



Psychometric Properties and Contribution to Mental Health of the Bulgarian version of the 4-Factor Ruminative Thought Style Questionnaire

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Abstract

Background: The Ruminative Thought Style Questionnaire (RTSQ) is a multifaceted measure of general trait rumination. However, there is no instrument for measuring rumination in Bulgarian, which limits progress in the field.

Aim: We aimed to validate the RTSQ in Bulgarian and examine its psychometric properties and contribution to several mental health outcomes.

Materials and methods: We sampled 529 undergraduate students (18 – 35 years; 33.6% male; 80.9% Bulgarian) from the Medical University in Plovdiv, Bulgaria. They completed a questionnaire asking about rumination (RTSQ), mental health, and sociodemographic information. The RTSQ was first translated to Bulgarian. Its internal consistency was assessed with Cronbach's alpha. Confirmatory factor analysis was performed on the 4-factor RTSQ, and multi-group CFA examined its measurement invariance. Structural equation modelling was used to test the relations between the RTSQ factors, depression, anxiety, and resilience to stress.

Results: The RTSQ had acceptable internal consistency ($\alpha \geq 0.8$) and its 4-factor model had good fit to the data. In addition, its measurement invariance was supported across languages and cultures of administration. We observed differential associations with depression, anxiety, and resilience, with some of the RTSQ factors emerging as maladaptive (problem-focused thoughts and repetitive thoughts), while others as neutral (anticipatory thoughts) or potentially supportive of resilience (counterfactual thinking).

Conclusion: The RTSQ was successfully validated in Bulgarian and represents a reliable measure of trait rumination. It could be useful in gaining further insight into strategies adopted by individuals to cope with stressors and could help develop interventions supporting healthy coping styles. These findings should be replicated in other non-clinical/clinical populations.

Keywords

anxiety, brooding, depression, repetitive thoughts, resilience

INTRODUCTION

Recent decades have seen growing pandemic of mental disorders, with non-psychotic disorders alone affecting some 4% of the general population and causing substantive socioeconomic burden.¹ According to the first EPIBUL survey, this burden of disease is considerable in Bulgaria as well.² Brooding or reflecting on negative emotions (i.e., rumination) is a feature of various psychiatric syndromes in anxiety and depression spectrum disorders.³⁻⁵ This is substantiated by neurobiological evidence linking rumination to structural and functional alterations in brain areas (e.g., the anterior cingulate cortex, prefrontal cortex, amygdala), involved in attention and emotional regulation^{6,7}, and individuals with mental disorders often have deficits in these mechanisms⁸.

To date, various working definitions of rumination have been proposed.⁹ The well-established Response Styles Theory of depression views rumination as a cognitive response style, characterized by repetitive and passive focus on one's negative affect and involving reflection on the causes, consequences, and symptoms of distress.¹⁰⁻¹⁴ Other, largely complementary, models posit that rumination occurs after stressful life events or social interactions, or define it as repetitive thinking about sadness, or view it as a response to failure (For a review, see Smith & Alloy⁹). Consequently, a number of psychometric instruments for measuring rumination have been developed; however, most operationalize it as a depression-specific concept.⁹ For instance, the classic Response Style Questionnaire grounded in Response Styles Theory has been scrutinized for having some items overlapping with measures of depressive symptomatology, which called for a revision of the scale.¹⁵ More recently, Brinker and Dozois¹⁶ conceptualized rumination as a more general maladaptive thought process and developed the Ruminative Thought Style Questionnaire (RTSQ) as a measure of dispositional rumination, not focused on specific thought content and context. Although they proposed the RTSQ as a unitary construct, further exploration of its factorial structure indicated four distinct grouping factors, with some of those reflecting maladaptive rumination related to higher psychological distress and non-productive coping, and others emerging as potentially protective.¹⁷ This makes the RTSQ a suitable instrument for exploring how rumination facets relate differentially to mental health outcomes. That is, operationalizing rumination as a multifaceted construct would provide further insight into strategies adopted by individuals to cope with stressors and would help develop better targeted interventions to support healthy coping styles.

To our knowledge, there is no instrument for measuring rumination in Bulgarian, which prevents much needed research on the subject. In the current study, we aimed to validate the RTSQ in Bulgarian language and examine its psychometric properties in relation to mental health in a sample of undergraduate students.

