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The Adaptation of the Regret Elements Scale to Turkish Culture

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ABSTRACT

Humans feel the need to reflect on their past decisions throughout their lives. Regret plays a significant role in this evaluation. Acknowledging regret is crucial, as it helps in rectifying undesirable past decisions and making healtier options in the future. Regret has cognitive and affective dimentions. Cognitive regret refers to reviewing past decisions, while affective regret belong to negative emotions. This study aims to adapt the regret elements scale (RES) in the Turkish adult population. The study involved 48 participants in the pilot application stage, 40 participants in the language validity stage, 599 participants in the confirmatory factor analysis stage, and 52 participants in the test-retest stage. The participants' ages ranged from 18 to 60 years. The study examined the language validity, confirmatory factor analysis, and criterion-related validity of the scale. Additionally, reliability measures such as Cronbach Alpha internal consistency coefficient, Spearman-Brown split-half reliability, test-retest reliability coefficient, and differences between the 27% lower and upper groups were utilized. Mean explained variance (AVE) and combined reliability (CR) values were also calculated. The findings indicate that the language validity of the scale was high (.80). Confirmatory factor analysis revealed that the 2-dimensional and 10-item scale had acceptable fit indices [x^2 / df= 2.09, RMSEA= .043, SRMR= .07, NNFI /TLI = .91, CFI= .94, GFI= .92]. The scale and its sub-dimensions were negatively correlated with Satisfaction with Life. Reliability analyses found high Cronbach's Alpha reliability (.92), Spearman-Brown split-half reliability (.95), and test-retest reliability (.75) coefficients, as well as significant differences between the regret score averages of the lower and upper groups of 27%. The AVE and CR values of the scale were also high. The findings suggest that the 2-dimensional (affective regret and cognitive regret) and 10-item RES is a valid and reliable measuring tool for assessing regret in the field of mental health for adult individuals in Turkey. Overall, the RES can be considered a useful tool for measuring regret and its various dimensions. It is thought that the adaptation of the regret elements scale (RES), which includes these dimentions, will contribute to the literature.

Throughout human life, there is a need to reflect on the past after making numerous decisions. The need to review decisions is sometimes related to question the past (Buchanan et al., 2016). However, this evaluation is predominantly aimed at shaping the future (Pink, 2022). The belief that outcomes will vary depending on the chosen path can lead individuals to embark on a new course (Sayar, 2022). This process involves not being satisfied with the results of previous decisions. There are emotions accompanying this situation that can alter one's state of mind. Emotions provide clues about whether the preferred methods are healthy or not (Plutchick, 2003; Zeelenberg et al., 2000).

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In daily life routines, emotions are indispensable tools. Emotions help ascribe new meanings to events and facts. When individuals believe they have made a wrong decision, they perceive themselves in negative emotions (Plutchick, 2003; Zeelenberg et al., 2000). When evaluating the past, the most intense emotion experienced is regret (Roose et al., 2005). Regret, as it encompasses guilt, sadness, and various other emotions, appears to present a negative situation. However, regret is a more productive and helpful emotion in making healthier decisions (Buchanan et al., 2016; Plutchick, 2003; Zeelenberg & Pieters, 2007). The complex nature of the emotion of regret can effectively transform human behavior (Oam, 2023).

The emotion of regret is closely related to life experiences. As individuals age and gain more experience, they tend to experience more regret (Wrosch & Heckhausen, 2002). An individual can feel regret for both their actions and inaction. In the first case, the individual regrets a situation they chose and dislike the outcome. In the other case, the individual may regret as not choosing a situation more beneficial for him/herself. In both cases, the individual questions his/her decisions (Pink, 2022). In summary, although individuals perceive regret as an undesirable path, it can enable them to regulate their future (Sayar, 2022).

