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DEVELOPMENT AND PRELIMINARY VALIDATION OF THE ROMANTIC

RELATIONSHIP FUNCTIONING SCALE

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ABSTRACT

Bonfils, Kelsey A.. M.S., Purdue University, May 2014. Development and Preliminary Validation of the Romantic Relationship Functioning Scale. Major Professor: Michelle Salyers.

Background: Research has repeatedly shown that individuals with severe mental illness desire interpersonal and romantic relationships and that social support (including spousal relationships) is beneficial. In addition, social deficits in mental disorders can often get in the way of developing fulfilling relationships. However, there is little currently available to help clinicians and researchers assess romantic relationship functioning in those with mental illness. The aim of this pilot study was to examine reliability and validity of a new measure of functioning in romantic relationships, the Romantic Relationship Functioning Scale (RRFS). Method: The RRFS was constructed based on theory proposed by Redmond, Larkin, and Harrop (2010). In an analog study, we tested the measure in a sample of college students (N=387), examining reliability, stability over time, factor structure, and relationships with measures of psychopathology and related measures of social functioning to assess convergent validity. Results: The RRFS exhibited a hierarchical four-factor structure, supporting the use of a total score. Although subscales were supported in the factor analysis, other psychometric

evidence was weaker, and the use of a total score is advocated. Internal consistency and test-retest reliability were acceptable for the total scale (>.8). The RRFS had moderate to large correlations in the expected direction with all psychopathology measures. In predictive models, overall mental health, social functioning, and fewer interpersonal difficulties predicted higher romantic relationship functioning. Conclusions: The RRFS total score shows preliminary evidence of reliability and validity. The RRFS has potential to be of use in treatment centers for undergraduates and for individuals with diagnosed mental disorders. Future research should further investigate the RRFS subscales and the measure's performance in clinical samples.

INTRODUCTION

The mental health service system has a long history of helping consumers with severe mental illness strive to reach life goals and improve their quality of life (Anthony, 1993; Diamond, 2006; Young & Ensing, 1999). Research has repeatedly shown that individuals with severe mental illness covet interpersonal and romantic relationships (Bhui, Puffet, & Strathdee, 1997; Iyer, Mangala, Anitha, Thara, & Malla, 2011; McCann, 2000, 2003, 2010a, 2010b; Ramsay et al., 2011), but there is little currently available to help clinicians and researchers assess consumers' functioning in these areas. It is likely that romantic relationships could play a significant role in recovery from severe mental illness, both for those early in their illness and those with a more chronic course, but tools are needed to help properly plan interventions to help consumers in this area.

Investigating romantic relationships is particularly important for individuals with psychotic disorders as a review of sexuality and relationships for people with psychosis highlighted loneliness as a recurring issue (McCann, 2003). The author found that people with schizophrenia think they are different, experience stigma and social distance, and have increasingly distressed feelings. Another qualitative study found that consumers with severe mental illness have difficulties

forming relationships with others, often related to a deep sense of internalized stigma (Wright, Wright, Perry, & Foote-Ardah, 2007). This study also highlighted fears of being hurt in a relationship and the possibility of lasting emotional harm.

Although consumers with severe mental illness tend to be in relationships less often than those without a mental illness (Agerbo, Byrne, Eaton, & Mortensen, 2004; Dickerson et al., 2004; Perry & Wright, 2006), research has consistently shown the benefits of social support, including spousal relationships (Lam & Rosenheck, 2000; Nyer et al., 2010; Tempier, Caron, Mercier, & Leouffre, 1998). Furthermore, research in the general population indicates that high marital quality can predict better physical health (Burman & Margolin, 1992; Miller, Hollist, Olsen, & Law, 2013), a benefit brought about by increased levels of social support. Emotionally close relationships can also protect against negative effects of stressful life events (Pearlin, Menaghan, Lieberman, & Mullan, 1981), and there is evidence that marital social support predicts fewer symptoms of depression (Choi & Ha, 2011). In a national survey of the general population, increased social and emotional support was associated with being married; social and emotional support were also associated with better mental health, better physical health, fewer symptoms of depression and anxiety, fewer somatic complaints, better sleep, less pain, and less limited activity (Strine, Chapman, Balluz, & Mokdad, 2008). This study also found lower levels of social and emotional support to be associated with life dissatisfaction and disability due to physical, mental, or emotional problems.

Unfortunately for individuals experiencing symptoms of psychosis, social deficits can often get in the way of developing fulfilling relationships (Macdonald, Jackson, Hayes, Baglioni Jr, & Madden, 1998; Stevens, McNichol, & Magalhaes, 2009). Interventions for social deficits are important as these deficits generally begin early, even before the onset of full psychiatric symptoms; further, those with an earlier age of onset therefore may be at a disadvantage in that they have not had the opportunity to successfully transition to the social roles of an adult (Häfner, Nowotny, Löffler, & an der Heiden, 1995; Pinkham, Penn, Perkins, Graham, & Siegel, 2007). This can have lifelong consequences. For example, although marriage does not encompass all possible romantic relationships, there is ample evidence that individuals with severe mental illness are significantly less likely to be married than the general population over the course of the lifespan (Agerbo et al., 2004; Dickerson et al., 2004). Some studies extend this finding, showing that rates of cohabitation are also lower in this population (Perry & Wright, 2006).

<p style="text-align:center">Romantic Relationship Functioning and Related Constructs</p>

Romantic relationship functioning is a new area of research in the realm of mental illness. The term "functioning" has been used in conjunction with assessing relationships, and even romantic relationships in the general population (e.g., see Brennan & Shaver, 1995; Carnelley, Pietromonaco, & Jaffe, 1996; Fraley & Shaver, 2000; Patrick, Knee, Canevello, & Lonsbary, 2007;

Simpson, Collins, & Salvatore, 2011). However, the terms are typically used as proxies for other constructs, such as relationship satisfaction and quality (Brennan & Shaver, 1995; Carnelley et al., 1996; Patrick et al., 2007). Some studies also include constructs such as commitment (Patrick et al., 2007), conflict (Simpson et al., 2011), and trust (Brunell, Pilkington, & Webster, 2007) under these umbrella terms. In addition, relationship functioning has been studied with respect to a specific partner, for example, asking partners questions about their current relationship (e.g., see Brunell et al., 2007; Carnelley et al., 1996). There has been no research to our knowledge on global romantic relationship functioning.

Global romantic relationship functioning is similar in nature to research on peer relationships and social functioning, but brings new insight to the table by combining aspects of these areas to fully investigate consumers' desire for and functioning in romantic relationships. Based in a theoretical framework put forth by Redmond et al. (2010), this area encompasses how consumers with mental illness react to relationship-related stigma, how they feel about the importance of romantic relationships, their appraisal of the involved risks, difficulties they may have in interacting with others, and whether they have the resources and/or confidence to pursue and be successful in romantic relationships.

Related to functioning in romantic relationships, poor social functioning is common in individuals with severe mental illnesses (Corrigan, Mueser, Bond, Drake, & Solomon, 2009); such impairment is frequently included in the criteria for diagnosing mental disorders (American Psychiatric Association, 2013). Social

functioning encompasses several domains, including how an individual meets the demands of his or her various life roles, such as employee, student, or family member (Scott & Lehman, 1998). Social functioning also includes the quality of interpersonal relationships, both those that are required for daily living (e.g., relationships with co-workers, landlord, sales clerks, etc.), and closer relationships such as with family members or a spouse (Corrigan et al., 2009). Navigating and functioning within romantic relationships falls under the purview of social functioning. Although this is just one small aspect of the larger construct, we would expect romantic relationship functioning and social functioning to be associated. This is especially true in individuals who may be experiencing some symptoms of mental illness, as research has shown that social deficits and a decline in functioning are prevalent early on in severe mental illnesses such as schizophrenia (Corrigan et al., 2009; Häfner et al., 1995; Pinkham et al., 2007).

The actual symptoms of mental illness are also likely related to romantic relationship functioning. There is ample literature showing that depression negatively impacts romantic relationships both in adolescence (Vujeva & Furman, 2011) and adulthood (e.g., see Kessler, Walters, & Forthofer, 1998; Taylor, Chae, Chatters, Lincoln, & Brown, 2012; Wade & Kendler, 2000; Whisman, 2001). Research on anxiety shows a similar association between anxiety symptoms and poorer relationship quality (Kessler et al., 1998; Priest, 2013; Whisman, 2007).