MATERIALS AND METHODS

Study design and sampling

This secondary study used data collected in October 2018 to study environmental correlates of mental health. We used a convenience sample of undergraduate students from all faculties of the Medical University in Plovdiv, Bulgaria. They were recruited during a class and invited to participate in a survey on residential surroundings and quality of life. We targeted potential participants with different ethnic and cultural background and program enrolment to ensure sufficient variation in the data. To be included, they had to be aged from 18 to 35 years and resident in their current home for at least one year prior to the study. Sociodemographic and mental health variables were self-reported in two languages – the English version of the questionnaire was used for foreign students and a Bulgarian version for Bulgarian students. Out of the 620 invited students, 581 agreed to take part in the survey (94%). After data cleaning, the analysis sample comprised 529 (85%) participants.

The design and conduct of the study were in accordance with the general principles outlined in the Declaration of Helsinki. Participants signed informed consent forms agreeing that their personal information would be processed and stored according to the General Data Protection Regulation in the European Union. No incentives were provided to students who consented to participate and no penalties for those who chose not to.

Hypothesized structure of the RTSQ

Different facets of rumination were measured with the 15-item RTSQ.¹⁷ The RTSQ has four subscales – Problem-focused thoughts (5 items), Counterfactual thinking (4 items), Repetitive thoughts (4 items), and Anticipatory thoughts (2 items). The items were answered on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). Higher mean scores indicate higher tendency to ruminate.

Translation of the RTSQ

The RTSQ was translated according to guidelines for successful translation of instruments in cross-cultural research. The English version of the questionnaire was translated to Bulgarian by two of the authors who were proficient in English and Bulgarian and with expertise in psychology and sociology. A back-translation was conducted by a third bilingual author. An independent native speaker of English, unfamiliar with the inventory, compared the original and back-translated versions for semantic differences. Differences were discussed and resolved by joint agreement of the translators. In addition, one of the authors cross-checked the back-translated version with the Spanish version of the RTSQ.¹⁸ (See Appendix for the Bulgarian/English version of the questionnaire, RTSQ-BG)

Assessment of mental health

Smith and Alloy⁹ suggested “that researchers design their studies with a greater array of potential outcomes, particularly indices of both depression and anxiety”. Therefore, we considered three mental health variables available in our dataset – anxiety, depression, and resilience to stress.

Severity of anxiety and depression during the past two weeks was measured with the Bulgarian versions of two widely used screening instruments (downloaded from <https://www.phqscreeners.com/>). The Generalized Anxiety Disorder 7-item (GAD-7) scale measures frequency of common symptoms of anxiety, such as feeling nervous, worrying too much, having trouble relaxing, becoming easily annoyed, and feeling afraid that something bad might happen.¹⁹ Each question was scored from 0 (not at all), 1 (several days), 2 (more than half the days), or 3 (nearly every day). Cronbach's alpha in our sample was 0.87.

Depression was assessed with the Patient Health Questionnaire 9-item (PHQ-9), which taps symptoms like anhedonia, hopelessness, sleep problems, fatigue, appetite changes, and thoughts of death or self-injury. The items are based on the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders – IV for major depressive disorder. The scoring was from 0 (not at all) to 3 (nearly every day).²⁰ Internal consistency in our sample was $\alpha = 0.78$.

Resilience to stress was measured using the Brief Resilience Scale (BRS), which was found to correlate with anxiety and depression in undergraduate students.²¹ Its linguistic validation followed the same algorithm as that of the RTSQ. The BRS has six items measured on a scale from 0 to 4. Three of the items were negatively worded and were reverse-coded. Higher mean score of all items represented higher resilience to stress. In our sample, BRS had Cronbach's alpha of 0.82.

Sociodemographic variables

We collected information on participants' age, sex, nationality (Bulgarian vs foreigner), and perceived income (0 to 5). To account for differences in their timetable and academic demands, we considered at which university faculty they were enrolled. Since only 24 (4.5%) participants reported taking anxiety/depression medication, that variable was not used.

Data analytic strategy

All variables had < 3% of values missing, therefore, those values were imputed using the expectation-maximization algorithm.²² Normality was assessed with a variant of Small's omnibus test of multivariate normality. For the univariate tests, GAD-7 was square root-transformed. Pearson

correlation coefficients, t-tests, and ANOVAs were used to identify bivariate patterns of association in the data. The internal-consistency of the psychometric instruments was assessed with Cronbach's alpha coefficient, with $\alpha \geq 0.80$ indicating acceptable internal consistency. To address alpha's assumption of unidimensionality²³, the total RTSQ score reliability was calculated using the four subscale scores rather than the item scores.

