

Persian version of the Self-Critical Rumination Scale (SCRS)

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ABSTRACT

Background and objectives. Research on ruminative self-criticism has been restricted by the absence of a dependable measure to evaluate this construct. To address this constraint, Self-Critical Rumination Scale (SCRS) developed to assess ruminative self-critical thoughts with a focus on perceived flaws, failures, mistakes, bad habits, etc.

Materials and methods. This descriptive-evaluative study aimed to validate the SCRS for a sample of Iranian university students. 307 students of Islamic Azad University, Tabriz branch participated in this study using the convenience sampling method in 2023-24. To examine the test-retest reliability of SCRS, 50 participants were randomly selected to fill out this scale twice at an interval of two weeks. The Self-Critical Rumination Scale (SCRS, Smart, 2016), the Depression, Anxiety, and Stress Scale - 21 Items (DASS-21, Loviband & Loviband, 1995), and the Short form of the Self-Compassion Scale (SCS-SF, Raes et al., 2011) were used in this study.

Results. According to the results of exploratory factor analysis (EFA), one-factor was identified, which explains 55% of the total variance. The results of criterion validity showed that SCRS had a positive correlation with Depression, Anxiety, and Stress and a negative relation with self-compassion ($P < 0.05$); which respectively shows the convergent and divergent validity of this tool. Results showed that the favorable test-retest reliability (0.73) and internal consistency (0.90) of SCRS. Also, confirmatory factor analysis (CFA) demonstrated that the one-factor measurement model was well fitted to the data ($\chi^2/df=2.55$, CFI=0.94, RMSEA=0.07).

Conclusions. Since SCRS exhibited acceptable validity and reliability in a sample of Iranian students, it is recommended to be used for measuring the self-critical rumination of Iranian university students.

Keywords: validation, self-critical rumination, self-compassion, Depression, Anxiety, Stress

INTRODUCTION

Ruminative self-criticism is a concept that is still in the early stages of research [1]. However, research findings suggest that ruminative self-criticism is likely to influence the relationship between self-criticism and stress [2, 3]. Additionally, the level of ruminative self-criticism can be considered an appropriate factor for predicting low self-esteem, even if we control age, stress, anxiety, depression, and level of self-criticism [4]. Engaging in this behavior can also be associated with other negative psychological consequences, such as impaired emotional regulation [5], experiencing more acute stress [6], and experiencing higher feelings of shame [7]. Furthermore, a study found that higher levels of ruminative self-criticism were associated with lower levels of subjective psychological well-being [8]; additionally, a significant positive relationship was reported between social anxiety, ruminative self-criticism, and stress [9]. These findings may support the idea that ruminative self-criticism can have detrimental effects on mental health.

Self-criticism can be described as ongoing and negative assessments of a person that arise as one's criteria and expectations are not fulfilled [10]. Research has suggested that "moderate" self-criticism is not necessarily harmful and may assist them avoid distant errors and thus lead to personal improvement [11]. However, when it becomes a ruminative way of thinking, is considered problematic for mental health, In such situations, self-criticism gets to be an antagonistic internal dialogue in a repetitious and frequent form called "ruminative self-criticism" [12]. Ruminative self-criticism has been defined as a judgmental action that particularly focuses on features of oneself that one is embarrassed by and in some way reflects a lack of self-esteem [2, 12]. Thus, ruminative self-criticism is known as a constant concentration and attention to self-critical thinking that typically occurs without making an effort to solve the problem or change the situation [12].

Based on the above definitions, to examine the role of self-criticism in mental health, it can be said that inner self-criticism is one of the potential predictors of depression [13] and is also positively and significantly associated with depressive symptoms [14]. In another study, it was suggested that self-criticism was positively and significantly associated with social anxiety disorder [15]. Similarly, a study found that there was a positive relationship between self-critical thinking and depression, anxiety, and stress [16]. However, it is important to note that the connection between self-criticism and stress is more complex than it might seem at first glance, and rumination potentially plays a mediating role [17].

In addition to the concepts discussed above that have a positive relationship with self-critical thinking, the concept of self-compassion should also be mentioned, which, on the contrary, has a significant negative relationship with self-criticism. In this way, interventions related to self-compassion reduce the level of self-criticism [18], and also higher levels of self-compassion reduce the relation between self-criticism and psychological harm and thus play a moderating role [19]. Similarly, the effect of self-criticism on postpartum cognition in women is reduced in the presence of self-compassion [20], and another study also found a significant negative relationship between the two constructs [21].