Similarly, there is some evidence to suggest a link between schizotypal personality traits and romantic relationships. Schizotypal traits include interpersonal deficits as well as eccentricities of cognition, perception, and

behavior (Raine & Benishay, 1995); high levels of these traits are understood to put individuals at increased risk for the development of schizophrenia (Lenzenweger, 2006; Meehl, 1962), although most individuals with these traits will not actually develop the disorder. Schizotypy can be conceptualized along several different dimensions (Brod, 1997; A. S. Cohen, Matthews, Najolia, & Brown, 2010; Kendler, McGuire, Gruenberg, & Walsh, 1995), but several studies support the idea of a three factor structure of schizotypy including cognitive-perceptual deficits, interpersonal deficits, and disorganization (A. S. Cohen et al., 2010; Raine & Benishay, 1995; Raine et al., 1994). Research suggests that individuals with higher levels of schizotypy have more difficulties in interpersonal and romantic relationships, such as attachment anxiety and avoidance (Berry, Band, Corcoran, Barrowclough, & Wearden, 2007; Berry, Wearden, Barrowclough, & Liversidge, 2006). Though not much research has directly examined the relationship between relationship functioning and schizotypal traits in the general population, it is logical to expect similar associations as in those with schizophrenia as heightened levels of schizotypy increase a person's risk for developing the disorder.

Outside the realm of mental illness, one well-studied construct consistently associated with romantic relationships is efficacy. Self-efficacy, broadly, is how one expects that outcomes can be reached through action; these expectations can affect behavior and beliefs about how one will perform at a task (Bandura, 1997). There is ample research to indicate that efficacy is related to success and satisfaction in romantic relationships. Research in the general population

suggests that individuals with increased efficacy have higher quality relationships and report greater satisfaction (Cui, Fincham, & Pasley, 2008; Eğeci & Gençöz, 2006; Fincham & Bradbury, 1987; Fincham, Harold, & Gano-Phillips, 2000). Efficacy is thought to influence conflict behaviors (such as frequency, intensity, and resolution of conflict), which have been shown to have a moderate association with relationship quality (Cui et al., 2008).

The Current Study

The aim of this study was to examine the reliability and validity of a measure of functioning in romantic relationships, the Romantic Relationship Functioning Scale (RRFS). Given the pilot nature of this study, undergraduate students were selected for the initial sample. Undergraduates are an appropriate first sample with which to test the RRFS because romantic relationships are salient in this population; additionally, individuals may begin experiencing mental health difficulties during college, as this is a time of heightened stress (Corrigan et al., 2009). In addition, this sampling procedure has been used for measure development and validation studies in the past with successful results (e.g., see A. S. Cohen et al., 2010; Hawkins II & Clement, 1980; Lilienfeld & Andrews, 1996; Neff, 2003; Riggio et al., 2011; Schutte et al., 1998). As the eventual target population for use of the RRFS would be individuals with mental illness, mental health symptom measures were included to gain preliminary evidence of the utility of the RRFS with individuals experiencing these symptoms.

We examined the factor structure, internal consistency, and stability of the RRFS. In addition, we hypothesized that a) those with a past history of romantic involvement would have a higher level of functioning than those with no past romantic history; b) the RRFS would be positively associated with social functioning, relationship self-efficacy, and better physical and mental health, and negatively associated with symptoms of depression, anxiety, and schizotypy; and c) mental health would be more strongly related to the RRFS than physical health. We also hypothesized that mental health symptoms and social functioning would have a predictive relationship with romantic relationship functioning.

METHOD

Preliminary scale development

Based in a qualitative framework set forth by Redmond and colleagues (2010), we developed items to map onto five expected dimensions: general interpersonal difficulties, stigma, importance, risks, and resources/confidence. The first draft of the scale included 22 items, using an answer format of 1 = strongly disagree to 5 = strongly agree. Through several rounds of item revision conducted by two clinical psychologists and one clinical psychology doctoral student, five items were added and several were altered. The RRFS was pilot tested with several people, including graduate students, a master's-level project manager, and a consumer with schizophrenia. Items were revised based on feedback from the pilot participants. The final scale is comprised of 27 items. Twelve items are reverse-scored so that higher scores on the total scale reflect higher romantic relationship functioning. See Table 1 for items and reverse-scoring guidelines

Participants

Undergraduate students from a Midwestern university participated in this study for either required research or extra credit (N=387). Participants were recruited both through the university's study participant pool and via email invitations to psychology course professors. Participants were recruited from July-October of 2013. See Table 2 for detailed demographic characteristics. The sample was predominantly female, employed, and White. The vast majority (83%) had never been married, but most were either exclusively dating one other person (46%) or single, not dating (31%).

Measures

Participants first responded to a demographic survey. Information was collected regarding sex, age, race, employment, education, sexual orientation, and current relationship status. Four questions were included to assess whether the participant had ever had a committed romantic relationship, their relationship status in the past year, the length of any current relationship, and the longest romantic relationship ever had. These final questions were included to enable comparisons between those with a past romantic relationship history and those without.

In addition to the RRFS, participants responded to several surveys targeted to provide evidence of convergent validity. The Self-Efficacy in Romantic

Relationships Scale (SERR) contains 12 items with response options from 1 = strongly disagree to 9 = strongly agree, with 5 indicating neutral (Riggio et al., 2011). Items assess respondents' feelings of self-efficacy in prior and current romantic relationships, e.g., "I am just one of those people who is not good at being a romantic relationships partner." Items are summed to calculate a total score such that higher scores indicate greater levels of efficacy. The SERR has been shown to have good internal consistency and evidence of validity in an undergraduate sample (Riggio et al., 2011). In our sample the SERR exhibited good internal consistency ($\alpha = .88$).

The Social Adjustment Scale – Self-report: Screener (SAS-SR: Screener) is a 14-item scale designed to measure six areas of social functioning: work, social and leisure activities, relationships with extended family, role as a marital partner, parental role, and role within the family unit, with a final item to assess respondents' perceptions of their economic functioning. (Weissman & Staff, 2007). Functional level is not assessed if the respondent indicates that area is not relevant for them; i.e., if the respondent indicates he does not have children, he is instructed not to respond to questions assessing parental functioning. Items have variable response options. Items are summed and divided by the total number of items answered to obtain the overall mean score. T-scores with interpretive guidelines are provided based on a normative sample. The SAS-SR: Screener has been shown to have acceptable test-retest reliability as well as evidence of construct validity, and has been used successfully with healthy adults and individuals at risk for mental disorder (Gameroff, Wickramaratne, &

Weissman, 2012; Weissman & Staff, 2007). Because of the nature of the scale (including categorical items and the conditional nature of items in the scale leading to missing data), internal consistency is not an appropriate measure of reliability (Streiner, 2003). Therefore, we calculated test-retest reliability for this measure, which was acceptable (ICC = .72).

Symptoms/psychopathology. Four measures were included to assess levels of schizotypal traits, anxiety, depression and overall mental and physical health.

The Schizotypal Personality Questionnaire - Brief Revised (SPQ-BR) is a 32-item measure designed to assess respondents' levels of schizotypal traits (A. S. Cohen et al., 2010). The SPQ-BR has three subscales: Interpersonal, Cognitive-Perceptual, and Disorganized. Items are rated from 1 = strongly disagree to 5 = strongly agree, with higher scores on the SPQ-BR indicating the presence of more schizotypal traits, e.g., "People sometimes comment on my unusual mannerisms and habits." The SPQ-BR has displayed high internal consistency for the overall score and subscale scores as well as evidence for construct and convergent validity (A. S. Cohen et al., 2010). In our sample the SPQ-BR exhibited high internal consistency both for the total and subscale scores (total score α = .92; subscales had a range of .85-.86).

The Patient Health Questionnaire-9 (PHQ-9) is a 9-item measure designed to assess depression severity (Kroenke, Spitzer, & Williams, 2001). Items are rated as not at all, several days, more than half the days, or nearly every day. The PHQ-9 can be used as a severity measure using the sum of the

items ranging from 0 to 27, with higher scores indicating greater severity. The PHQ-9 has shown good internal consistency, evidence of validity, and high discrimination between those with and without major depression (Kroenke et al., 2001). In our sample the PHQ-9 had good internal consistency (α = .87).