A confirmatory factor analysis (CFA) was performed to test the model fit of the hypothesized 4-factor structure of the RTSQ indicated in the literature.¹⁶ Multivariate normality was not confirmed, therefore, we used maximum likelihood estimator with bootstrap-generated (5000 samples) confidence intervals.²⁴ Goodness of fit was evaluated on the basis of the chi-squared test, standardized root mean square residual (SRMSR), root mean square error of approximation (RMSEA), and comparative fit index (CFI), according to suggestions for acceptable model fit provided in Hu and Bentler²⁵: χ^2 ($p > 0.05$), RMSEA (≤ 0.06 , 90% CI ≤ 0.06), SRMSR (≤ 0.08), and CFI (≥ 0.95). Over 95% of the normalized residuals $\leq |2.58|$ were expected from a good-fitting model.²⁴ Standardized residuals and modification indices were inspected to identify localized points of ill-fit in the initial solution. The model was re-specified when suggested changes were theoretically-justified.

Next, we employed multi-group CFA to examine the measurement invariance of the RTSQ across languages and cultures of administration (i.e., Bulgarian and foreign English-speaking students). Measurement invariance served as an indication of how the latent constructs investigated were manifested cross-culturally.²⁶ (The multi-group CFA was only possible in students from the faculties of Medicine and Dental Medicine where both Bulgarian ($n = 174$) and foreign ($n = 97$) students were enrolled.) We first specified baseline unconstrained model (M_a), where all factor loadings across Bulgarian and foreign students were freely estimated. Based on M_a , we specified three nested models, where increasing constraints were imposed: model M_b had all factor loadings constrained to be equivalent; model M_c had structural covariances constrained as well; and model M_d had further constraints on measurement residuals. Differences between the nested models' performance was evaluated on the basis of chi-square difference test²⁷ and the change in CFI (ΔCFI)^{28,29}. A significant result of the chi-square difference test and $\Delta CFI > 0.01$ would indicate that the psychological meanings of the latent constructs vary across groups.

Then, we employed structural equation modelling (SEM) to test the theoretically indicated relationships of the four RTSQ factors with depression (PHQ-9), anxiety (GAD-7), and resilience (BRS). Only significant paths were retained in the final model. Data were processed with SPSS and Amos, and associations were considered statistically significant at the $p < 0.05$ level.

RESULTS

Descriptive statistics

Table 1 shows participants' characteristics. The majority were in their early twenties, were female, Bulgarian, and reported an average perceived income. There was no difference in mean RTSQ scores between men and women (3.64 ± 1.28 vs. 3.74 ± 1.26 , $p = 0.434$), Bulgarians and foreigners (3.68 ± 1.30 vs 3.80 ± 1.10 , $p = 0.409$), those living in Plovdiv or another settlement (3.73 ± 1.25 vs. 3.59 ± 1.31 , $p = 0.319$), and across faculties ($p = 0.197$). Conversely, the RTSQ was also related to lower income ($r = -0.11$, $p = 0.010$) and younger age ($r = -0.11$, $p = 0.010$). In line with theory, higher RTSQ score predicted higher scores on the PHQ-9 ($r = 0.44$, $p < 0.001$) and GAD-7 ($r = 0.51$, $p < 0.001$) scales, and lower BRS score ($r = -0.43$, $p < 0.001$).

Means, standard deviations, and internal consistency estimates for the four subscales of the RTSQ were as follows: RTSQ total scale (3.70 ± 1.26 ; $\alpha = 0.79$); Problem-focused thoughts (2.69 ± 1.31 ; $\alpha = 0.80$); Counterfactual thinking (4.07 ± 1.67 ; $\alpha = 0.81$); Repetitive thoughts (4.14 ± 1.68 ; $\alpha = 0.86$); and Anticipatory thoughts (4.65 ± 1.77 ; $\alpha = 0.81$). Overall, Cronbach's alphas met the criterion of 0.80 indicating acceptable internal consistency of the latent constructs. **Table 2** shows the correlation matrix of the RTSQ items used for the subsequent CFA.

