



RESEARCH ARTICLE / ARAŞTIRMA YAZISI

The Event Related Rumination Inventory: A Validity and Reliability Study

Olay İlişkili Ruminasyon Envanteri: Geçerlik ve Güvenirlik Çalışması

Manolya Çalışır¹, Ferhunde Öktem²

Abstract:

This research aims to examine the validity and reliability of the Turkish version of the Event-Related Rumination Inventory (ERRI). The validity and reliability of the scale were investigated by Cronbach's alpha, explanatory and confirmatory factor analysis, and criterion-related validity methods. The Impact of Events Scale, the Posttraumatic Growth Inventory, the Core Beliefs Inventory, the Life Satisfaction Questionnaire, the Ruminative Responses Scale, and the COPE-SF were used to assess criterion-related validity. The participants in this study consisted of 574 college students (390 female and 184 male) who were screened for having experienced highly stressful life events. The results of confirmatory factor analysis demonstrated that the 20 items loaded on two factors and the two-dimensional model was well fit ($\chi^2= 506.13$, $df= 163$; $\chi^2/ df = 3.10$, $p= .00$, $RMSEA= .061$, $NNFI= .98$, $CFI= .99$, $GFI= .94$, $AGFI=.90$, and $SRMR=.053$). In the criterion validity, the results indicated that there are significant positive relationships between total ERRI and impact of events, posttraumatic growth, core beliefs, and coping styles, and significant negative relationships between rumination styles and life satisfaction. The internal consistency coefficients of the two subscales were .94 and .88, respectively. The overall internal consistency coefficient of the scale was .94. Overall findings indicated that the scale had high validity and reliability scores and that it may be used as a valid and reliable instrument in Turkish population to measure intrusive and deliberate rumination in the aftermath of a stressful life event.

Keywords: Intrusive Rumination, Deliberate Rumination, Validity, Reliability.

¹Assist. Prof. Dr., Cyprus Health and Social Sciences University, Faculty of Arts and Sciences, Department of Psychology, TRN Cyprus, Güzeyurt, E-mail: manolya.calisir@kstu.edu.tr, Orcid Id: 0009-0004-8598-608X

²Prof. Dr., Hacettepe University, Faculty of Medicine, Department of Child and Adolescent Mental Health and Diseases, Ankara, Türkiye, E-mail: foktem@hacettepe.edu.tr, Orcid Id: 0000-0001-6971-6822

Address of Correspondence/Yazışma Adresi: Manolya Çalışır, Assistant Professor, Cyprus Health and Social Sciences University, Department of Psychology, Kutlu Adalı Boulevard, Güzeyurt, 99700. E-mail: manolya.calisir@kstu.edu.tr.

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Öz:

Bu araştırmanın amacı, Olay İlişkili Ruminasyon Envanteri'nin (OIRE) Türkçe formunun geçerlik ve güvenilirliğini incelemektir. Ölçeğin geçerlik ve güvenilirliği Cronbach alfa, açımlayıcı ve doğrulayıcı faktör analizi ve ölçüt bağıntılı geçerlik yöntemleri ile araştırılmıştır. Ölçüt bağıntılı geçerlilik için Olayların Etkisi Ölçeği, Travma Sonrası Büyüme Envanteri, Temel İnançlar Envanteri, Yaşam Doyumu Anketi, Ruminatif Tepkiler Ölçeği ve COPE-KF kullanılmıştır. Bu çalışmanın katılımcıları, yüksek düzeyde stresli yaşam olayları yaşadıkları için taranan 574 (390 kadın ve 184 erkek) üniversite öğrencisinden oluşmaktadır. Doğrulayıcı faktör analizi sonuçları, 20 maddenin iki faktöre yüklendiğini ve iki boyutlu modelin iyi uyum gösterdiğini ortaya koymuştur ($\chi^2=506.13$, $df=163$; $\chi^2/df=3.10$ $p=.00$, RMSEA=.061, NNFI=.98, CFI=.99, GFI=.94, AGFI=.90 ve SRMR=.053). Kriter geçerliğinde, sonuçlar toplam OIRE ile olayların etkisi, travma sonrası büyüme, temel inançlar ve başa çıkma tarzları arasında anlamlı pozitif ilişkiler olduğunu ve ruminasyon tarzları ile yaşam memnuniyeti arasında anlamlı negatif ilişkiler olduğunu göstermiştir. İki alt ölçeğin iç tutarlılık katsayıları sırasıyla .94 ve .88'dir. Ölçeğin genel iç tutarlılık katsayısı .94'tür. Genel bulgular, ölçeğin Türkçe formunun yüksek geçerlilik ve güvenilirlik puanlarına sahip olduğuna ve stresli bir yaşam olayının ardından oluşabilecek girici ve kasıtlı ruminasyon düzeyini ölçmek için geçerli ve güvenilir bir araç olarak kullanılabileceğine işaret etmektedir.