Regret and Disappointment

Regret can generally be defined as an individual not being satisfied with their decisions or actions (Zeelenberg et al., 2000). Regret can manifest itself in various forms of lamentation. It involves not only negative emotions but also the cognitive process of reconsidering different alternatives. Along with negative emotions, regret can be accompanied by emotions of guilt, remorse, self-reproach, disgust, and sadness. Cognitive processes also accompany regret. For example, expressions such as "I wish I had done it" or "I wish I hadn't done it" involve regret (Güller, 2022; Özdemir & Düzgüner, 2020; Pink, 2022; Zeelenberg & Pieters, 2007).

Regret can be directed toward actions taken and actions not taken. Both cases result in undesired outcomes. Regret felt for inaction is generally seen as more acceptable (Zeelenberg et al., 2002). This is because the responsibility for the behavior is not yet established. On the other hand, regret experienced after taking action encompasses negative emotions and thoughts. In both cases of regret, questioning the behavior or decision made is involved (Pink, 2022).

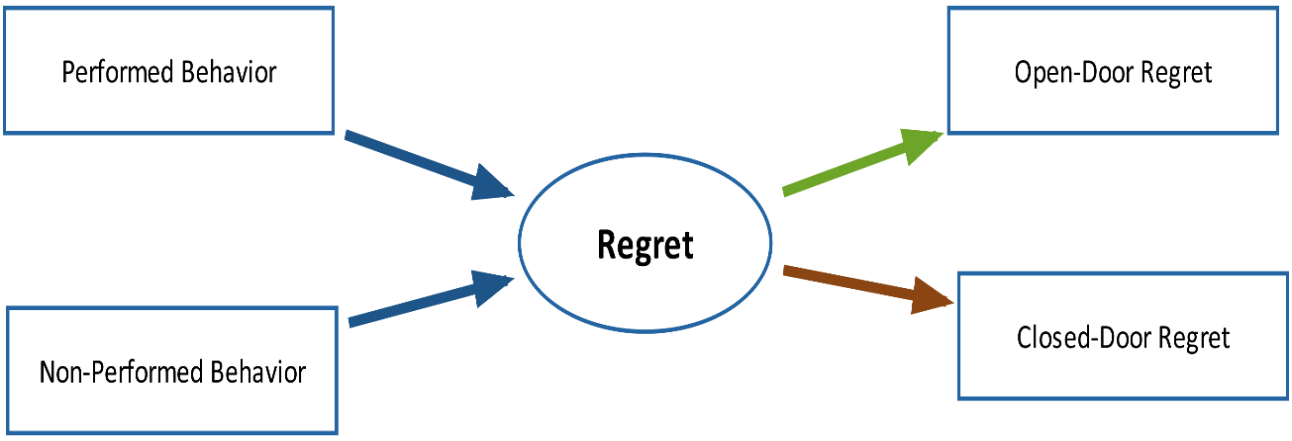
One concept closely related to the emotion of regret is disappointment. Regret and disappointment are terms that are often used together in the literature (Marcatto & Ferrante, 2008). Although used interchangeably in some studies, regret differs from disappointment in terms of the person to whom it is directed. For a better understanding of regret, it is necessary to explain the difference from disappointment. Disappointment can be expressed as a negative emotion that arises when expectations from others or the external world are not met (Zeelenberg et al., 2000). In disappointment, emotions such as guilt, sadness, and anger can also be present. However, while these emotions in disappointment are directed toward the external world, in regret, these emotions are directed toward the internal world. In other words, when experiencing disappointment, individuals tend to blame others, whereas in regret, individuals tend to blame themselves. Cognitively, the two phenomena can also differ. The expression "I wish" can be used for both disappointment and regret. When expressing disappointment, the "I wish" statement is directed toward the behavior of others, whereas in the case of regret, it is directed toward one's own behavior (Özdemir & Düzgüner, 2020; Pink, 2022; Zeelenberg et al., 2000, 2002). In summary, the concepts of disappointment and regret differ based on the direction of expectations.