Table 1. Participants' characteristics

Characteristic	N = 529
Sociodemographic factors	
Age (median, IQR)	21.00 (2.00)
Men (n, %)	178 (33.6)
Bulgarian (n, %)	428 (80.9)
Income (mean, SD)	2.94 (1.21)
Psychological factors	
Anxiety (median, IQR) ^a	3.00 (6.00)
Depression (mean, SD)	6.49 (4.30)
Resilience (mean, SD)	2.34 (0.77)
Other covariates	
Residence in Plovdiv	437 (82.6)
Faculty	
Medical college	170 (32.1)
Faculty of Medicine	154 (29.1)
Faculty of Pharmacy	88 (16.6)
Faculty of Dentistry	117 (22.1)

IQR: interquartile range; SD: standard deviation; ^a: descriptives for the untransformed variable.

Confirmatory factor analysis on the Ruminative Thought Style Questionnaire

The four factors were scaled according to one of the corresponding observed variables and *a priori* allowed to covary. Albeit decent, the obtained fit indices were not outstanding: $\chi^2_{(84)} = 373.467$, $p < 0.001$; CFI = 0.922; RMSEA = 0.081 (90% CI: 0.073, 0.089); SRMR = 0.065. All measurement error in this initial model was presumed to be uncorrelated, but inspection of the modification indices indicated some localized points of ill-fit. It was theoretically-justified to specify covariance links between four pairs of error terms pertaining to the same factors: items 1 ↔ 3, 1 ↔ 4, 3 ↔ 4 (Problem-focused thoughts), and 12 ↔ 13 (Repetitive thoughts). Thus, the re-specified CFA suggested good fit between the model and the observed data: $\chi^2_{(80)} = 253.897$, $p < 0.001$; CFI = 0.953; RMSEA = 0.064 (90% CI: 0.055, 0.073); SRMR = 0.044. The model was over-identified with 80 degrees of freedom. The squared multiple correlations indicated good reliability of the observed variables in relationship to the latent constructs, although they could be higher for items 1, 3 and 5. All standardized loadings (≥ 0.57) were significant and standard errors were below 0.10. The largest standardized residual covariance (between items 9 and 10) was |3.23|, and it was the only one exceeding the critical level of |2.58|. The measurement model of the RTSQ is presented in the left side of **Fig. 1**.

We proceeded with multi-group CFA. The configural invariance of the 4-factor measurement model was first examined. (**Table 3**) As can be seen, the 4-factor model fit well in both the Bulgarian and foreign student samples. Since configural invariance was supported, we followed with metric invariance examination. The measurement model of the RTSQ in both groups fit the data adequately (**Table 4**). The chi-square difference test indicated that M_b ($p = 0.523$), M_c ($p = 0.172$), and M_d ($p = 0.224$) were similar in fit compared to M_a . In addition, the ΔCFI was < 0.01 . Therefore, the metric invariance of the RTSQ was supported.

Relationships of the Ruminative Thought Style Questionnaire to the mental health outcomes

Fig. 1 shows the measurement models (CFAs) of the RTSQ, PHQ-9, GAD-7, and BRS along with structural model of their interrelationships. We examined the four RTSQ factors (allowed to covary) as statistical predictors of the three mental health outcomes (also allowed to covary). Suggested model re-specification to improve model fit required us to add two additional covariance links in the GAD-7 and BRS, respectively. Further, we removed seven non-significant paths – from Anticipatory thoughts to the outcomes and from Counterfactual thinking and Repetitive thoughts to GAD-7 and PHQ-9. The model had good fit: $\chi^2_{(609)} = 1177.600$, $p < 0.001$; CFI = 0.931; RMSEA = 0.042 (90% CI: 0.038, 0.046); SRMR = 0.065. Problem-focused thoughts

Table 2. Inter-item correlations for the RTSQ

Item	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
RTSQ.1	1.00														
RTSQ.2	0.48	1.00													
RTSQ.3	0.56	0.54	1.00												
RTSQ.4	0.51	0.50	0.68	1.00											
RTSQ.5	0.30	0.36	0.33	0.37	1.00										
RTSQ.6	0.21	0.32	0.24	0.24	0.35	1.00									
RTSQ.7	0.28	0.34	0.28	0.25	0.32	0.53	1.00								
RTSQ.8	0.25	0.33	0.22	0.26	0.37	0.44	0.62	1.00							
RTSQ.9	0.32	0.36	0.29	0.30	0.36	0.43	0.55	0.54	1.00						
RTSQ.10	0.35	0.49	0.36	0.40	0.42	0.42	0.49	0.49	0.58	1.00					
RTSQ.11	0.34	0.47	0.33	0.43	0.42	0.36	0.36	0.38	0.44	0.64	1.00				
RTSQ.12	0.35	0.48	0.38	0.41	0.45	0.34	0.40	0.44	0.43	0.56	0.63	1.00			
RTSQ.13	0.29	0.44	0.30	0.34	0.47	0.38	0.44	0.46	0.39	0.52	0.57	0.70	1.00		
RTSQ.14	0.26	0.26	0.19	0.28	0.27	0.30	0.29	0.36	0.30	0.31	0.37	0.41	0.45	1.00	
RTSQ.15	0.21	0.18	0.14	0.24	0.23	0.32	0.24	0.35	0.26	0.25	0.37	0.35	0.36	0.68	1.00
Mean	2.59	2.80	2.32	2.50	3.22	3.89	3.95	4.25	4.20	3.90	4.38	4.03	4.23	4.38	4.93
SD	1.62	1.82	1.63	1.64	2.06	2.09	2.11	2.11	2.03	2.03	2.03	1.90	2.07	1.99	1.87