Due to the importance of this structure, several tools have been translated and validated in Iran to assess ruminative self-criticism. These tools include The Rumination-Reflection Scale (RRS), which has 12 items that focus on rumination and 12 items that focus on adaptive reflective thinking [22]: This 24-item scale has been validated in Iran as well [23]. Also, The Anger Rumination Scale (ARS) was validated [24]; This 19-item scale is designed to measure an individual's tendency to recall and think about past anger-provoking situations; It has been normed in Iran too [25]. We can also mention, The Self-Compassion Scale (SCS) which was designed [26]; This 31-item scale was developed in 2010 for non-clinical populations [26] and in 2012 for clinical populations [27]. A 10-item short form of the scale for non-clinical populations has been validated in Iran [28]. It is worth noting that other questionnaires have also been validated in Iran, some of which have focused on a variety types of rumination, but none of these studies have focused on self-critical content such as flaws and failures. In response to this gap, a novel scale was created known as the SCRS in order to differentiate it from other forms of rumination [12]. Research on ruminative self-criticism has been restricted by the absence of a dependable measure to evaluate this construct. To address this constraint, SCRS developed to assess ruminative self-critical thoughts (e.g., repetitive, lengthy, recurrent, and difficult-to-control thoughts) with a focus on perceived flaws, failures, mistakes, bad habits, weaknesses, or general incompetence [12]. The reliability of SCRS scores was substantiated by meaningful correlations between the scale and assessments of rumination, self-criticism, shame, self-compassion, borderline personality traits, distress, and personality features like neuroticism. Notwithstanding the encouraging outcomes of SCRS, additional investigation is imperative to duplicate and broaden the primary discoveries, particularly in sociocultural settings other than those of the United States. Validation inquiries conducted across diverse cultural milieus are indispensable in establishing the psychometric resilience of a novel gauge and enabling its application among non-anglophone populations. Furthermore, further examination of the construct validity of the scale is warranted to confirm the psychometric soundness of it. Therefore, the current study aims to take a step towards further research in this area by translating and validating the SCRS among Iranian university students.

METHOD

The participants of this study were 307 undergraduate students from Islamic Azad University, Tabriz Branch, who were enrolled in the academic year (2023-24). The sample size was determined based on the research, which suggested a sample size of 250 to 400 for factor analysis [29]. The participants were recruited using a convenience sampling method and completed an online survey. Additionally, 50 participants were randomly selected from those who provided their phone numbers to complete the SCRS again two weeks after the initial administration to assess retest reliability. The Participation criteria were: people aged 18 to 35 years, no history of psychiatric disorders, no divorce or parental death, and completion of an informed consent form (online) to engage in the research. Also, the elimination criteria were: Unfinished questionnaires. All participants were informed of the study and provided informed consent. They were also assured of confidentiality, privacy, and the absence of any physical or psychological harm.

In order to translate, SCRS items were first translated into Farsi (Persian) by the researcher and then reviewed by a psychologist fluent in English. To ensure the accuracy of the translation, the method of re-translation into English was used by a professional translator. Data were collected using an online survey and analyzed using SPSS-24 and AMOS-24 software. Internal consistency was assessed using Cronbach's alpha coefficient. Convergent and divergent validity and retest reliability were assessed using the Pearson correlation coefficient. The one-dimensional structure of the SCRS was evaluated using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to validate the construction validity.

Self-Critical Rumination Scale (SCRS): The SCRS was designed to measure ruminative forms related to self-critical thoughts [12]. It consists of 10 items, each rated on a 4-point Likert scale from 1 ("not at all") to 4 ("very much"). The overall score ranges from 10 to 40, with higher scores indicating a higher level of self-critical rumination, examined the validity of this scale was examined using exploratory factor analysis, and found that the 10 remaining items were loaded onto a single factor, explaining a total of 41.58% of the variance. The final version of the SCRS consists of 10 items in accordance with a one-dimensional structure and has demonstrated superior internal consistency ($R=0.92$) and retest reliability ($R=0.86$).

Depression, Anxiety, and Stress Scales-21 (DASS-21): The DASS-21 was developed to assess symptoms of depression, anxiety, and stress [30]. It consists of 21 items (7 depression items, 7 anxiety items, and 7 stress items). The items are rated on a 4-point Likert scale (never, hardly ever, sometimes, often, very often, always) and have a range of 0 to 3. The general score for each subscale ranges from 0 to 21, with higher scores demonstrating more serious indications. Factor analysis results for this scale showed that 68% of the total variance of the scale is explained by these three factors (depression, anxiety, and stress), and the Cronbach's alpha coefficients for depression, anxiety, and stress were 0.92, 0.95, and 0.97, respectively. In Iran, retest reliabilities were reported of

0.81, 0.78, and 0.80 for the depression, anxiety, and stress subscales, respectively; at a three-week interval, and Cronbach's alpha coefficients of 0.85, 0.75, and 0.87, respectively [31].