Anahtar Kelimeler: Girici Ruminasyon, Kasıtlı Ruminasyon, Geçerlik, Güvenirlik.

Introduction

Cognitive processing has been considered as an important component of the individual's attempt to rebuild the worldview and to adapt to a highly stressful life event, as well as being an important element in the development of posttraumatic growth (PTG) (Calhoun, Cann, Tedeschi, and McMillan, 2000; Greenberg, 1995). According to Tedeschi and Calhoun's (1995) Posttraumatic Growth Model, the initial response to trauma is characterized by a significant amount of stress, which triggers rumination processes (Calhoun & Tedeschi, 2013).

Rumination is generally defined as repetitive thinking about negative personal concerns and/or about the implications, causes, and meanings of a negative mood (Zhongzheng et al., 2025; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008) and can be observed not only in clinical samples but also in all individuals in daily life (Watkins, 2008; Özgönül, Aktan, & Ülkümen, 2022). Calhoun and Tedeschi (2006) have suggested that rumination following a life crisis tends to be either mostly automatic/intrusive thoughts about the stressful event, or more deliberate rumination aimed at making sense of the event. Intrusive rumination has been characterized as repetitive, negative, and unwanted thoughts, whereas deliberate rumination has been described as repetitive, purposeful thoughts focused on problem-solving and meaning seeking (Calhoun & Tedeschi, 2013; Steger et al., 2008). According to the model, although negative or intrusive rumination might tend to provoke negative repetitive thought patterns and might have an adverse effect on general psychological functioning (Nolen-Hoeksema, McBride, & Larson, 1997), event-related and deliberate rumination that is not exclusively negative may be predictive of posttraumatic growth (Calhoun, Cann, Tedeschi, and McMillan, 2000). The authors also note that a major life crisis is likely to temporarily provoke, regardless of a person's former predisposition to engage in intrusive or deliberate thinking (Cann et al., 2011).

Unwanted repeated thinking about the traumatic event or intrusive rumination is thought to maintain posttraumatic stress disorder (PTSD) symptom severity following traumatic events (Ehlers & Clark, 2000; Nolen-Hoeksama & Morrow, 1991; Türk, 2025). For example, Nolen-Hoeksama (1991) argued that people who tend to respond to their negative emotions by engaging in rumination might be at increased risk for severe and prolonged periods

of distress following negative events. On the other hand, as an intentional attempt to think about the event and seek meaning, deliberate rumination has also been associated with higher levels of self-reported posttraumatic growth (Taku, Cann, Tedeschi, & Calhoun, 2009; Cann et al., 2011; Triplett, Tedeschi, Cann, Calhoun, & Reeve, 2011; Groleau, Calhoun, Cann, & Tedeschi, 2013). However, there seems to be a need in the field for more studies examining the predicted relationship between event-related rumination, degree of posttraumatic growth, and other related concepts in the aftermath of a stressful life event.

The Event Related Rumination Inventory (ERRI), an instrument designed to assess the construct of ruminative thought processes and with sufficient psychometric properties, is presented to the attention of researchers and practitioners in Türkiye for utilization in evaluation and research activities, both in the development of PTG and posttraumatic stress. Therefore, the present study aims to standardize ERRI into the Turkish language and to address the existing gap across cultures.

Method**Participants**

The inclusion criteria for the study were being at least 18 years old and currently a university student. The participants were a total of 574 Turkish-speaking university students, collected by using the convenience sampling method (Golzar, Noor, & Tajik, 2022). 390 of the participants were female (67.9%), and 184 were male (32.1%). The participants ranged in age from 17 to 50, with an average age of $X=20.6$ ($SD=2.32$). 98.8% ($N=566$) of the students were continuing their undergraduate education, while 1.4% ($N=8$) were continuing their graduate education.

Participants were screened for having experienced highly stressful life events. The stressful life events that were reported included the loss of a loved one (70%), relationship break-ups (49%), having experienced serious health problems (13%), having experienced a serious accident (7%), witnessing a loved one experiencing a serious accident (19%), causing an accident (1%), witnessing a fire (8%), receiving a threat (18%), physical abuse or violence (7%), sexual abuse or violence (2%),

being robbed (5%), being stalked (18%), being in a military combat (7%) and other stressful life events (5%).