The General Anxiety Disorder-7 (GAD-7) is a 7-item measure designed to assess symptoms of general anxiety disorder over the last two weeks (Spitzer, Kroenke, Williams, & Lowe, 2006). Items are rated in the same fashion as those on the PHQ-9. Scores range from 0-21 with higher scores indicating greater anxiety. The GAD-7 has been shown to have high internal consistency and good evidence for validity (Spitzer et al., 2006). The GAD-7 had high internal consistency in our sample (α = .92).

The Short Form-12 Health Survey (SF-12) is a 12-item measure of overall physical and mental health. It produces both a physical health component score (PCS) and a mental health component score (MCS). Response options are variable, and scores are standardized based on a normative sample with a mean of 50. The SF-12 has shown good reliability and validity in studies spanning several countries and health populations (Gandek et al., 1998; Jenkinson et al., 1997; Salyers, Bosworth, Swanson, Lamb-Pagone, & Osher, 2000; Ware Jr, Kosinski, & Keller, 1996). The SF-12 was scored utilizing the Health Outcomes Scoring Software, version 4.5. Due to licensing restrictions, we were unable to calculate internal consistency estimates for this measure. Test-retest reliability was acceptable for both the PCS (ICC = .74) and the MCS (ICC = .74).

Procedures

Participants were recruited during the summer and fall semesters of 2013. Students enrolled in psychology courses during the summer session were given the opportunity to participate in the study for extra credit as determined by their professor. Summer students were asked to respond to the survey twice to assess test-retest reliability; 10 days after their initial survey, students were emailed a second survey link and asked to respond within one week. The summer sample was selected for test-retest assessment for practical reasons; because recruitment occurred via email rather than through the university's research site, follow-up for the second survey administration was easier to track, and reminders could be emailed. Also, we targeted having at least 100 participants for the test-retest sample to maximize our ability to detect small differences between survey administrations (Shoukri, Asyali, & Donner, 2004); we anticipated being able to exceed this sample size during the summer session. A total of 111 participants completed test-retest data, 77.1% of participants recruited during the summer session. Those who chose to provide test-retest data did not significantly differ on any demographic characteristics or on RRFS total scores from those who chose not to provide test-retest data.

Study recruitment for the fall semester included introductory psychology classes, where students are required to participate in university research. Students registered online, and those interested were forwarded to the external study website, with a study information sheet and checkbox to indicate consent

to participate. The entire survey took about 20 minutes to complete. All procedures were approved by the Indiana University Institutional Review Board.

Analyses

To assess the factor structure of the RRFS, we used confirmatory factor analysis (CFA). Factor analyses were specifically targeted to assess if both total and subscale scores were appropriate for use, and results were used to guide which scores (total or subscale) should be used for further analyses. We employed a combination of fit indices, assessing absolute fit, fit adjusting for model parsimony, and comparative fit indices; we followed guidelines for interpretation suggested by Brown (2006). For absolute fit, a non-significant χ^2 statistic is desirable, but is heavily influenced by sample size. Although we strived for the lowest value possible, χ^2 was used primarily for nested model comparisons. Also for absolute fit, we examined the standardized root mean square residual (SRMR), using a cutoff of .08 or lower for adequate fit, or .05 or lower for good fit. To evaluate fit adjusting for parsimony, we used the commonly reported root mean square error of approximation (RMSEA); similar to the SRMR, values of .08 or lower indicate adequate fit, and values of .05 or lower indicate good fit. Finally, for comparative fit, we used the comparative fit index (CFI), using a value of .90 or above to indicate adequate fit and a value of .95 and higher to indicate a good fit with the data. To assess if nested models improved

upon previous models, we assessed whether the decrease in the χ^2 statistic was significant. CFA analyses were conducted in LISREL version 8.80.

To obtain evidence of both reliability and validity for the RRFS, bivariate relationships were examined prior to more sophisticated analyses. Associations were examined between RRFS scores and all demographic variables as well as other scale scores. Independent samples t-tests and analyses of variance (ANOVA) were utilized to compare demographic groups (including romantic history) on RRFS scores, depending on the number of categories present. For significant ANOVAs, we used Tukey's honestly significant difference (HSD) post-hoc test to determine subgroup differences. Pearson correlations were run for continuous demographic variables (i.e., age) as well as for associations between the RRFS and validating scales. It should be noted that while we developed the RRFS scale to cover five theoretically important domains, we designed the study to primarily test the psychometric adequacy of a total scale. The associations with subscales (dimensions identified in the CFA) are more exploratory. Intra-class correlations (ICCs) were calculated to assess test-retest reliability of the RRFS total and subscale scores for the summer subsample.

To test additional hypothesized predictive relationships, we conducted two hierarchical multiple regressions to determine if symptom levels predicted romantic relationship functioning. For these analyses, dummy variables were created for race and marital status. Race was dichotomized to reflect being a part of a minority group (compared to White). Marital status retained three categories, with two dummy codes to assess being divorced and being single as compared

to currently being married. The first regression assessed whether symptoms of mental health (as assessed by the SPQ-BR, SF-12, PHQ-9, and GAD-7) predicted romantic relationship functioning above and beyond the effects of demographic variables. The second regression added social functioning (as measured by the SAS-SR: Screener) in a step following demographics, shifting symptom variables to the final step. This regression was targeted to assess whether romantic relationship functioning was predicted by symptoms above and beyond prediction by general social functioning. Finally, we compared the strength of the association between physical health and overall mental health (both measured by the SF-12) with romantic relationship functioning utilizing Steiger's Z transformation (Steiger, 1980). Analyses other than the CFA were conducted in SPSS version 20. Findings were considered significant at $p < .05$. Due to the exploratory nature of this study, we also considered trends ($p < .10$) for bivariate relationships to point to directions for future research.

RESULTS

Factor Structure

Confirmatory factor analysis was conducted to determine if the RRFS fit a five-factor structure that would be consistent with the theoretical domains included, testing several models to determine the best factor structure (See Table 3). We first tested a hierarchical model with our hypothesized five factors (general interpersonal difficulties, stigma, risks, importance, and resources/confidence) under romantic relationship functioning as the higher-order construct; this model would support the use of both total and subscale scores. As can be seen in Table 3, this model (Model #1) did not quite meet our cutoff criteria for the CFI or SRMR. Further, the loading of the Importance subscale onto the overarching factor of romantic relationship functioning was lower than expected (.36), and two items on this scale had low factor loadings (RRFS13 = .30, RRFS23 = .19). Examination of the internal reliability for this subscale revealed a poor alpha (α = .63), and item-total correlations for the total scale were .25 or lower for three out of five items on this subscale (two of which were close to zero). Thus, importance items were removed, and a four-factor hierarchical model was tested. See Model 2 in Table 3 for fit statistics. This

model had adequate fit; however, modification indices suggested several conceptually sound error covariances (items 1, 11; 6, 11; 17, 22) to further improve model fit. Adding these error covariances significantly improved the fit of the model, with all fit indices meeting cutoff values for adequate fit (see Model 3). In an attempt to improve fit for this model from adequate to good, we again looked at modification indices. Modification indices for this model suggested adding one more conceptually-sound error covariance between items one and six. Adding this covariance further improved the model, resulting in adequate fit for the RMSEA and SRMR, and good fit for the CFI (see Model 4). Factor loadings for individual items for this model may be seen in Table 1, and the final structural model of the scale may be seen in Figure 1. Based on these analyses, we chose to examine reliability and convergent validity of both total and subscale scores; we also found the total score to be appropriate for use in demographic explorations and regression analyses.

Background Characteristics and Correlates

See Table 2 for tests of significance with demographic characteristics. Demographic variables of employment, education, race, and age were not significantly associated with RRFS total scores; however, there was a trend for males to have higher romantic relationship functioning. As expected, those who were currently involved in a romantic relationship or had been involved in one in the past achieved higher scores on the RRFS than those with no romantic history.

Post-hoc tests for marital status revealed a trend that those who were currently married scored higher than those who had been divorced. Using current relationship status, post-hoc tests showed those who were currently single or only casually dating scored lower on the RRFS than those who were exclusively dating one person. Those who were currently married or living with their partner scored higher than those who were single. Those who were engaged did not differ from other categories. In terms of sexual orientation, only two participants reported being asexual, and only nine reported being homosexual. Thus, participants who endorsed asexuality were excluded from analyses, and those who reported homosexuality were combined with those who reported bisexuality. Results revealed a trend for individuals with a heterosexual orientation to report higher romantic relationship functioning than those with a homosexual or bisexual orientation.