Short Form of the Self-Compassion Scale (SCS-SF): The self-compassion scale has 12 items on a 5-point Likert scale (almost never, rarely, no opinion, most of the time, and almost always) and ranges from 1 to 5 is scored [32]. This scale consists of 6 subscales of self-kindness (2 and 6), self-judgment (11 and 12), shared human experiences (5 and 10), isolation (4 and 8), mindfulness (3 and 7), and identification. An extreme (1 and 9) is formed, where two questions are considered for each component. A higher score indicates a higher level of self-compassion. Good internal consistency with Cronbach's alpha of 0.86 was reported [32]. In a study conducted in Iran Cronbach's alpha of this scale was 0.75 [33].

RESULTS

A total of 320 participants initially participated in the research. Although, after data screening, 307 participants were included in the last investigation. The remaining 13 participants were excluded due to missing data or outliers. The average age and standard deviation of the participants were 28.99 ± 7.95 years. 206 people (67.1%) were female and 101 people (32.9%) were male. 231 people (75.2%) were single and 76 people (24.7%) were married. 170 people (55.4%) did not have a permanent job and 137 people (44.6%) were employed. In Table 1, the items and descriptive indicators of the SCRS are presented.

Descriptive Statistics for SCRS Items

Table 1 presents the descriptive statistics for the SCRS items. All items had a mean score above the midpoint of the Likert scale (3), indicating that participants generally experienced self-critical rumination to some extent. The items also had good item-total correlations, ranging from 0.65 to 0.81, suggesting that they were all relevant to the measurement of self-critical rumination ($0.30 <$).

Table 1: Descriptive Statistics for SCRS Items

Items	Mean	SD	Item-Total Correlation
1	41.2	98.0	0.69
2	48.2	95.0	0.71
3	48.2	94.0	0.78
4	60.2	98.0	0.65
5	24.2	99.0	0.77
6	21.2	01.1	0.76

7	35.2	06.1	0.74
8	34.2	01.1	0.81
9	31.2	07.1	0.75
10	43.2	04.1	0.73

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Exploratory Factor Analysis (EFA)

EFA was conducted to examine the construct validity of the SCPS. At first, the presuppositions have been examined. Keiser Meyer Olkin (KMO) was 0.93 and Bartlett Sphericity test was ($P < 0.0001$). According to the fulfillment of the conditions for factor analysis, principal component analysis was used considering the factor < 0.40 . The initial analysis obtained one factor with an eigenvalue greater than 1. The scree plot also supported a one-factor solution (Figure 1). This structure had a determined variance of 55.00%. In the following, the factor loadings of one factor are presented.

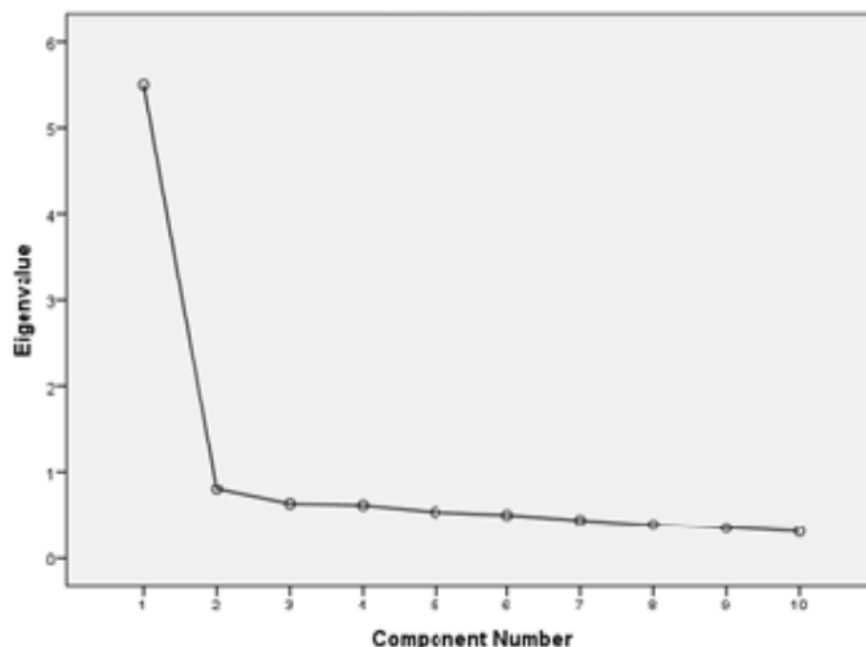


Figure 1: The Scree plot of factors extracted from exploratory factor analysis

As shown in the scree diagram, only one factor is higher than the eigenvalue of 1. In the following, the outcomes of the exploratory factor analysis are presented.