Data Collection Instruments

Sociodemographic Information Form

Participants provided a series of demographic information, such as age, gender, and education. Participants were also asked to indicate which of the 17 events they were reporting about, the estimated number of days since the stressful event, and the perceived stressfulness of the event in the aftermath and at the present time on the 7-point scales described above.

The Event Related Rumination Inventory (ERRI)

Developed by Cann and colleagues (2011), the Event-Related Rumination Inventory (ERRI) was designed to measure and differentiate between intrusive and deliberate rumination styles. The scale is focused on repeated thinking about a specific event. It aims to investigate the role of transitory cognitive states, both in the development of PTG and of posttraumatic distress.

The ERRI is a 20-item measure with items assessed on a 4-point Likert scale ranging from "Not at all" to "Often," with higher scores indicating more rumination about the event. A validation study revealed robust factor structures with alphas of $\alpha = .94$ and $\alpha = .88$ for intrusive and deliberate rumination, respectively (Cann et al., 2011). Calculated alphas for this sample were $\alpha = .94$ and $\alpha = .88$, for intrusive and deliberate rumination, respectively.

The Posttraumatic Growth Inventory (PTGI)

Participants completed the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), a 21-item measure assessing the extent to which individuals believe they have changed positively as a result of a stressful experience. Scoring for the PTGI consists of a total score. The response scale ranges from 0 (I did not experience this change) to 5 (I experienced this change to a great degree). Scores are presented as means across the 21 items. The PTGI has been found to have appropriate internal consistency ($\alpha .90$), test-retest reliability over a two-month interval ($r=.71$). Within the current sample, the reliability for PTGI was very good ($\alpha=.93$).

The Core Beliefs Inventory (CBI)

Participants completed the Core Beliefs Inventory (CBI; Cann et al., 2010), a 9-item scale designed to measure the degree to which a specific stressful event challenged participants' core beliefs about their world. In both longitudinal and cross-sectional research, the CBI is strongly associated with subsequent PTGI scores. Responses are made on a scale from 0 (not at all) to 5 (to a very great degree). The measure has shown good internal reliability ($\alpha .82$) and acceptable test-retest reliability over a 60-to-74-day time period ($r=.69$) (Cann et al., 2010). Across the current sample, the reliability was acceptable ($\alpha .86$).

The Impact of Event Scale-Revised (IES-R)

The Impact of Event Scale-Revised (IES-R; Weiss & Marmar, 1997) is a 22-item scale rated on a 0 (not at all) to 4 (extremely) scale regarding how distressing each item has been in the past week. Scale scores are formed for the three subscales, which reflect intrusion (8 items), avoidance (8 items), and hyper-arousal (6 items), and show a high degree of intercorrelation ($r_s = .52$ to $.87$, Creamer et al., 2003). High levels of internal consistency have been previously reported (Intrusion: Cronbach's $\alpha = .87$ –

.94, Avoidance: Cronbach's $\alpha = .84$ – $.87$, Hyperarousal: Cronbach's $\alpha = .79$ – $.91$, Creamer et al., 2003; Weiss & Marmar, 1997). Test-retest reliability, collected across a 6-month interval, ranged from $.89$ to $.94$ (Weiss & Marmar, 1997). The Cronbach's α for the current sample was highly reliable ($.91$), and all subscales had reliabilities of $.85$ or higher.

The Ruminative Responses Scale (RSS)

The Ruminative Responses Scale (RSS; Nolen-Hoeksema & Morrow, 1991) is a measure of trait-like rumination, consisting of two subscales, reflective pondering and brooding (Treynor et al., 2003). This 22-item scale was initially developed to measure one overall factor of trait-like rumination. Later research established that 12 of the items may measure depressive symptomatology (Treynor et al., 2003), so these items were eliminated, and the subscales of reflecting and brooding were comprised of five of the remaining items of the scale. Each item in the scale is assessed using a 4-point Likert scale ranging from "(1) = Almost never" to "(4) = Almost always," with higher scores indicating more rumination. The total score is calculated by taking the mean of all individual item scores, and the reflecting and brooding scores are calculated. In the original study, the internal reliability was found to be $.72$ and $.77$ for reflecting and brooding, respectively. In the current study, the Cronbach's α values were $.80$ for reflecting and $.83$ for brooding.

The Satisfaction with Life Scale (SWLS)

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item scale designed to measure global cognitive judgments of one's life satisfaction. Participants indicate how much they agree or disagree with each of the 5 items using a 7-point scale that ranges from (7) strongly agree to (1) strongly disagree. The SWLS is shown to have favorable psychometric properties, including high internal consistency and high temporal reliability. In the current sample, the internal reliability was acceptable ($\alpha .86$).