<div align="center">RRFS Reliability</div>

See Table 1 for item-level statistics and internal consistency estimates for the RRFS (total and subscales). Items generally performed well, although some means were high (>4 on a 5-point scale). Item-total correlations are reported for the four subscales used in the total score (Risks, Stigma, Resources/Confidence, General Interpersonal Difficulties). Internal consistency was good for the overall RRFS (.84) and was lower for the subscales, ranging from .62 to .75. Regarding test-retest reliability, 111 participants retook the RRFS an average of 13 days

after initial participation. Results indicate adequate test-retest reliability for the total score (ICC = .85) as well as for the subscale scores (ICC range from .69 to .84; see Table 1).

<center>RRFS Validity</center>

See Table 4 for bivariate relationships between the RRFS total score and validating scales. As hypothesized, greater romantic relationship functioning was associated with higher self-efficacy in romantic relationships, better social functioning, fewer symptoms of schizotypy, lower depression and anxiety scores, and evidence of better mental health as measured by the SF-12. Contrary to hypotheses, the RRFS was not significantly associated with the PCS of the SF-12. Steiger's Z transformation revealed the strength of the association between the MCS and the RRFS was significantly larger than the association between the PCS and the RRFS (Z_H = 5.54, p < .001). See Table 5 for bivariate relationships between RRFS subscale scores and validating scales. Overall, the subscales exhibited a very similar pattern of correlations as the total score. However, the General Interpersonal Difficulties subscale was the only one that correlated significantly with self-efficacy (but weakly at .12). The Stigma subscale did not significantly correlate with either disorganized symptoms of schizotypy or overall mental health, and had lower correlations (though significant) with other symptom measures. Because of the similar patterns of relationships for the subscales, and

the lower levels of reliability at the subscale level, the remainder of the analyses were conducted only with the RRFS total score.

Prediction of Overall Romantic Relationship Functioning

For the first regression model tested (Model 1), demographics were significant predictors ($F(6, 331) = 2.58$, $p = .019$), but only accounted for 4.5% of the variance. As can be seen in Table 6, having been divorced significantly predicted poorer romantic relationship functioning. Symptom measures were added in the second step, significantly improving the model (F change $(6, 325) = 29.84$, $p < .001$) with an overall adjusted R^2 indicating the model accounted for 36.1% of the variance in romantic relationship functioning ($F(12, 325) = 16.88$, $p < .001$). Having been divorced remained significant in this step; in addition, being unemployed predicted poorer romantic relationship functioning. Regarding symptoms, overall mental health predicted better romantic relationship functioning and greater interpersonal schizotypy traits predicted poorer romantic relationship functioning. Cognitive perceptual deficits associated with schizotypy exhibited a trend toward predicting poorer romantic relationship functioning. Contrary to hypotheses, neither depression nor anxiety symptoms predicted romantic relationship functioning when accounting for demographic variables. Note, because of the high correlations between SF-12 overall mental health, anxiety, and depression, we re-ran regression models, each with only one of these variables included. In each of these models, the single predictor was

significant (either depression, anxiety, or overall mental health), indicating an overlap of predictive variance in these three variables.

For Model 2, we examined three levels; demographics were entered in the first step, followed by social functioning, and symptoms in the third. Adding social functioning to demographic variables in the second step significantly improved the model (F change(1, 330) = 83.84, $p < .001$) and accounted for a total of 22.2% of the variance in romantic relationship functioning (F(7, 330) = 14.74, $p < .001$). In the third step, symptom measures were added, again significantly improving the model (F change(6, 324) = 14.99, $p < .001$). The final model was significant (F(13, 324) = 16.88, $p < .001$) and accounted for 38.0% of the variance. Similar to Model 1, being divorced, having better overall mental health (as measured by the Mental Component Score of the SF-12), and interpersonal schizotypy traits all predicted romantic relationship functioning; social functioning was also predictive in this step. Employment was not significant in any step of this model.

DISCUSSION

The primary aim of the current research was to develop a measure of romantic relationship functioning and gather preliminary evidence of reliability and validity in an undergraduate sample. The RRFS performed well, meeting or exceeding most indicators of psychometric adequacy as a total score. A four-factor model of relationship functioning was supported, allowing both use of a total score as well as subscale scores for General Interpersonal Difficulties, Resources/Confidence, Risks, and Stigma. This model fits fairly well with domains proposed by Redmond et al. (2010), in which relationships were viewed as high risk by individuals who perceived themselves as having interpersonal difficulties and lacking experience/resources; these individuals also feared stigma from the general public.

Although the CFA supported four factors, the subscales did not perform as well as a total score in this sample, with some of the subscales falling below "adequate" in terms of internal consistency and test-re-test reliability. In addition, the Importance subscale did not hold up in the current sample at all due to poor psychometric performance. Although the Importance subscale was markedly worse than others in terms of performance, the four retained subscales also need further work before being used on their own. Wording changes or addition of

content-relevant items may assist in improving the performance of the subscales. Regarding the Importance subscale, the concept is theoretically important (see Redmond et al., 2010), but we believe it may be independent of functioning in romantic relationships, and may be more appropriately measured separate from the RRFS.

As hypothesized, those who had experience in romantic relationships (currently, past year, and lifetime) had higher romantic relationship functioning. This is likely because these individuals have experiences in this area to draw upon, potentially boosting confidence and helping to mitigate their fear of risks with current or new relationships. However, past marital relationships that have ended trended toward lower functioning when compared to those who are still married. What our data cannot tell us is whether poor romantic relationship functioning contributed to the failure of the past relationship, or if the failure itself worked to decrease romantic relationship functioning. Loss of a marital relationship, whether through death or divorce, may serve to decrease confidence for future relationships. In this vein, research has shown that divorced adults have poorer psychological well-being, lower happiness, greater symptoms of psychopathology, and poorer self-concepts than married individuals (Amato, 2000). Further, the pain associated with this loss may increase one's perception of the risks of romantic relationships, and decrease one's perception of their importance. Longitudinal research may be able to parse apart these intricacies.

We also explored the relationship of sexual orientation to RRFS total scores. There was a trend toward higher functioning reported by those who

endorsed heterosexuality as opposed to those who endorsed homosexuality or bisexuality. There is some evidence to indicate that women who endorse non-heterosexual orientations report poorer mental health and social support than women who endorse heterosexual orientations (Valanis, Bowen, Bassford, Whitlock, Charney, & Carter, 2000); similarly, more recent research indicates non-heterosexual college students report higher levels of mental health issues than heterosexual students, with bisexual individuals reporting the greatest number of issues (Oswalt & Wyatt, 2011). The trend in our sample for non-heterosexual participants to report lower romantic relationship functioning may reflect greater levels of mental health symptomology in this group. However, considering this finding was only a trend, and we had only a small group report homosexual or bisexual orientation, future research is needed to robustly test these relationships. Further, asexual individuals were not included in our analyses, due to the very small number of participants reporting this orientation (two). Future research should target larger samples with each group represented fully in order to conduct adequately powered analyses.

In examining associations between other demographic variables and the RRFS total score, the finding that males tended to report higher romantic relationship functioning than females was interesting. It is possible that this trend is a product of sampling bias. Our sample was drawn exclusively from psychology courses, in which female students outnumber male students considerably (three to one in our sample). It may be that males who take these courses are particularly psychologically-minded, which could enhance their

sense of self and others, as suggested by Beitel, Ferrer, and Cecero (2005). Another explanation may lie in the self-report nature of this data; males may perceive themselves in a better light than females, causing them to report higher levels of functioning. Alternatively, the RRFS may perform differently for males and females (i.e., may not have measurement invariance across sexes). Future studies should investigate this phenomenon further. The finding that the RRFS did not differ among other demographic groups (i.e., race, employment, education), suggests the RRFS has equivalence across these domains.

Regarding reliability, the total and Resources/Confidence subscale scores were stable over an approximate two-week test-retest period; the remaining subscales had ICCs below .80. The internal consistencies of the total measure and the Resources/Confidence subscale were good, but lower for the remaining subscales (α ranged from .62-.68). While the small number of items on each subscale may contribute, some items had low item-total correlations, such as item #17, which specifically refers to mental health and may perform better in a psychiatric sample. With regard to convergent validity, the RRFS total score was significantly correlated in the expected direction for all validation scales except overall physical health. Although past research has indicated a relationship between marital quality and physical health (Burman & Margolin, 1992; Miller et al., 2013), it would seem a similar relationship does not exist for global romantic relationship functioning. Alternatively, the relationship may only manifest with a greater range of physical functioning present; given the positive mean score (over 55) it is likely that most undergraduates in our sample did not have serious

or debilitating physical health conditions. All significant correlations had effect sizes in the medium range (J. Cohen, 1992), with the exception of self-efficacy in romantic relationships, which had a small effect, and overall schizotypy and interpersonal traits of schizotypy, which had large effects. Taken together, results suggest preliminary evidence for convergent validity of the RRFS total score.