Theoretical Structure of Regret

The emotion of regret tends to focus on the internal world. By its nature, regret necessitates an examination of life and a review of decisions. It provides individuals with an opportunity for deep introspection both before and after experiencing regret (Pink, 2022; Zeelenberg & Pieters, 2007). In this regard, regret exhibits both cognitive and affective elements. The cognitive element involves questioning thoughts and decisions, while the affective element encompasses self-blame, sadness, and emotions of guilt (Buchanan et al., 2016). For example, when an individual says, "I wish I hadn't done it" they are cognitively questioning their behavior. Additionally, they may experience emotional distress and emotions of sadness or remorse.

From a theoretical perspective, regret emerges in relation to behavioral outcomes (Pink, 2022). Regret can be categorized into actions taken or not taken. Inaction-related regret is generally viewed more positively than action-related regret (Zeelenberg et al., 2002). The process of regret includes both regret for actions taken and regret for actions left untaken. The regret process is presented in Figure 1.

Figure 1. The Process of Regret



Source: Adapted from Pink (2022).

As seen in Figure 1, the emotion of regret arises following actions taken or actions not taken. When regret is experienced, the opportunity to change the outcome is reassessed. In this regard, there are two options (Pink, 2022): Closed-door regret and open-door regret. Closed-door regret involves a situation where there is no possibility of taking action or changing the outcome. Open-door regret, on the other hand, refers to a situation where there is the opportunity to take action and alter the outcome.

Regret can manifest in fundamental, courage-related, moral, and relational forms. Fundamental regrets pertain to personal development. Courage-related regrets involve taking risks. Moral regrets are associated with emotions of guilt and the desire to engage in a morally correct action. Relational regret encompasses efforts to improve interpersonal relationships (Oam, 2023; Pink, 2022). Joseph-Williams et al. (2011) indicated that there are two kinds of regret that emerge during the process: Anticipated regret and experienced regret. Anticipated regret precedes a decision, which can take the form of actions taken or actions not taken. Experienced regret occurs after the decision is made. Experienced regret can be immediate or delayed in its manifestation. It can be stated that experienced regret is closely related to the closed-door regret and anticipated regret to the open-door regret.

As stated above, although regret has different theoretical explanations, it needs concrete explanations to measure regret. Buchanan et al. (2016), revealed that regret has cognitive and affective dimentions. While affective regret covers the emotional experience of an unexpected event, cognitive regret includes negative evaluations of that event. Conceptualizing regret with regard to these two components helps to learn about the underlying conditions of this complex emotion. The experience of regret leads both to the emergence of negative emotions and to think about other options (Buchanan et al., 2016).

Aim of The Study

The current reserach aims to adapt the regret elements scale (RES), developed by Buchanan et al. (2016), to the Turkish. The original scale consists of two subdimensions: Cognitive regret and affective regret. The affective element encompasses emotions such as sadness, guilt, and anger. The cognitive element involves cognitive questioning and reviewing (Buchanan et al., 2016). The RES was developed due to the lack of a sufficient measurement tool that assesses the positive and negative ways of experienced regret (Buchanan et al., 2016; Joseph-Williams et al., 2011).

The RES differs from other scales such as existential regret (Ermiş & Bayraktar, 2021), decision-related regret (Diotaiuti et al., 2022; Telata et al., 2021), regret related to sports participation (Madrigal & Robbins, 2018),

and regret related to purchases (Kazancıoglu et al., 2021). The scale measures the overall regret. As the measurement tool focuses on experienced regret (Buchanan et al., 2016), it does not assess anticipated regret (Joseph-Williams et al., 2011). The RES derives from other regret scales in that it can measure general regret, have affective and cognitive components, and measure regret differently from other emotions. The scale's minimal number of items and its inclusion of dimensions that measure different aspects facilitate ease of use. When reviewing the literature on general regret, it can be observed that regret is associated with depression (Kraines et al., 2017), stress (Perdomo, 2021), self-expectations (Roese & Summerville, 2005), decision avoidance (Lauriola et al., 2019), satisfaction with life (Moyano-Diaz et al., 2023), and forced choice (Goldstein-Greenwood et al., 2020; Matarazzo et al., 2021). Stress can be experienced because the experience of regret includes negative affect and confusion in the past. When the individual experiences the emotion of regret deeply, he/she can get more depression and less satisfaction from life (Kraines, et al., 2017; Moyano-Diaz et al., 2023; Perdomo, 2021). It is emphasized that examining these relationships based on cultural characteristics is important for confirmability (Breugelmans et al., 2014).