The Coping Styles Inventory (COPE Inventory)

The COPE Inventory is a multidimensional coping inventory designed to assess the various ways people respond to stress (Carver, Scheier, & Weintraub, 1989). Responses are made on a 4-point scale (I haven't been doing this at all [1] to I've been doing this a lot [4]). Cronbach's α for the 15 scales of COPE ranged from $.37$ to $.93$. Except mental disengagement, the remainder of the alphas were all above $.59$, with the majority above $.70$. The average α was $.79$. In the current study, the internal consistencies ranged from $.31$ to $.94$, with restraint ($.31$), mental disengagement ($.33$) and venting ($.35$) being the only factors with α under $.50$.

Adaptation Procedure of the ERRI

The double-translation method was followed for the adaptation of the scale. As the first step, three specialists, who were native Turkish speakers and fluent in English, translated the English version into Turkish. Discrepancies in initial translations were addressed with the assistance of a third independent translator. Two English-speaking language specialists, who were blinded to the original scale and the study's objective, then translated the Turkish version of the ERRI back into English. The differences between the translated versions were evaluated, and satisfactory compliance with the original scale was achieved by consensus among the translators. Another researcher from the Department of English Language and

Literature evaluated the completed Turkish version for cultural appropriateness, controversial items were determined, and necessary modifications were made. The original group of expert reviewers, to finalize the Turkish version used in this study, reevaluated the updated version, and finally, a study of language equivalence was executed.

Data Collection

Within the scope of this adaptation study, primarily, a study permit (approval number: 88600825/433-1742-27) was obtained from the Hacettepe University Ethics Committee. Data was collected through an online website (www.surveey.com) and students who were selected by using the convenience sampling method, were directed to the online survey as they logged into the webpage. Turkish versions of the scales were used. Anonymity and confidentiality were guaranteed. Participants voluntarily participated in the study and granted informed consent prior to responding to the survey items.

Data Analyses

The present study utilized LISREL 8.80 and SPSS 20.0 to perform the analysis. All raw data were evaluated for missing values, outliers, and normality assumptions. Of the 9 volunteers who participated in the study, a) left most of the scale items blank/did not fill in appropriately, b) did not indicate when the stressful life event they experienced occurred, or c) marked the severity of the experience below 4 on a 7-point Likert-type scale, were not included in the analyses, and cases were removed. Following the suggestion by Aron et al. (2014), the z-scores of each item were checked for extreme values, and no scores were found to range from -3 to +3. Since the sample size (574 cases) was large enough to conduct further analyses, the researchers assumed that the removed data would not significantly affect the generalizability of the findings. The ERRI items were mainly normally distributed, considering skewness and kurtosis, ranging between ± 1.5 (Tabachnick & Fidell, 2013). Thus, the analyses were performed on 574 individuals.

Both explanatory (EFA) and confirmatory (CFA) factor analyses were performed to examine the construct validity of the scale. Additionally, the correlation coefficient with various scales (the Impact of Events Scale, the Ruminative Responses Scale, the Posttraumatic Growth Scale, the Core Beliefs Inventory, the Satisfaction with Life Scale,

and the COPE-R) was examined using Pearson Correlation analysis for the criterion validity.

For explanatory factor analysis, The Kaiser Meyer Olkin (KMO) values obtained from the analyses (KMO=0.95) and the Bartlett Tests (χ^2 (6507) =6507.003.573, $P<.0001$) indicated that the number of samples applied for each scale was sufficient to check the conformity of the data set to factor analysis. Factors with an eigenvalue above 1 were taken into consideration. The factor structure of each subscale was examined using scree plot analysis, and it was found that the eigenvalues constituted a two-factor structure. The explanatory structure of the scale was compared with the dimensions of the original scale.

With confirmatory factor analysis, it was aimed to examine the fit to the model and the stability of the data. The present research followed the suggestions on fit indices (Byrne, 2013; Fabrigar et al., 1999; Kline, 2015): the chi-square, the Root Mean Square Error of Approximation (RMSEA), the (Standardized) Root Mean Square Residual (SRMR), and the Comparative Fit Index (CFI). Principal component analysis and the varimax rotation method were used in factor analysis. Since the original form of the scale had a two-factor structure, Varimax rotation analysis was taken into account. For the reliability analysis of the scale, the Cronbach alpha's internal consistency coefficients for its sub-dimensions were calculated to check the internal consistency and homogeneity.