Table 2: Results of exploratory factor analysis of SCRS

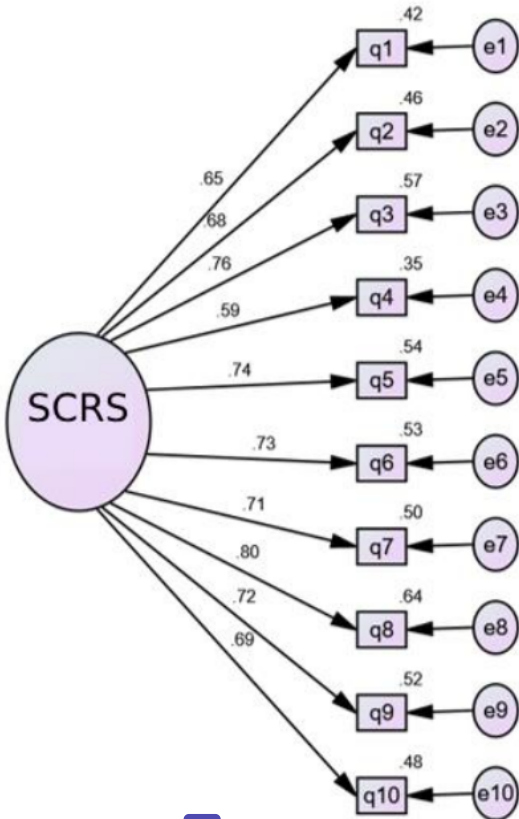
Items	Total	Determined variance	Cumulative determined variance
1	5.50	55.00	55.00
2	0.79	7.87	62.88
3	0.62	6.22	69.11
4	0.60	6.04	75.15
5	0.52	5.28	80.44
6	0.49	4.94	85.39
7	0.44	4.35	89.75
8	0.44	3.81	93.56
9	0.43	3.44	97.01
10	0.42	2.99	100

The results of Table 2 show that all the items have an acceptable factor loading (<0.40). According to the results of exploratory factor analysis, one factor was identified which clarifies 55.00% of the total variance. Also, according to these results of exploratory factor analysis, it can be concluded that the SCRS with one factor has construct validity and all items have valid factor loadings. In the following, the validity of the construct has been investigated using confirmatory factor analysis (CFA). Figure 2 shows the model of confirmatory factor analysis.

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Confirmatory Factor Analysis (CFA)

In Figure 2, the final model resulting from the confirmatory factor analysis is presented, in Table 2, the factor loadings of each of the questions are presented. The outcome of confirmatory factor analysis demonstrates that the factor loadings of the questions were 0.65, 0.68, 0.76, 0.59, 0.74, 0.73, 0.71, 0.80, 0.72, and 69.0 respectively. Considering that the factor loading of all the questions is more than 0.40, it can be said that all the questions have an acceptable factor loading. Table 3 demonstrates the fit indices of the measurement model.



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 Figure 2: The final model of confirmatory factor analysis of the SCRS

Table 3: Fit indices of the confirmatory factor analysis model in single-factor mode

Index	Research model	Decision criterion
X ²	89.21	P > 0.05
Df	35	--
X ² /df	2.55	CMIN/DF < 5
GFI	0.94	GFI > 0.90
CFI	0.96	CFI > 0.90
NFI	0.94	NFI > 0.90
PNFI	0.93	PNFI > 0.90
TLI	0.94	TLI > 0.90

RMSEA	0.07	RMSEA < 0.08
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Table 3 shows that the chi-squared value (χ^2) is significant ($P=0.001$) and is equal to 89.21; However, when the sample size is high, χ^2 is not a good indicator of model fit. In this case, the χ^2/df index is more valid, which is calculated as 2.55 in this research, and since it is less than 3, the fit of the model is favorable. GFI in the present study was calculated as 0.94, based on this, the model has an acceptable fit. Both CFI and TLI were calculated as 0.94, which indicates a good fit of the model. In this model, the RMSEA index is equal to 0.07, considering that it is less than 0.08, it indicates the optimal fit of the model. In general, it can be concluded that the SCRS is a good fit in single-factor mode.

Descriptive Statistics, Construct Validity, and Reliability

In the following, criterion validity (convergent and divergent) and reliability have been investigated using the method of internal consistency and retesting as shown in Table 4.

