as is used elsewhere in the Reports Generator. The Reports Generator is available on the Outcomes Web site at:

<http://www.mh.state.oh.us/oper/outcomes/data.flow.template.html>.

## Reliable Change Index

When examining change scores, a question that may arise is whether or not the change observed constitutes a "real" change, or if the change is small enough to be considered chance. Jacobson and Truax (1991) devised a method of making the distinction between chance and non-chance or reliable-change. This is referred to as the Reliable Change Index (RCI) and is the amount of change necessary to be considered reliable. The RCI is based on the mean and standard deviation of the population at the pre-change point, and the reliability of the subscale. In the case of the Social Connectedness subscale, the RCI is 1.33. See Report #12-Reliable Change and Clinical Significance for more on the RCI of the other Consumer Outcomes System measures.

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