Results

The Exploratory Factor Analysis of the ERRI

To determine the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) and Bartlett's Sphericity Tests were applied, and correlation coefficients were examined for all variables used in the analysis. The KMO value reports the amount of common variance created by the variables (Büyüköztürk, 2010). While this value being close to 1.00 indicates that the data is suitable for factor analysis, falling below 0.60 indicates that it would not be appropriate to conduct factor analysis with the data (Büyüköztürk, 2003; Gorsuch, 1997). The Bartlett Sphericity Test value and its significance test whether the variables are related to each other. The results of the research, as shown in Table 1, are presented below.

Table 1. Values Obtained from Kaiser-Meyer-Olkin (KMO) and Bartlett Sphericity Tests for ERRI

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	0.95
Bartlett Sphericity Test	Approximate chi-square	6507.003
	Sd	190
	p	.000

According to the results, the KMO value (0.952) and the Bartlett Test of Sphericity (6507.003) were found to be statistically significant ($p < .000$). The values obtained

were accepted as an indicator of the suitability of the data for exploratory factor analysis.

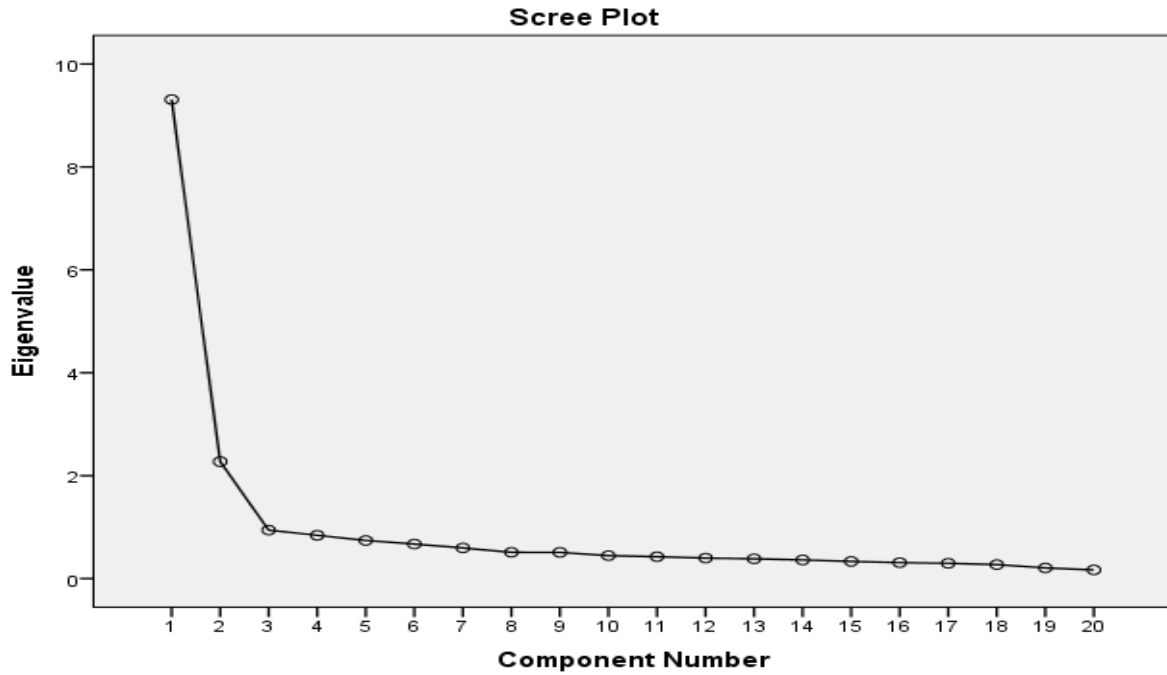


Figure1. Scree Plot Graph for Event Related Rumination Inventory

In the graph, which shows the eigenvalues of the factors revealed by the exploratory factor analysis, there are two important factors with rapid decreases. A rapid decrease was observed after the first factor, followed by a less accelerated decrease after the second factor. Since the graph progressed horizontally in the following factors and no significant decrease was observed, it was concluded that the scale had a two-factor structure. The eigenvalues with values greater than 1, belonging to the two factors in question, can be observed in Figure 1.

In the analysis conducted, two factors with eigenvalues above 1 were obtained. It was observed that the eigenvalue graph (scree plot) also confirmed the 2-factor solution in question. The first factor was named “Intrusive Rumination” and consisted of the first 10 items and explained 46% of the variance. The second factor was named “Deliberate” and consisted of the next 10 items and explained 12% of the variance. The two sub-dimensions of the inventory together seem to explain 58% of the total variance. Table 2 below presents the items, factor loadings, and the percentages of variance they explained according to the dimensions obtained as a result of EFA.