RTSQ: Ruminative Thought Style Questionnaire, SD: standard deviation. Subscales: Problem-focused thoughts (items 1-5), Counterfactual thinking (items 6-9), Repetitive thoughts (items 10-13), Anticipatory thoughts (items 14-15).

Table 3. Summary of model fit indices for the 4-factor measurement model of the RTSQ

Model	Model fit indices				
	χ^2	df	CFI	RMSEA (90% CI)	SRMR
Bulgarian students (n = 174)	169.970	80	0.936	0.081 (0.064, 0.097)	0.056
Foreign students (n = 97)	129.922	80	0.918	0.081 (0.054, 0.105)	0.069

CFI: comparative fit index, RMSEA: root mean square error of approximation, RTSQ: Ruminative Thought Style Questionnaire, SRMR: standardized root mean square residual.

Table 4. Summary of multi-group comparisons for metric invariance of the RTSQ

Model	Model fit indices				
	χ^2	df	CFI	RMSEA (90% CI)	SRMR
M_a : Loadings freely estimated	299.997	160	0.931	0.057 (0.047, 0.067)	0.056
M_b : Factor loadings invariant	310.077	171	0.931	0.055 (0.045, 0.065)	0.060
M_c : M_b + Structural covariances invariant	326.949	181	0.928	0.055 (0.045, 0.064)	0.066
M_d : M_c + Measurement residuals invariant	346.426	200	0.927	0.052 (0.043, 0.061)	0.066

CFI: comparative fit index, RMSEA: root mean square error of approximation, RTSQ: Ruminative Thought Style Questionnaire, SRMR: standardized root mean square residual.