In conclusion, the RES (Buchanan et al., 2016) is a measurement tool that assesses the general state of regret in adult individuals. The scale is highlighted as a valuable tool for uncovering individiuals' self-expecetations and evalualitions of the past (Buchanan et al., 2016). Given the power of regret to influence future decisions, this scale will aid in recognizing both prefered and unpreferred paths (Pink, 2022). Recognition of regret is important, as it gives the opportunity to notice and correct undesirable decisions in the past. At the same time, the experience of regret allows to make healtier decisions in the future (Roese & Summerville, 2005). The scale adapted into Turkish can be an important assessment tool to determine general, affective and cognitive regret in adults. It is thought that the scale will contributed to the literature based on measuring the cognitive and affective dimentions of regret. The scale can be used in psychological counseling and therapy studies that include the themes of making healty decisions about life and utilizing opportunities. It can be said that this study is original in terms of bringing the scale to Turkish culture. In this regard, the scale is aimed to be adapted to Turkish culture through validity and reliability studies. Based on this information, this study aimed to test the following hypothesis:

H: The adapted Turkish version of RES is a valid and reliable tool for measuring general regret in the Turkish adult population.

Method

Participants

The adaptation research of the RES was conducted with the participation of adult individuals residing in different regions of Turkey. In the Turkish-English translation phase of the study, 40 participants were involved, while 48 participants took part in the pilot application phase, 52 participants in the test-retest reliability study, and 599 participants in the confirmatory factor analysis (CFA) study. It can be highlighted that the sample size was sufficiently large for validity and reliability analyses (Kline, 2014; Seçer, 2015). The selection of participants for the CFA was conducted using a simple random sampling method, ensuring that every element in the population had an equal and uncorrelated opportunity of being chosen for the sample (Büyüköztürk et al., 2018, p. 88). Among the participants in the CFA study, the age bracket of the participants spanned from 18-60 years, with an average age of 24.44 (SD=7.05). The demographic information of the paticipants is presented in Table 1.

Table 1. Demographic Information of the Participants

		Translation Study		Pilot Study		Test-Retest Study		CFA Study	
		f	%	f	%	f	%	f	%
Gender	Female	31	77.5	30	62.5	38	73.1	423	70.6
	Male	9	22.5	18	37.5	14	26.9	176	29.4
Age	18-24	29	72.5	32	66.7	25	48.1	342	57.1
	25-32	9	22.5	11	22.9	21	40.4	182	30.4
	33-40	2	5	2	4.2	4	7.7	45	7.5
	41-60			3	6.3	2	3.8	30	5
Education level	Primary education			3	6.3	5	9.6	51	8.5
	High school			15	31.3	15	28.8	153	25.5
	University	40	100	25	52.1	29	55.8	341	56.9
	Postgraduate education			5	10.4	3	5.8	54	9
Marital status	Single	37	92.5	36	75	34	65.4	429	71.6
	Married	2	5	12	25	18	34.6	165	27.5
	Widowed/Divorced	1	2.5					5	0.8
Perceived income level	Low	13	32.5	14	29.2	12	23.1	142	23.7
	Moderate	24	60	20	62.5	35	67.3	382	63.8
	Good	3	7.5	4	8.3	5	9.6	75	12.5
Total		40	100	48	100	52	100	599	100

Measurements

Demographic Information Form. The demographic information form was created to obtain information about variables such as gender, age, perceived income level, and educational background.