In validity analyses, subscales largely exhibited similar patterns of correlation as the total score. In this vein, no subscale had a significant correlation with physical health. Unlike the total score, the Stigma, Risks, and Resources/Confidence subscales did not significantly correlate with self-efficacy in romantic relationships. Particularly for the Resources/Confidence subscale, this is a surprising finding, as self-efficacy is a narrower, but similar construct to confidence (Bandura, 1997). Further, the Stigma subscale had fewer significant correlations with symptom measures, and correlations that were significant tended to have small effect sizes, indicating this subscale may be less sensitive to the effects of psychiatric symptoms on romantic relationship functioning. Based on the amalgam of psychometric evidence for the subscale scores, we currently recommend the use of the total score and not subscale scores. Future work in additional, varied samples is needed before it can be determined whether RRFS subscale scores are sufficiently psychometrically robust for use in clinical settings.

As expected, the relationship between the RRFS and overall mental health was significantly stronger than the relationship between the RRFS and overall physical health. We hypothesized that mental health would be more

salient than physical health largely because the RRFS was built based on a qualitative study of romantic relationship experiences in those with mental health issues (Redmond et al., 2010); however, it is possible that the stigma (and self-stigma) of mental illness may play into these relationships as well. Public stigma, or prejudice and discrimination against those with a mental illness (Corrigan et al., 2009), may predispose members of the general population to not want to befriend individuals with a mental illness; this could make it hard to come into contact with potential romantic partners. Further, past experiences with stigmatizing attitudes may serve to lower an individual's romantic relationship functioning, as fear of stigmatizing reactions are taken into account on the RRFS. The self-stigma of mental illness, or internalization of the public's stigmatizing attitudes, may also reduce self-esteem and feelings of efficacy in those with a mental illness (Corrigan et al., 2009), adding difficulty to the pursuit of a romantic partner. For example, in a personal account written by someone with schizophrenia, Catherine Parker (2001) describes her fear of never finding a life partner. Overall, our study supports the detrimental effects of mental illness on romantic relationship functioning, and provides further support for the validity of the RRFS.

In bivariate relationships, across measures, greater symptoms of mental illness were associated with overall poorer romantic relationship functioning. In the predictive models, interpersonal traits of schizotypy remained significant as did overall mental health, but all other symptom measures were non-significant. This may be due to an overlap in variance between these measures, specifically

depression, anxiety, and the measure of overall mental health. Exploratory regressions conducted with each of these three variables entered alone confirmed this possibility. Future research should work to incorporate measures of psychiatric symptoms that are relatively independent. Unlike the symptom measures, social functioning remained a significant predictor in the final model, indicating social functioning likely taps variance in romantic relationship functioning in addition to that accounted for by psychiatric symptoms and interpersonal deficits. One other interesting finding emerged from the predictive models. In Model 1, employment became significant in the second step; yet, in the Model 2 with social functioning, employment was no longer significant. It may be that employment and social functioning are related, sharing common predictive variance. For example, places of employment can increase the number of people one is exposed to and serve as locations to meet potential partners. Further, employment may be associated with better social skills, in addition to providing greater resources that are assessed in the RRFS.

Results of this study should be interpreted in light of limitations. First, participants were all undergraduate students; although undergraduates are commonly used in initial validation studies for new measures, this limits generalizability of our results. Moreover, our sample was not demographically representative; for example, the gender distribution may reflect the sampling frame (psychology students). Further work is needed to assess the performance of the RRFS in a representative, mentally ill sample. While some participants in our sample endorsed mental health symptoms (depression, anxiety, schizotypy),

and those were related to functioning, we did not collect diagnostic information. All measures in this study are self-report, and correlations may be inflated due to method variance. This also limits our ability to discuss actual romantic relationship functioning as opposed to *reported* romantic relationship functioning. Future studies should incorporate additional, more objective data to help validate the scale, such as partner reports or behavioral observations with a romantic partner. Also related to the self-report nature of the data, there is the possibility that participants may not have answered truthfully or may have responded in such a way as to portray themselves in a favorable light (social desirability bias). However, students were advised in the study information sheet that the survey was anonymous and that no identifying information would be linked to their responses to minimize these occurrences. A final limitation is that our large number of statistical analyses means alpha inflation is possible and the probability of type I error is increased. Because of the pilot nature of our study and that we were not making life-impacting decisions based on the data, we erred on the side of risking type I errors than type II errors in order to inform future research questions. More statistically rigorous work is needed in the future to replicate these findings.

Conclusions and Implications for Practice

The present study developed the RRFS and gathered initial evidence of its performance. Overall, results indicate preliminary evidence of adequate reliability

and validity of the RRFS, particularly as a total score measure. More developmental work is needed if subscales are to be used independently. In our analog study, the RRFS mean was moderately high, but not at the ceiling, and the measure exhibited variability in undergraduates, despite the absence of significant mental health symptoms in the majority of the sample. This pattern of findings suggests that although romantic relationships are salient for undergraduate students, not all students score strongly in romantic relationship functioning. The RRFS may have utility for undergraduate students seeking treatment; the inclusion of this measure has potential to assist in determining if romantic relationships play a role in a person's presenting problem.

Further, evidence from this study points to the RRFS as a potentially useful tool for the intended population, that is, those experiencing symptoms of a mental illness. The RRFS showed consistent associations with symptoms of psychopathology, indicating romantic relationship functioning has a moderate to large association with mental health. This is an important contribution, as research has repeatedly shown that consumers with severe mental illnesses desire interpersonal and romantic relationships (e.g., Ramsay et al., 2011), and it is likely that romantic relationships could play a significant role in recovery from severe mental illness. However, there is little currently available to help clinicians and researchers assess consumers' functioning in these areas. The RRFS was developed to fill this gap. Although this preliminary report is promising, further studies in a clinical sample are needed to assess the scale's potential to assist in treatment planning for consumers who desire romantic connections.

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TABLES

Table 1 – RRFS item-level statistics and internal consistency estimates

	Item Label	Factor Loading	Item-total Correlation	Mean	SD
General Interpersonal Difficulties Subscale (Cronbach's alpha = .64; ICC = .69)				3.65	0.67
1	I feel disconnected from my peers. (R)	.38	.42	3.65	1.07
6	I have difficulty in relationships with family. (R)	.37	.39	3.87	1.17
11	I have difficulty in relationships with friends. (R)	.28	.35	4.02	0.90
16	I have difficulty in romantic relationships. (R)	.65	.63	3.62	0.97
21	It is easy for me to read romantic signals (e.g., knowing when someone is flirting with me).	.42	.33	3.37	1.09
Resources/Confidence Subscale (Cronbach's alpha = .75; ICC = .84)				3.54	0.60
2	I have confidence in my romantic relationship skills.	.71	.58	3.86	0.98
5	It is hard to know how to act in a romantic relationship. (R)	.62	.57	3.63	1.10
10	It is easy for me to meet people who could be potential romantic partners.	.35	.25	2.98	1.09
15	I have enough experience with romantic relationships.	.48	.32	3.26	1.06
20	I know what to expect if I go on a date with someone.	.42	.34	3.26	0.98
25	I have confidence in my dating skills.	.79	.62	3.55	0.96
26	I have the resources to pursue a romantic relationship (e.g., money, a place to meet with my partner, access to transportation, etc.).	.47	.41	3.98	0.78
Risks Subscale (Cronbach's alpha = .68; ICC = .73)				3.22	0.76
4	I am scared of the feelings I might experience if a romantic relationship ends. (R)	.37	.23	2.55	1.24
9	I worry about losing my individuality if I became involved in a romantic relationship. (R)	.54	.41	3.75	1.15
14	I am scared that a romantic partner would take advantage of me. (R)	.63	.46	3.71	1.08
19	I go to great extremes to reduce the possibility of getting hurt in a relationship. (R)	.61	.38	2.98	1.10
24	It is more difficult for me than it is for other people to trust a romantic partner. (R)	.61	.45	3.12	1.18
Stigma Subscale (Cronbach's alpha = .62; ICC = .72)				3.89	0.55
7	I would try to avoid talking about any of my mental health issues with a romantic partner. (R)	.70	.51	3.90	0.97
12	Romantic partners/possible romantic partners will reject me if I have mental health problems. (R)	.57	.39	3.57	1.00