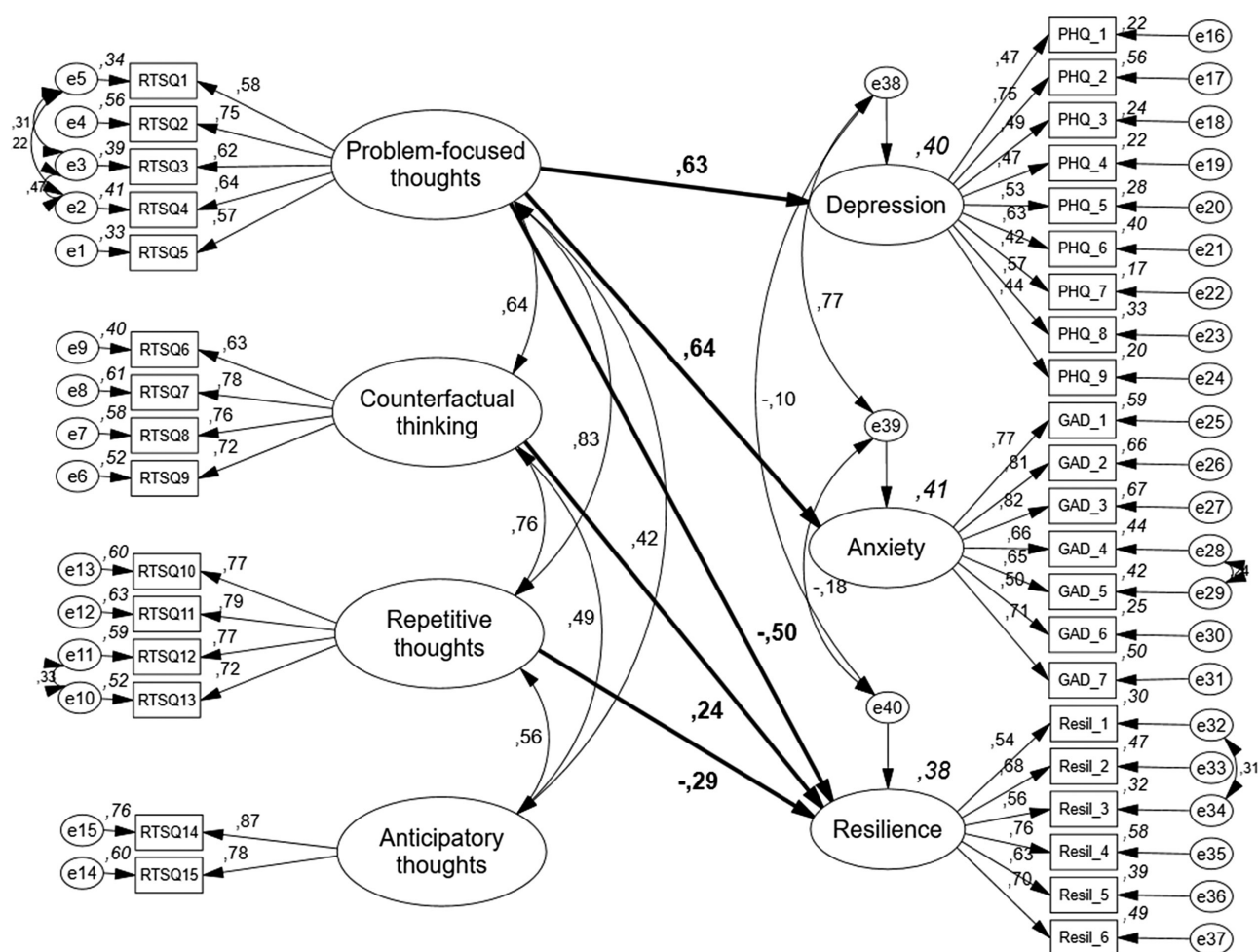


Figure 1. Measurement models (CFAs) of the RTSQ, PHQ-9, GAD-7, and BRS, along with structural model of their interrelationships. Note: BRS: Brief Resilience Scale, CFA: confirmatory factor analysis, e1 to e37: error terms, GAD-7: Generalized Anxiety Disorder - 7, PHQ-9: Patient Health Questionnaire - 9, RTSQ: Ruminative Thought Style Questionnaire. The measurement model is the part of the model that examines relationship between the latent variables and their indicators. The structural model are the relationships between the latent variables (in bold for emphasis). Standardized regression weights are given for each path. Squared multiple correlations are given in italics. All coefficients are statistically significant at $p < 0.05$.

predicted higher scores on the GAD-7 and PHQ-9 scales, explaining some 40% of the variance. Together, Problem-focused thoughts, Counterfactual thinking and Repetitive thoughts accounted for 38% of the variance in the BRS, with Problem-focused thoughts and Repetitive thoughts being associated with lower resilience and Counterfactual thinking with higher resilience.

DISCUSSION

Key findings

We collected a sample of university students to examine the psychometric properties and factorial structure of the Bulgarian version of the RTSQ. Our findings supported the 4-factor structure of the RTSQ and indicated good internal

consistency for each of the factors, as well as the total score. Furthermore, the items conveyed the same psychological meaning and responses to those items loaded into the same set of factors, across languages and cultures of administration, suggesting cross-cultural validity. Finally, we observed differential associations between the four rumination facets and mental health outcomes. Specifically, Problem-focused thoughts was predictive of higher anxiety and depression and lower resilience scores; Repetitive thoughts also contributed to lower resilience; Counterfactual thinking supported higher resilience; and Anticipatory thoughts appeared neutral and was not related to any of the outcomes.

Tanner et al.¹⁷ 4-factor model yielded fit indices comparable to ours: $\chi^2_{(87)} = 567.61$, $p < 0.01$; CFI = 0.96; RMSEA = 0.07; SRMR = 0.09. Other studies that explored the dimensionality of the RTSQ also provided support for the 4-factor model. For example, Helmig et al.³⁰ observed good

model fit of the German version of the 15-item RTSQ in both non-clinical and clinical samples: $\chi^2/df = 2.17$, CFI = 0.98, RMSEA = 0.08; and $\chi^2/df = 1.40$, CFI = 0.99, RMSEA = 0.05), respectively; and Bravo et al.¹⁸ reported acceptable fit indices of the Spanish version of the questionnaire in both Argentina ($\chi^2_{(84)} = 271.65$; CFI = 0.921; RMSEA = 0.074 (95% CI: 0.065, 0.084); SRMR = 0.061) and Spain ($\chi^2_{(84)} = 201.49$; CFI = 0.936; RMSEA = 0.068 (95% CI: 0.056, 0.080)). Moreover, like ours, the latter study indicated that the 15-item RTSQ was invariant across countries.

