# The short version of ruminative response scale: reliability, validity and its relation to psychological symptoms

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**Abstract**

This study was designed to examine structural validity and reliability of short version of The Ruminative Response Scale (RRS) developed by Treynor, Gonzalez, and Nolen-Hoeksema (2003). Participants were 549 (307 girls, 242 boys) volunteering high school students. Confirmatory Factor Analysis (CFA), Internal Consistency Coefficient (Cronbach Alpha), and Convergent validity were used to assess cross-cultural equivalence of this particular instrument. Based on these results, The Ruminative Response Scale appears to be valid and reliable scale for Turkish samples.

## 1. Introduction

The Ruminative Response Scale (Nolen-Hoeksema & Morrow, 1991) has been widely used to measure the ruminative tendencies. The RRS was initially developed as a subscale of the Response Styles Questionnaire (RSQ) by Nolen-Hoeksema and Morrow (1991). The original RSQ consisted of four different subscales with a total of 71-items: Distracting Response Scale, Problem-Solving Scale, Dangerous Activities Scale, and Ruminative Response Scale. Among these scales, the Ruminative Response Scale appeared to be more reliably as it was found to be correlated to several psychological problems such as anxiety (Cox, Enns, & Taylor, 2001; Nolen-Hoeksema, 2000), worry (Segerstrom, Tsao, Alden, & Craske, 2000), PTSD (Nolen-Hoeksema & Morrow, 1991); and in particular, to depression (Nolen-Hoeksema et al, 1994; Treynor et al, 2003). However, some researchers stated concern that there may be a risk of item overlapping between depression symptoms and items of the Ruminative Response. In order examine this risk; several strategies were utilized. For example, a group of researchers used factor analyses (Roberts, Gilboa, & Gotlib, 1998), to identify the overlapping items and they repeated the analysis with the factor that depressive symptom like items clustered. Another group of researchers preferred to use item removing strategy (Segerstrom et al., 2000; Treynor et al., 2003). Overall, the researchers suggested that the correlation between The Ruminative Response and Depression was not caused by the item overlapped (Roberts et al., 1998; Segerstrom et al., 2000; Treynor et al., 2003).

Treynor et al., (2003) addressed the item overlapping issue by removing the items that resembles depressive symptoms and created the short version of Ruminative Response Scale (RRS) with 10 items. These 10 items were later subjected to factor analysis procedure. Two emerging factors were called Reflection and Brooding. In this

study, the total score of the short version of RRS was found to be still correlated to Beck Depression Inventory. However, the findings also showed that the brooding and reflection may be related to depression in a different ways. More specifically, while Reflection was correlated to more current depression, it seems to help individuals to reduce negative affect over time by leading to better problem solving. In contrast, Brooding seems to be not adaptive to reduce negative affect. Therefore, this study suggested that different components of the rumination should be taken into consideration while utilizing the Ruminative Response Theory. Currently, researchers utilize both the long version (21 items) of and the short version (10 items) of the Ruminative Response Scale (RRS) which appear to be reliable to measure ruminative response style. Yet, the short version of the scale should be easier and more economical to use.

Even though Ruminative Response Scale has been used widely among English speaking countries over the past 20 years, the scale has not been widely cross-validated in different cultural context. Therefore, the main interest of this study was to test structural validity and reliability of short version of The Ruminative Response Scale (RRS) created by Treynor et al., (2003).

## 2. Method

### 2.1. Participants

Participants were 549 (307 girls, 242 boys) volunteering high school students. The mean age of the participants was 16.02 years ranging from 14 to 18 (*SD*= 1.04).

### 2.2. Instruments

*2.2.1. A short version of the Ruminative Response Scale (RRS)* formed by (Treynor et al (2003), consists 10 items from the original list of 22 which was developed by Nolen-Hoeksema and Morrow (1991). The scale was obtained by selecting the items that had the highest item-total correlations with the total score. The short version is highly correlated to the full version of the scale (r = .90) and has a high level of internal reliability (Cronbach's a = .85). Each item is scored on a 4-point Likert scale, ranging from 1 ("almost never") to 4 (almost always"). Treynor and her colleges (2003) described that all Reflection items were 'neutrally valenced' and described engaging in contemplation to alleviate negative mood (sample items include 'Write down what you are thinking and analyze it'and 'Go someplace alone to think about your feelings'') whereas the items of the Brooding had negative connotation and described 'moody pondering'(sample items include 'Think "Why do I always react this way?" and 'Think "Why do I have problems other people don't have?"). The inter-item reliability of the Reflection subscale was .72 and the test-retest correlation was r = 60. For the Brooding subscale, coefficient alpha was .77 and the test-retest correlation was r =. 62 (Treynor et al., 2003). The original long version of RRS was translated into Turkish by Erdur (2002) and used in a several study (e.g., Erdur-Baker, 2009; Erdur-Baker, Özgülük, Turan, & Demirci-Danışık, 2009) by which high internal reliability coefficients were reported ranging from .86 to .90.