Table 2. Factor Loads and Values of Event-Related Rumination Inventory

Subscales		
Items	Intrusive Rumination	Deliberate Rumination
ERRI1	0.81	0.17
EERI2	0.83	0.24
EERI3	0.79	0.27
ERRI4	0.83	0.21
ERRI5	0.85	0.18
ERRI6	0.66	0.24
ERRI7	0.67	0.33
ERRI8	0.76	0.29
ERRI9	0.67	0.35
ERRI10	0.82	0.22
ERRI11	0.14	0.70
ERRI12	0.24	0.69
ERRI13	0.27	0.63
ERRI14	0.06	0.76
ERRI15	0.13	0.58
ERRI16	0.19	0.70
ERRI17	0.28	0.67
ERRI18	0.41	0.57
ERRI19	0.33	0.64
ERRI20	0.37	0.59
Variance Explained		%46
Total Variance Explained		%58

As seen in Table 2, the loading values of all scale items on the first factor are 0.40 and above. In addition, all items loaded on the sub-factors in a similar way to the original form of the scale. Consistent with the original form of the scale, the ‘intrusive rumination’ sub-dimension consists of items 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10, while the ‘deliberate rumination’ sub-dimension consists of items 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. The variance percentages explained by the sub-factors are consistent with the original form of the scale. The total variance explained by both sub-dimensions was found to be 58% in the study. In addition, the sphericity value of the scale was found to be 0.94. This result was accepted as an indicator of the construct validity of ERRI.

Confirmatory Factor Analysis

To verify the two-factor structure of ERRI, a CFA was conducted on the sample using the LISREL 8.80 program. The results of confirmatory factor analysis indicated that the model was well fit (χ^2 (Chi square test) = 506.13, df (degrees of freedom) = 163, RMSEA (The Root Mean Square Error of Approximation) = 0.61, NNFI (Non-Normed-Fit Index) = 0.98, CFI (Comparative Fit Index) = 0.99, GFI (Goodness-of-Fit Index) = 0.94, AGFI (Adjusted Goodness-of-Fit Index) = 0.90 and SRMR (Standardized Root Mean Square Residual) = 0.053). Examining the CFA results, it is observed that the scale is compliant with the two-factor model, in parallel to the exploratory factor analysis findings.