Table 1 – Continued

	Item Label	Factor Loading	Item-total Correlation	Mean	SD
17	It is important for a romantic partner to understand problems I may experience with my mental health.	.23	.10	3.93	0.88
22	It is important for a romantic partner to understand problems I may experience with my physical health.	.32	.22	4.18	0.68
27	If something happened with my mental health, I believe a romantic partner could accept it.	.49	.38	3.87	0.83
Importance Subscale (Cronbach's alpha = .63; ICC = .77)					
3	Being in a romantic relationship would benefit me personally.			3.93	0.86
8	I believe romantic relationships are an important part of life.			4.24	0.79
13	If I were in a romantic relationship, it would be a sign that I was mentally healthy.			2.59	1.02
18	I would like to be in a romantic relationship.			4.04	0.81
23	Others in my life such as family or friends expect me to engage in romantic relationships.			3.28	1.00
RRFS Total Score (Cronbach's alpha = .84; ICC = .85)				3.57	0.49

Note. Items 3, 8, 13, 18, and 23 were a part of the Importance subscale, which was dropped from analyses, and thus factor loadings and item-total correlations are not reported. Total score and standard deviation were calculated without the Importance Subscale items.

Table 2 – Demographic characteristics

Variable	Total Sample Frequency (Percent)	RRFS Mean (SD)	Test of Significance with RRFS Total Scores
Sex			$t(384) = 1.66$, $p = .097$
Female	302 (78.0%)	3.6 (0.5)	
Male	85 (22.0%)	3.6 (0.5)	
Employment			$t(384) = 1.41$, $p = .160$
Employed	260 (67.2%)	3.6 (0.5)	
Unemployed	127 (32.8%)	3.5 (0.5)	
Education			$F(4,381) = 1.18$, $p = .320$
High school or GED	115 (29.7%)	3.6 (0.5)	
Some college	221 (57.1%)	3.6 (0.5)	
Associate's degree	23 (5.9%)	3.4 (0.6)	
Bachelor's degree	26 (6.7%)	3.7 (0.5)	
Master's/PhD	2 (.5%)	3.4 (0.0)	
Race			$F(3,360) = 1.06$, $p = .366$
Black	45 (12.3%)	3.5 (0.5)	
White	300 (82.2%)	3.6 (0.5)	
Asian	16 (4.4%)	3.5 (0.5)	
Other	4 (1.1%)	3.3 (0.6)	
Marital Status			$F(2,383) = 2.95$, $p = .054$
Never married	322 (83.2%)	3.6 (0.5)	
Married	36 (9.3%)	3.7 (0.5)	
Divorced, widowed, or separated	29 (7.5%)	3.4 (0.6)	
Sexual Orientation			$t(382) = 1.80$, $p = .072$
Heterosexual	352 (91.4%)	3.6 (0.5)	
Homosexual or bisexual	33 (8.6%)	3.4 (0.5)	
Current Relationship Status			$F(4,380) = 11.29$, $p < .001$
Single, not dating	121 (31.3%)	3.4 (0.5)	
Casually dating	22 (5.7%)	3.4 (0.6)	
Exclusively dating	179 (46.4%)	3.7 (0.4)	
Engaged	21 (5.4%)	3.6 (0.4)	
Married or living with partner	43 (11.1%)	3.7 (0.5)	
Lifetime Relationships			$t(384) = 2.88$, $p = .004$
Has been in exclusive relationship in lifetime	349 (90.2%)	3.6 (0.5)	
Has not been in exclusive relationship	38 (9.8%)	3.4 (0.4)	
Relationships in Past Year			
Has been in romantic relationship in past year	300 (77.7%)	3.6 (0.5)	$t(384) = 5.21$, $p < .001$
Has not been in romantic relationship	86 (22.3%)	3.3 (0.5)	
Age	M = 22.4, SD = 6.0	-	$r(377) = -.049$, $p = .346$

Note. Sexual Orientation was calculated out of a total of 385 participants because the number of participants who reported asexual orientation was too small to be included in analyses (2).

Table 3 – Model Fit Indices

Model	Description	X^2	df	ΔX^2	p	CFI	SRMR	RMSEA
1	5-factor Hierarchical	1081.86	319	-	-	.89	.081	.079
2	4-factor Hierarchical	676.51	205	-	-	.91	.071	.077
3	4-factor Hierarchical, 3 error covariances	484.71	202	191.8	<.001	.94	.063	.060
4	4-factor Hierarchical, 4 error covariances	439.25	201	45.46	<.001	.95	.061	.055

Note: CFI = Comparative Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation. Adequate fit was evaluated with cutoff values of CFI > .90, SRMR < .08, and RMSEA < .08. Good fit was evaluated with cutoff values of CFI > .95, SRMR < .05, and RMSEA < .05.

Table 4 – Bivariate relationships between RRFS total score and validating measures

	M (SD)	1	2	3	4	5	6	7	8	9	10	11
1. RRFS Total	3.6 (.5)	1										
2. SERR Total	67.3 (20.6)	.103[*]	1									
3. SAS-SR: Screener T-score	50.3 (8.0)	-.461[**]	-.038	1								
4. SPQ-BR Total	79.9 (19.9)	-.524[**]	-.093	.429[**]	1							
5. SPQ-BR Interpersonal Subscale	26.1 (7.7)	-.560[**]	-.104[*]	.450[**]	.815[**]	1						
6. SPQ-BR Cognitive Perceptual Subscale	31.9 (9.2)	-.412[**]	-.081	.334[**]	.867[**]	.562[**]	1					
7. SPQ-BR Disorganized Subscale	22.5 (6.7)	-.338[**]	-.042	.294[**]	.788[**]	.498[**]	.577[**]	1				
8. PHQ-9 Total	5.5 (5.1)	-.372[**]	-.078	.564[**]	.508[**]	.471[**]	.407[**]	.395[**]	1			
9. GAD-7 Total	5.1 (4.9)	-.385[**]	-.004	.523[**]	.551[**]	.537[**]	.442[**]	.374[**]	.718[**]	1		

Table 4 - Continued

	M (SD)	1	2	3	4	5	6	7	8	9	10	11
10. SF-12 Physical Component Score	55.1 (6.8)	-.016	.014	.004	-.070	-.023	-.125*	-.034	-.119*	.034	1	
11. SF-12 Mental Component Score	47.4 (10.3)	.421**	.078	-.569**	-.444**	-.488**	-.312**	-.295**	-.694**	-.727**	-.269**	1

Note: *p < .05, **p < .01. RRFS = Romantic Relationship Functioning Scale (possible scores from 1 to 5; higher scores indicate greater functioning); SERR = Self-efficacy in Romantic Relationships (possible scores from 12 to 1-8; higher scores indicate greater self-efficacy); SAS-SR = Social Adjustment Scale – Self-report (higher t-scores indicate greater impairment); SPQ-BR = Schizotypal Personality Questionnaire – Brief-revised (total score has range of 32 to 160; higher scores indicate greater symptoms of schizotypy. Possible scores for the Interpersonal subscale range from 10 to 50, for the Cognitive Perceptual subscale from 14 to 70, and for the Disorganized subscale from 8 to 40.); PHQ-9 = Patient Health Questionnaire-9 (possible scores from 0 to 27; higher scores indicate more depressive symptoms); GAD-7 = General Anxiety Disorder-7 (possible scores range from 0 to 21; higher scores indicate greater anxiety); SF-12 = Short Form-12 (higher t-scores indicate better health).