Our SEM results concur with earlier findings¹⁷ that Problem-focused thoughts and Repetitive thoughts represented maladaptive rumination and contributed to psychological distress, while Counterfactual thinking did not. In Tanner et al.'s¹⁷ study, Anticipatory thoughts emerged as a protective factor predicting relying on others as a coping style, while here, that factor had no contribution to the outcomes in the presence of the other factors. Direct comparison with our findings is hindered because our resilience to stress scale captures a different construct from the Adolescent Coping Scale – Short Form employed by Tanner et al.¹⁷ Previously, Treynor et al.¹⁵ also uncovered two sides to the Response Style Questionnaire reflecting adaptive and maladaptive dimensions of rumination. If scores of different scales collapse across maladaptive and more neutral or adaptive forms of rumination³¹, the latter could be useful in studying cognitive behavioral treatments through adaptive rumination.

Strengths and limitations

As far as we are aware, we have validated the first Bulgarian instrument for measuring multifaceted and content-neutral rumination. Our sample comprised participants with diverse linguistic, ethnic and cultural background, which allowed examining the cross-cultural validity of the RTSQ. Considering various model parameters (e.g., number of indicators and latent factors, factor loadings, normality, model complexity), our sample size of 529 met conventional requirements for applied SEMs, according to on both rules of thumb and Monte Carlo simulation studies.³⁶ We also examined the contribution of the RTSQ to several mental health outcomes of interest in both clinical and non-clinical contexts.

We have to acknowledge several limitations with this work. First, our data came from a cross-sectional survey on environmental determinants of mental health, therefore, our ability to establish some types of validity and reliability was limited. That is, we could not examine test-retest reliability of the items, nor establish convergent validity by correlating the RTSQ score with other rumination scales. Going further, our sample consisted of students of one university, meaning that it was not representative of other population groups. However, the 15-item RTSQ has been validated within an adolescent sample as well¹⁷, and some other studies investigating the RTSQ also targeted adoles-

cents and youth¹⁸. In fact, the student occupation should be of particular interest in the field because “adolescence may be the developmental stage in which rumination reaches its peak and becomes an automated maladaptive coping strategy persisting into adulthood”¹⁷ and about half of all mental disorders begin in young age³⁷ when interventions may be most effective. Overall, we reckon that the strengths of the current study outweigh its limitations.

CONCLUSION

The RTSQ was successfully validated in Bulgarian and represents a reliable measure of general trait rumination. Different factors of the RTSQ contributed differentially to depression, anxiety and resilience to stress, suggesting that this multifaceted construct could be useful in gaining further insight into strategies adopted by individuals to cope with stressors. Our findings should be replicated in other non-clinical and clinical populations.

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APPENDIX

ВЪПРОСНИК ЗА РУМИНАТИВЕН НАЧИН НА МИСЛЕНЕ (RTSQ-BG)

Оценете всяко твърдение, като напишете на празното място пред всяко съответната цифра от 1 до 7, съгласно скалата по-долу.

1-----2-----3-----4-----5-----6-----7

Изобщо

не съм съгласен

Напълно

съм съгласен

№	Оценка	Твърдение
1		Когато се опитвам да реша сложен проблем, отново и отново се връщам от начало, без да намирам решение
2		Никога не съм можел да се отърсвам от нежеланите мисли
3		Дори да мисля за даден проблем с часове, пак ми е трудно да го разбера ясно
4		Много ми е трудно да стигна до ясно решение по някои проблеми, колкото и да мисля за тях
5		Понякога си давам сметка, че часове наред съм седял и мислил за нещо
6		Когато очаквам да се срещна с някого, си представям всеки възможен сценарий и разговор
7		Склонен съм мислено да разигравам минали събития така, като би ми се искало да са се развили
8		Фантазирам си за неща, които ми се иска да съм направил
9		Когато общуването ми с някого не завърши добре, си представям различни сценарии, в които бих постъпил различно
10		Забелязвам, че умът ми „предъвква“ нещата отново и отново
11		Когато имам проблем, той дълго терзае ума ми
12		Някои мисли непрекъснато изплуват в ума ми през деня
13		Не мога да спра да мисля за някои неща
14		Когато очаквам вълнуващо събитие, мислите ми за него пречат на онова, което правя междувременно
15		Ако предстои важно за мен събитие, не мога да спра да мисля за него

Подскалки: Проблем-фокусирани мисли (въпроси 1-5), Пожелателно мислене (въпроси 6-9), Повтарящи се мисли (въпроси 10-13), Очаквателни мисли (въпроси 14-15).