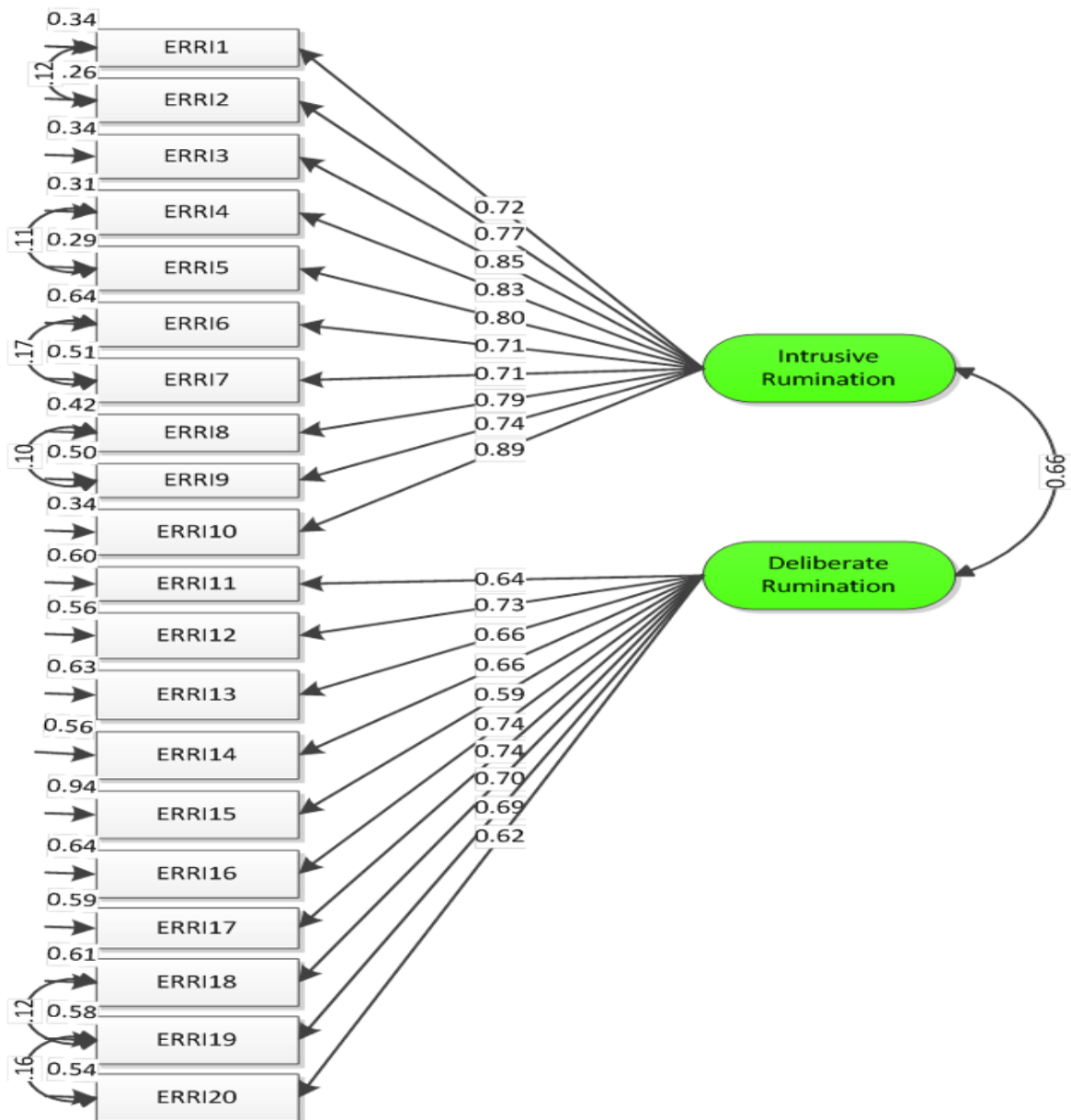


Figure 2. Factor Loadings and Path Diagram for the ERRI

Chi-Square=506.13, df =163, $p < 0.01$, RMSEA = 0.61

As a result of the analysis, the first 10 items were determined as “intrusive rumination” and the remaining 10 items as “deliberate rumination” according to the content

of the ERRI scale items. The structure of the scale is shown in Figure 2.

Table 3. Confirmatory Factor Analysis Results of Event-Related Rumination Inventory

Reviewed Compliance Index	Perfect Fit Index*	Acceptable Fit Index*	Two-Factor Compliance Index of ERRI
RMSEA	0 < RMSEA < 0.05	0.05 < RMSEA < 0.08	0.06
S-RMR	0 < S-RMR < 0.05	0.05 < S-RMR < 0.1	0.05
NNFI	0.97 < NFI < 1	0.95 < NFI < 0.97	0.98
CFI	0.97 < CFI < 1	0.95 < CFI < 0.97	0.99
GFI	0.95 < GFI < 1	0.90 < GFI < 0.95	0.92
AGFI	0.90 < AGFI < 1	0.85 < AGFI < 0.90	0.90
χ^2 /sd (506.13/163)	$\chi^2 /sd < 3$	$3 < \chi^2 /sd < 5$	3.1

* (Schermelleh-Engel, Moosbrugger and Müller, 2003; Sümer, 2000).

Criterion-Related Validity

In this study, the validity of the criterion was examined by examining the relationships between the materials presented in addition to ERRI (IES-R, PTGI, CBI, SWLS,

RRS, COPE) and the total and sub-ERRI scores. Table 4 involves the correlations between the ERRI and the other measures.

Table 4. Correlations of ERRI with impact of events, posttraumatic growth, core beliefs, life satisfaction, ruminative responses, and COPE dimensions

	ERRI Total	Intrusive Rumination	Deliberate Rumination
Impact of Events Scale-R	0.49**	0.43**	0.45**
Posttraumatic Growth Inventory	0.46**	0.33**	0.50**
The Core Beliefs Inventory	0.67**	0.53**	0.69**
The Satisfaction with Life Scale	-0.10*	-0.12**	-0.07
The Ruminative Responses Scale	0.44**	0.36**	0.44**
The COPE Inventory	0.30**	0.22**	0.30**