Table 4: Descriptive Statistics, Construct Validity and Reliability

Variables	1	2	3	4	5
1- SCRS	1				
2- Self-Compassion	-0.70**	1			
3- Depression	0.66**	-0.66**	1		
4- Anxiety	0.52**	-0.52**	-0.65**	1	
5- Stress	0.65**	-0.71**	0.75**	0.68**	1
Mean	23.90	37.98	7.73	5.95	9.79
Standard Deviation	7.40	8.86	5.65	4.73	5.47
Skewness	0.10	0.01	0.39	0.97	0.19
Kurtosis	-0.82	-0.64	-0.85	-0.09	-0.84
Internal validity (α)	0.90	0.87	0.87	0.88	0.83
Test-retest reliability	0.73	0.77	0.78	0.73	0.70

The results of skewness and kurtosis showed that since their values are in the range of -2 to 2, the data has a normal distribution. Based on this, the Pearson correlation coefficient was used to check the criterion validity. The results showed that the rumination scale of self-critical has a negative and significant correlation with the self-compassion score ($r=-0.70$, $P<0.05$); which shows the divergent validity between these two constructs.

Also, the outcomes showed that the SCRS has a positive and significant correlation with the scores of depression ($r=0.66$), anxiety ($r=0.52$), and stress ($r=0.65$) ($P<0.05$); which shows the convergent validity of these constructs with SCRS. Also, Cronbach's alpha coefficient was used to check reliability by the internal consistency method, the results showed that Cronbach's alpha coefficient for the SCRS is ($\alpha=0.90$); The retest reliability was calculated with an interval of two weeks ($r=0.73$), as well; According to these results, it can be said that this scale has good reliability.

DISCUSSION

This study aimed to validate the SCRS in Iranian university students. The construct validity of the SCRS was first examined using exploratory and confirmatory factor analysis. The results indicated that the ten items of the scale loaded onto a single factor, consistent with the results of the original scale development study [12].

The results of the convergent validity analysis revealed that self-critical rumination scores were positively correlated with depression, anxiety, and stress, suggesting good convergent validity of the scale. These findings are consistent with previous studies [12-17]. The dimension of self-insufficiency in self-critical thinking has a high impact on the development of depression and stress, which is even stronger than its impact on the development of stress and anxiety because anxiety includes a wide range of conditions and can be a high-intensity or variation [16]. In the same way, according to the results of a study, people feel a gap between their present selves and their past selves, as well as their motivations, they are likely to engage in self-critical and become vulnerable to depression [34].

The discriminant validity analysis showed a negative correlation between self-critical rumination scores and self-compassion, supporting the discriminant validity of the SCRS. These results are consistent with previous studies [12, 18-21] In explaining this relationship, it can be said that one of the dimensions of self-compassion is kindness to oneself [35], which are on two different sides of the same spectrum with self-criticism, which, of course, requires more research in this field [14]. Also, people with high levels of self-compassion react with kindness and emphasize a non-judgmental attitude towards themselves, which is exactly the opposite of this process in self-criticism, so it can be said that a central aspect of compassion Exercise may be a lack of self-criticism [19].

The reliability analysis demonstrated that the SCRS has good internal consistency and retest reliability. The Cronbach's alpha coefficient for the scale was 0.90, and the two-week retest correlation coefficient was 0.73. These findings are consistent with the results of the original scale development study [12].

Limitations and recommendations

Despite the strengths of this study, there are some limitations that should be considered. However, this research also has limitations, including the number of participants in the

research, which is limited to Islamic Azad University, Tabriz branch students, and the generalization of its results to other students and other settings requires more investigation; also, a higher percentage of participants included women, people without permanent jobs, and single people, which may affect the generalizability of this scale. On the other hand, it was not possible to use a random method for sampling, along with it, the self-reporting tools used are subject to bias limits that can affect the research results. Considering the above limitations, it is suggested to other researchers to help the generalizability of the findings of this study by examining the validity of the construct in larger and more diverse samples also by using random sampling methods, and by using the interview tool in their studies, they also remove the limitations of using the questionnaire. Besides them, Researchers should also explore the use of mixed-methods approaches to assess self-criticism, combining self-report measures with observational or interview data. Additionally, longitudinal studies are needed to examine the predictive validity of the SCRS and to evaluate the effectiveness of interventions to reduce self-criticism.

CONCLUSION

The Persian translation of the SCRS is a valuable tool for assessing self-critical rumination in Persian-speaking university students. The scale has good psychometric properties and can be used to inform research, clinical practice, and educational interventions. Further studies should prioritize the replication of these results in more extensive and varied samples.

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