RUMINATIVE THOUGHT STYLE QUESTIONNAIRE (RTSQ-GB)

Using the scale below, please rate each item in terms of how well it describes you and enter your rating into the space before the respective item.

(1 = “Does not describe me at all”, 7 = “Describes me very well”).

1-----2-----3-----4-----5-----6-----7

Not at all

Very well

№	Rating	Item
1		When trying to solve a complicated problem, I find that I just keep coming back to the beginning without ever finding a solution
2		I have never been able to distract myself from unwanted thoughts
3		Even if I think about a problem for hours, I still have a hard time coming to a clear understanding
4		It is very difficult for me to come to a clear conclusion about some problems, no matter how much I think about it
5		Sometimes I realise I have been sitting and thinking about something for hours
6		When I am expecting to meet someone, I will imagine every possible scenario and conversation
7		I tend to replay past events as I would have liked them to happen
8		I find myself daydreaming about things I wish I had done
9		When I feel I have had a bad interaction with someone, I tend to imagine various scenarios where I would have acted differently
10		I find that my mind goes over things again and again
11		When I have a problem, it will gnaw on my mind for a long time
12		I find that some thoughts come to my mind over and over throughout the day
13		I can't stop thinking about some things
14		When I am looking forward to an exciting event, thoughts of it interfere with what I am working on
15		If I have an important event coming up, I can't stop thinking about it

Subscales: Problem-focused thoughts (questions 1 – 5); Counterfactual thinking (questions 6 – 9); Repetitive thoughts (questions 10 – 13); Anticipatory thoughts (questions 14 – 15)

Психометрические свойства и вклад в области психического здоровья болгарской версии четырёхфакторной анкеты о стиле мышления

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Абстракт

Введение: Анкета о стиле мышления (Ruminative Thought Style (RTSQ)) - это многоаспектный инструмент для измерения общих черт мышления. Однако, на болгарском языке нет инструмента для измерения оценки мышления, что сильно ограничивает прогресс в этой области.

Цель: Наша цель состояла в том, чтобы валидировать RTSQ на болгарском языке и изучить его психометрические свойства и вклад в некоторые области психического здоровья.

Материалы и методы: Мы опросили 529 студентов (18-35 лет; 33,6% мужчин; 80,9% болгар) из Медицинского университета - Пловдив. Они заполнили анкету о стиле мышления (RTSQ), психическом здоровье и социодемографической информации. Первоначально RTSQ был переведён на болгарский язык. Его внутренняя консистентность была установлена с применением альфа-коэффициента Кронбаха.

Подтверждающий факторный анализ (ПФА) был выполнен на 4-факторном RTSQ, а ПФА многих групп исследовали его измерительную инвариантность. Было использовано моделирование структурного уравнения для исследования взаимосвязей между факторами RTSQ, депрессией, тревожностью и стрессоустойчивостью.

Результаты: RTSQ имела приемлемую внутреннюю консистентность ($\alpha \geq 0,8$), а её четырёхфакторная модель была адекватной. Более того, её измерительная инвариантность была сохранена в языках и культурах, в которых она была распространена. Мы наблюдали дифференциальные ассоциации с депрессией, тревогой и сопротивляемостью с некоторыми факторами RTSQ, которые проявлялись как неадаптивные (мысли, сосредоточенные на проблемах и повторяющиеся мысли), в то время как другие были нейтральными (мысли об ожидании) или потенциально поддерживающими устойчивость (контрфактуальные).

Выводы: RTSQ успешно прошла валидацию в Болгарии и представляет собой достоверную оценку отличительных особенностей мышления. Она может быть полезна для дальнейшего развития стратегий, используемых людьми для борьбы со стрессорами, и поможет разработать меры по поддержанию здорового стиля для решения проблем. Эти результаты должны быть воспроизведены в других клинических / неклинических группах населения.

Ключевые слова

беспокойство, мрачные мысли, депрессия, повторяющиеся мысли, настойчивость