Table 5 – Bivariate relationships between RRFS subscale scores and validating measures

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. RRFS General Interpersonal Difficulties	1													
2. RRFS Stigma	.406[**]	1												
3. RRFS Risks	.460[**]	.324[**]	1											
4. RRFS Confidence/ Resources	.648[**]	.361[**]	.356[**]	1										
5. SERR Total	.122[*]	.069	.036	.080	1									
6. SAS-SR: Screener T-score	-.477[**]	-.157[**]	-.395[**]	-.343[**]	-.038	1								
7. SPQ-BR Total	-.560[**]	-.211[**]	-.402[**]	-.392[**]	-.093	.429[**]	1							
8. SPQ-BR Interpersonal Subscale	-.586[**]	-.251[**]	-.393[**]	-.443[**]	-.104[*]	.450[**]	.815[**]	1						
9. SPQ-BR Cognitive Perceptual Subscale	-.395[**]	-.203[**]	-.366[**]	-.278[**]	-.081	.334[**]	.867[**]	.562[**]	1					
10. SPQ-BR Disorganized Subscale	-.434[**]	-.042	-.228[**]	-.290[**]	-.042	.294[**]	.788[**]	.498[**]	.577[**]	1				

Table 5 - Continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
11. PHQ-9 Total	-.390**	-.102*	-.296**	-.302**	-.078	.564**	.508**	.471**	.407**	.395**	1			
12. GAD-7 Total	-.352**	-.113*	-.391**	-.277**	-.004	.523**	.551**	.537**	.442**	.374**	.718**	1		
13. SF-12 Physical Component Score	-.024	-.015	-.040	.021	.014	.004	-.070	-.023	-.125*	-.034	-.119*	.034	1	
14. SF-12 Mental Component Score	.434**	.075	.376**	.334**	.078	-.569**	-.444**	-.488**	-.312**	-.295**	-.694**	-.727**	-.269**	1

Note: *p* < .05, **p* < .01. RRFS = Romantic Relationship Functioning Scale (possible scores from 1 to 5; higher scores indicate greater functioning); SERR = Self-efficacy in Romantic Relationships (possible scores from 12 to 1-8; higher scores indicate greater self-efficacy); SAS-SR = Social Adjustment Scale – Self-report (higher t-scores indicate greater impairment); SPQ-BR = Schizotypal Personality Questionnaire – Brief-revised (total score has range of 32 to 160; higher scores indicate greater symptoms of schizotypy. Possible scores for the Interpersonal subscale range from 10 to 50, for the Cognitive Perceptual subscale from 14 to 70, and for the Disorganized subscale from 8 to 40.); PHQ-9 = Patient Health Questionnaire-9 (possible scores from 0 to 27; higher scores indicate more depressive symptoms); GAD-7 = General Anxiety Disorder-7 (possible scores range from 0 to 21; higher scores indicate greater anxiety); SF-12 = Short Form-12 (higher t-scores indicate better health).

Table 6 – Regression results

Model 1	B	SEB	β	t	p	R^2	ΔR^2
Step 1						.045	.045
Sex (female)	-0.09	.07	-.08	-1.43	.155		
Age	0.00	.01	-.02	-0.29	.775		
Race (minority status)	-0.12	.07	-.09	-1.65	.100		
Unemployed	-0.07	.06	-.07	-1.24	.216		
Marital Status – divorced	-0.35	.13	-.19	-2.64	.009		
Marital Status – never married	-0.16	.11	-.12	-1.50	.136		
Constant	4.18	.25		16.44	.000		
Step 2						.384	.339
Sex (female)	-0.03	.05	-.03	-0.59	.553		
Age	0.00	.01	.01	0.17	.869		
Race (minority status)	-0.09	.06	-.07	-1.58	.114		
Unemployed	-0.10	.05	-.09	-2.03	.044		
Marital Status – divorced	-0.31	.11	-.16	-2.84	.005		
Marital Status – never married	-0.14	.09	-.11	-1.60	.110		
PHQ-9 Total Score	0.00	.01	.00	-0.02	.982		
GAD-7 Total Score	0.01	.01	.06	0.81	.420		
SF-12 Mental Component Score	0.01	.00	.23	3.37	.001		
SPQ-BR Interpersonal Subscale	-0.19	.03	-.38	-6.27	.000		
SPQ-BR Cognitive Perceptual Subscale	-0.05	.03	-.11	-1.81	.071		
SPQ-BR Disorganized Subscale	-0.02	.03	-.05	-0.84	.401		
Constant	3.43	.28	-	12.10	.000		
Model 2							
Step 1						.045	.045
Sex (female)	-0.09	.07	-.08	-1.43	.155		
Age	0.00	.01	-.02	-0.29	.775		
Race (minority status)	-0.12	.07	-.09	-1.65	.100		
Unemployed	-0.07	.06	-.07	-1.24	.216		
Marital Status – divorced	-0.35	.13	-.19	-2.64	.009		
Marital Status – never married	-0.16	.11	-.12	-1.50	.136		
Constant	4.18	.25		16.44	.000		
Step 2						.238	.194
Sex (female)	-0.04	.06	-.04	-0.75	.452		
Age	0.00	.01	-.04	-0.64	.525		
Race (minority status)	-0.08	.06	-.06	-1.25	.211		
Unemployed	-0.04	.05	-.04	-0.82	.410		
Marital Status – divorced	-0.29	.12	-.16	-2.46	.014		
Marital Status – never married	-0.15	.09	-.12	-1.63	.103		
SAS-SR: Screener T Score	-0.03	.00	-.45	-9.16	.000		
Constant	5.39	.26		20.50	.000		
Step 3						.404	.166
Sex (female)	-0.03	.05	-.03	-0.61	.540		
Age	0.00	.01	-.01	-0.09	.929		
Race (minority status)	-0.08	.06	-.06	-1.30	.195		

Table 6 - Continued

Model 2	B	SEB	β	t	p
Unemployed	-0.08	.05	-.07	-1.59	.112
Marital Status – divorced	-0.29	.11	-.16	-2.75	.006
Marital Status – never married	-0.14	.08	-.11	-1.65	.101
SAS-SR: Screener T Score	-0.01	.00	-.19	-3.27	.001
PHQ-9 Total Score	0.00	.01	.04	0.59	.559
GAD-7 Total Score	0.01	.01	.06	0.87	.386
SF-12 Mental Component Score	0.01	.00	.18	2.50	.013
SPQ-BR Interpersonal Subscale	-0.17	.03	-.35	-5.66	.000
SPQ-BR Cognitive Perceptual Subscale	-0.05	.03	-.11	-1.85	.065
SPQ-BR Disorganized Subscale	-0.02	.03	-.04	-0.77	.439
Constant	4.08	.34		11.89	.000

Note: SAS-SR = Social Adjustment Scale – Self-report; SPQ-BR = Schizotypal Personality Questionnaire – Brief-revised; PHQ-9 = Patient Health
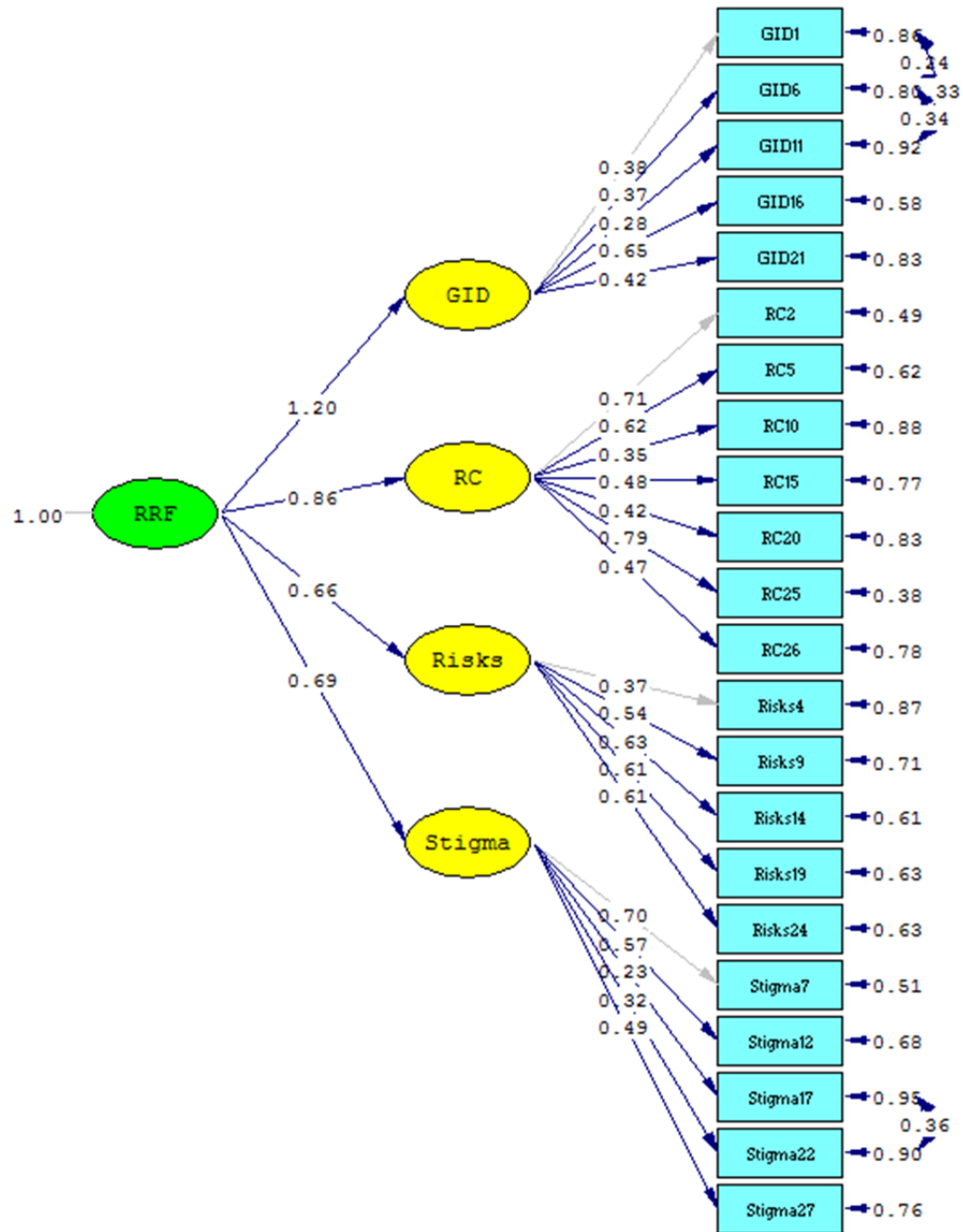
FIGURE