** $p < .01$, * $p < .05$

To evaluate the criterion validity, Pearson correlations were calculated for each possible pairing of variables (see Table 4). A significant relationship ($r = 0.49$; $p < .00$) was found between the total ERRI scores and the impact of events. Additionally, the IES was found to be positively related to the intrusive rumination sub-dimension ($r = 0.43$; $p < .00$), as well as deliberate rumination ($r = 0.45$; $p < .00$). A similar significant pattern was observed between posttraumatic growth and the two ERRI styles. PTGI seems to be highly correlated with overall scores ($r = 0.46$) and sub-dimensions of the ERRI ($r = 0.33$ and $r = 0.50$ respectively; $p < .00$). Both event-related rumination styles seem to be most highly correlated with the core beliefs. The results indicated that engaging in event-specific

deliberate rumination was significantly associated with the questioning of one's core beliefs after a stressful event. However, the negative correlation between ERRI and SWLS indicated that a cognitive tendency to process after the stressful event was weakly correlated with satisfaction with life. No significant relationship was found between deliberate rumination and life satisfaction. Criterion validity was assessed by correlating the results with a concurrent reference scale (the RRS). There were correlations in the range of medium-good ($r = 0.44$, $r = 0.36$, $r = 0.44$; $p < 0.01$, respectively) between the total and individual subscales of the ERRI and the RRS total scores. Additionally, correlations were approaching the low-medium level between the total COPE and intrusive

rumination ($r=0.22$, $p<0.01$), deliberate rumination ($r=0.30$, $p<0.01$), and the ERRI scores ($r=0.30$, $p<0.01$). Overall, the results demonstrated expected significant associations between ERRI styles and other theoretically related concepts, and both intrusive ($r = 0.53$) and deliberate ($r= 0.69$) styles of thinking were most highly correlated with the investigation of core beliefs. As a result, it is appropriate to say that the scale meets the criterion validity.

Reliability

In the analysis conducted to evaluate the reliability, the Cronbach's Alpha coefficient was found to be 0.94 for the overall scale, which is quite similar to that of the original study. Cronbach's alpha values of the sub-scales for the Turkish sample were also analyzed. For the "intrusive" rumination sub-factor, it was found to be 0.94, and for the "deliberate" rumination sub-factor, the Cronbach alpha value was found to be 0.88, respectively. These values indicate that the internal consistency of the scale is high; therefore, it was considered appropriate to include all items in the analyses.

Discussion

A challenging life event, such as illness, war, accident, or a relationship break-up, can lead individuals to negative psychological outcomes such as Post Traumatic Stress Disorder. Nevertheless, some people are generally better able to deal with horrific events than others are (NCBI, 2023; Kesgin & Karaaziz, 2025), and many people experience positive psychological changes following a traumatic event and transform themselves significantly (Tedeschi & Calhoun, 2004; Linley & Joseph, 2004). Various factors seem to contribute to this positive transformation, including deliberate rumination to find closure and resolution.

Given the pervasive and persistent nature of rumination and its potential impact on cognitive processes after stressful life events, the purpose of this study was to adapt ERRI (Cann et al., 2011) into Turkish and examine its psychometric properties. Confirmatory factor analysis demonstrated that the factor structure was compliant with the original study (Cann et al. 2011). The internal consistency reliability coefficients of the scale were high (Büyüköztürk, 2010; Kline, 2000), and the final version of the scale consists of two factors and 20 items. Thus, it can be concluded that the structural model of the ERRI was well fit to the Turkish culture (Bentler & Bonett, 1980; Hu & Bentler, 1999; Schermelleh-Engel & Moosbrugger, 2003).

Nevertheless, there seems to be a need for further retrospective research to establish the predictive utility of ERRI in a multi-cultural context, and future studies would be important for its measurement force. In addition, our

findings were derived from a cohort of young, healthy adults and cannot be generalized to a clinical population. To fully understand the psychopathological role of rumination, there is a need for future research conducted using clinical samples. Lastly, the sample size of this study is relatively small; therefore, the current findings require further validation with a larger sample size in the future.

The overall findings of this study demonstrated that the Turkish version of the Event-Related Rumination Inventory had high validity and reliability scores, indicating that it may be used as a valid and reliable instrument for determining the style of cognitive processing in which a person engages in the aftermath of a stressful life experience.

Declarations

Ethics Committee Approval

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional research committee, with a study permit (88600825/433-1742-27) from Hacettepe University, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent for Publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Conflict of interest

The authors report no actual or potential conflicts of interest.

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Author contributions

This research has been conducted as a part of MÇ's doctoral dissertation. MÇ and FÖ were responsible for conception, design, and study coordination of this research. MÇ pursued data collection, analysis, interpretation, and manuscript writing. Both authors contributed to drafting and revising the paper and agree to be accountable for all aspects of the work. The corresponding author had full access to all data and decided to submit the paper for publication. All authors have read and approved the final version of the article.

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