*2.2.2. The Brief Symptom Inventory (BSI)* (Derogatis 1993) measures typical symptomatology of people experiencing psychiatric problems. It consists of 53 items and each item is scored on a 5-point Likert scale ranging from 'not at all' to 'extremely. It has nine symptom dimensions: Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic anxiety, Paranoid ideation and Psychoticism. The BSI was adapted into Turkish by Sahin and Durak (1994). The inter-item reliability of the scale was found moderate internal consistency range from .71 to .85. In current study, the internal reliability coefficient was .93.

### 2.3. Procedure

The sample was recruited through convenient sampling based on accessibility and the cooperation of the schools. A packet of self-report measures was administered during class hours. After obtaining the necessary ethical permissions and consent for data collection (the data collection protocol adhered to the ethical code of the Declaration of Helsinki), a research assistant visited the schools that had agreed to participate in the study. In the

presence of school counsellors, the questionnaires were distributed to available classes that the school administration suggested.

## 3. Results (Findings)

### 3.1. Descriptive analysis

Means, standard deviations, kurtosis, skewness, and a coefficient of the analyses of short version of RRS, reflection and brooding subscale and BSI were calculated and presented in Table 1.

Table 1 Descriptive statistics of the RRS and BSI

|            | Mean   | S.D.  | Min | Max | Kurtosis | Skewness | α   |
|------------|--------|-------|-----|-----|----------|----------|-----|
| Reflection | 11.28  | 2.90  | 5   | 19  | -.46     | .04      | .58 |
| Brooding   | 11.53  | 2.79  | 5   | 19  | -.11     | .27      | .58 |
| Short RRS  | 22.82  | 4.98  | 10  | 38  | -.13     | .06      | .72 |
| BSI        | 103.38 | 31.77 | 55  | 222 | -.22     | .79      | .93 |

### 3.2. Reliability of Turkish Version of Ruminative Response Scale (TVRRS)

Reliability of the short version of *Ruminative Response Scale (RRS)* was examined by assessing internal consistency coefficient (Cronbach alpha). Cronbach's alpha were found for reflection subscale α = .58 and brooding subscale α = .58 and total score of short RRS α = .72.

### 3.3. Convergent validity

Convergent validity of the short version of Ruminative Response Scale (RRS) was examined by computing Pearson correlation coefficients with BSI scale. In current study there were significantly high positive correlation between short RRS and BSI scores (r =.59, p =.00). Furthermore, there was significant positive correlation between reflection subscale and BSI scores (r =.44, p=.00) and between brooding subscale and BSI scores (r =.52, p=.00). Therefore, all correlation results suggested that participants with a high score on rumination and its subscales tended to obtain high scores on the BSI as well.

### 3.4. Confirmatory factor analysis (CFA)

Confirmatory factor analyses were conducted to test two factor structure model of the short version of RRS proposed by Treynor, Gonzalez, and Nolen-Hoeksema (2003). Goodness of Fit Index (GFI), The Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA) were used as an interpretation of model fit indices (Schumacker & Lomax, 1996). While Goodness of Fit Index (GFI) and The Comparative Fit Index (CFI) indicate better model fit with a larger value, Root Mean Square Error of Approximation (RMSEA) show a better model fit with small value (smaller than. 10).
Results showed that the simple structure of short version of the RRS on the basis of two components reflection and brooding proposed by Treynor et al., (2003) was clearly surpassing many of the criteria for good fit, for Turkish high school sample [$\chi^2$ (32) = 125.81, p=.00; $\chi^2$/df- ratio= 3.93; GFI= .95, CFI=.88 and RMSEA= .07]. Results of the confirmatory factor analysis in this study indicated an adequate model fit for two factor structures of the short version of RRS for high school sample, indicating cross-cultural validity of scale.

## 4. Conclusion

The present study designed to examine structural validity and reliability of short version of The Ruminative Response Scale (RRS) suggested by Treynor, Gonzalez, and Nolen-Hoeksema (2003). For this aim, Confirmatory

factor analyses (CFI) were performed to test the two factors structure of the short version of RRS. The results suggested simple structure of two-factor model of the short version the RRS proposed by Treynor, Gonzalez, and Nolen-Hoeksema (2003) was showed a good fit proved with high fit indices. Additionally, the calculation of the internal consistency coefficients (Cronbach alpha) showed moderate internal consistencies which was to the values that was reported by Treynor, Gonzalez, and Nolen-Hoeksema (2003). Besides, a Pearson correlation coefficient between the participants' short version RRS scores and BSI scores revealed high positive correlations, indicating an evidence of *convergent validity*. Overall, the results showed that two factor structure of the short version of RRS can be used to measure ruminative response styles among Turkish youth.

Some limitations of this study should be considered. The present study was based on participants' self-reports and convenience sampling which limits the generalizability of the findings of this study. Another shortcoming comes from the cross-sectional nature of the study that restricted to make any longitudinal prediction. Therefore, the findings of the study need to be cross-validated.

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