Figure 1. Confirmatory Factor Analysis of the Romantic Relationship Functioning
Scale. RRF = romantic relationship functioning; GID = general interpersonal
difficulties; RC = resources/confidence.

APPENDICES

Appendix A

Thematic Content Analysis of Open-ended Question, "Is there anything else about your experience with romantic relationships that you'd like to tell us?"

Content coding was conducted based on qualitative answers supplied by 71 participants. All responses were read and coded by the first author, and then reviewed by Dr. Salyers. Thirteen codes emerged; see the table below for codes, the number of times they were coded, example quotes, and how these codes may impact the RRFS. Overall, most codes were already touched upon within RRFS items, but some suggested revisions may strengthen the content coverage (see Table A).

Table A – Content Analysis

Code Label	Times Cited	Quotes	RRFS Suggested Changes
Trust is important	10	"A strong relationship is based on understanding, communication, trust, and space." "Trust issues. Been cheated on and emotionally abused in the past."	Directly assessed in Item #24; however, could add additional items considering prevalence of this code.
Past experience matters	10	"I am mostly scared to be in a relationship because of my past relationships. Like a lot of people I have been hurt in the past." "I fear being taken advantage of by my romantic partner because of past experiences, but I try to trust in future relationships."	Assessed in items #15 and #16; also through Risks subscale. Content coverage could be strengthened with addition of fidelity item (see "Fidelity matters" below).

Table A – Continued

Life plans and romance are not always compatible	4	"I am single by choice and have chosen to solely pursue my education for the next 2-3 years." "I don't want a relationship right now because I want to focus on doing well in college."	Importance subscale likely taps this code, but adding an item to directly ask about conflict with plans could strengthen content coverage.
Fidelity matters	4	"I feel if I were to get involved in a romantic relationship that I would just be cheated on." "I recently cheated."	Should add item to assess fear of infidelity from partner and worry about being able to be faithful in a relationship to Risks subscale.
Communication is key	3	"Communication is vital, and if the partner won't have an easy time with that, the boat starts a sinkin', no matter how hard you try."	Should add communication item to Resources/Confidence subscale.
Not being in a relationship doesn't have to be a deficit	3	"I feel if I were to get involved in a romantic relationship that I would just be cheated on. I would rather be single for the rest of my life than deal with an unfaithful person, this being said I'm perfectly happy how things are now."	Should add item assessing whether a person feels the need to be in a relationship or not to Importance subscale.
Show the "real you" in good relationships	3	"You have to be yourself and no one else. You may have doubts in yourself otherwise because you know you're not showing your partner who you really are and it scares you."	Assessed through item #9.
Mental health issues matter	3	"We've both had pretty messed up experiences in our pasts pertaining to mental health. We both think it is necessary for the other person to know after a certain period of time." "I actually am bipolar and marriage has been on and off for him for the whole entire time, if he notices me having an episode, he leaves."	Assessed through Stigma subscale.

Table A – Continued

Relationships provide support	3	"I have been dating the same boy for almost 4 years and no matter what I go through or he goes through we work together and help each other and love each other no matter what."	Assessed through item #3.
Relationships help build social skills	3	"I feel that romantic relationships are an important part of developing our social skills."	Should add item to assess how skills can be built in romantic relationships.
Relationships are partnerships	2	"Romance can't happen if the other person does not participate."	Does not reflect functioning
Morals/values matter	2	"I broke up with mine because the person had their own issues that they needed to resolve themselves and lacked all sense of morality."	Content coverage could be strengthened with addition of fidelity item (see "Fidelity matters" above).
Ending relationships is hard	2	"The longer you are in a romantic relationship the harder it is to end the relationship."	Assessed through item #4.

Appendix B

Alternative Confirmatory Factor Analytic Models of the RRFS

Although the four-factor model (as discussed in the manuscript) presented an adequate fit for the data, we tested several other models to ascertain whether there were better options. See the table below for fit indices of all models tested. We began by testing a unidimensional model of the RRFS. After several rounds of revision based on modification indices, this model displayed adequate fit; however, we chose to pursue the hierarchical models because all added modification indices were within proposed subscales, indicating a hierarchical structure was more likely. As discussed in the manuscript, we then tested the hierarchical models, which provided better fit to the data.

While exploring the RRFS, we considered that the Importance subscale may not be assessing functioning in the same way as other subscales. But, we considered it to be valuable because it provides information as to the desire for romantic involvement. Therefore, we tested separately a unidimensional model for the Importance scale. Modification indices were selected based on those suggested by LISREL 8.80; all error covariances added were theoretically sound. As can be seen in the table below, the Importance subscale did not have adequate fit for the RMSEA in the original model, and when the error covariance was added, the model became over-specified (i.e., the true model was contained within the tested model, which had too many parameters). See Table B for fit

indices of all alternative models. Because we felt the Importance items are important to our understanding of romantic relationships, we recommend they be included in future studies to assess their functioning, but we currently advocate the use of the four subscale total score (based on 22 items). The four-factor, five-factor, and Importance models should be examined again when the RRFS is tested in a sample of individuals with severe mental illness.

Table B – Alternative Confirmatory Factor Analytic Models

Model	X^2	df	ΔX^2	p	CFI	SRMR	RMSEA
Unidimensional	1761.20	324	-	-	.81	.094	.110
Unidimensional w/ 4 error covariances	1335.02	320	426.18	<.001	.86	.085	.091
Unidimensional w/ 7 error covariances	1108.16	317	226.86	<.001	.88	.081	.080
Unidimensional w/ 9 error covariances	1015.72	315	92.44	<.001	.89	.079	.076
Unidimensional w/13 error covariances	858.46	311	157.26	<.001	.91	.076	.068
Hierarchical models							
5-factor Hierarchical	1081.86	319	-	-	.89	.081	.079
5-factor Hierarchical, 4 error variances	827.15	315	254.71	<.001	.92	.075	.065
5-factor Hierarchical, 5 error variances	773.27	314	53.88	<.001	.92	.074	.062
4-factor Hierarchical	676.51	205	-	-	.91	.071	.077
4-factor Hierarchical, 3 error variances	484.71	202	191.8	<.001	.94	.063	.060
4-factor Hierarchical, 4 error variances	439.25	201	45.46	<.001	.95	.061	.055
Importance Scale							
Importance	25.99	5	-	-	.94	.061	.100
Importance, 1 error variance	.16	4	25.23	<.001	1.00	.0035	.000

Note: CFI = Comparative Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation. Adequate fit was evaluated with cutoff values of CFI > .90, SRMR < .08, and RMSEA < .08. Good fit was evaluated with cutoff values of CFI > .95, SRMR < .05, and RMSEA < .05.