The Regret Elements Scale (RES). The scale was developed by Buchanan et al. (2016). It consists of 10 items and has a two-dimensional structure. The affective element of the scale includes five items, while the cognitive element consists of five items. The measurement tool is a 7-point Likert-type self-report scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (7). The results of the CFA indicate that the fit indices are at an acceptable level (x^2 / df = 2.42, p< .05, RMSEA = .10, SRMR = .03, CFI = .96). In the orijinal study, the internal consistency coefficient (Cronbach's alpha) of the affective and cognitive subscales were determined to be .84, and .94, respectively. Scores obtained from the scale ranged from 10 to 70. As scores on the scale increase, it can be interpreted that individuals experience more regret in life. In this study, the internal consistency coefficient (Cronbach's alpha) of the affective and cognitive subscale, and overall scale were respectively found to be. 86, .93, and. 92.

Satisfaction with Life Scale (SWLS). The scale was developed by Diener et al. (1985). The original scale reported a Cronbach's alpha coefficient of .82, indicating high internal consistency, and the single-factor scale explained 66% of the variance. The measurement tool is a 7-point Likert-type self-report scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (7). The adaptation of the scale was conducted by Durak et al.

(2010). The adaptation study found that the scale demonstrated a Cronbach's Alpha coefficient of .81 and item-total scale correlations ranging from .55 to .69 in a sample of Turkish university students (n=547). The results of confirmatory factor analysis (CFA) indicated that the fit indices were at an adequate level (x^2 / df = 2.02, RMSEA = .043, SRMR = .02, NNFI (TLI) = .98, IFI = .99, CFI = .99). Scores obtained from the scale range from 7 to 35. As scores on the scale increase, it can be interpreted that individuals experience higher satisfaction with life. In this study, the internal consistency coefficient (Cronbach's alpha) was determined to be .75.

Procedure

To adapt the RES into Turkish, permission was obtained from Dr. Summerville, one of the authors who developed the scale in 2022. Subsequently, the Siirt University Ethics Committee granted ethical approval for the study with decision number 4044, dated January 16, 2023. The scale was translated with the assistance of two English linguists. Then, three linguists, who hold a doctoral degree in Turkish Language and Literature, conducted reviews and revisions. Based on the feedback received, the scale was further reviewed by an expert in the field of psychology and an assessment specialist to give its final form. The Turkish version was back-translated by two bilingual academics in a way that preserves idiomatic expressions. Opinion was received from the author about the items containing idiomatic expressions. Afterwards, 40 university students majoring in English Language Teaching were asked to rate the Turkish and English forms separately. In this stage, suggestion boxes were created below each item to obtain possible recommendations. The correlation coefficient between the Turkish and English versions of the scale was 0.80.

The necessary adjustments were made to the scale's instructions, and the final scale form was pilot tested with 48 adult participants. The pilot study revealed a high internal consistency coefficient of .92 and item-total correlations ranging from .41 to .77. After this stage, adult participants were invited to the study through a simple random sampling method via social media. Data from 650 participants who voluntarily filled out the informed consent form were collected through an online data collection method. Due to reasons such as missing data and violations of normality, the data of 51 participants were excluded from the dataset. Finally, a CFA was conducted using data from 599 participants. In the test-retest reliability study, the responses of 52 participants were evaluated with a two-week interval. Finally, the difference between the mean scores of the lower and upper quartiles (27%) was examined.

Data Analysis

The research data analysis was carried out using SPSS 25.0 and AMOS 24.0 software packages. All raw data were examined for normality assumptions, and data that did not adhere to the normal distribution measures were removed from the dataset. In the CFA study, skewness and kurtosis values below -1.96 and above +1.96 were removed from 21 data sets (Kline, 2014; Seçer, 2015). The Pearson's product-moment correlation coefficient was utilized to examine the association between the original and Turkish versions of the scale, the test-retest relationship, and the relationship between the regret elements scale and satisfaction with life scale. Item-total correlations and Cronbach's Alpha coefficients were calculated for both pilot and main applications. The Spearman-Brown reliability coefficient method was employed to examine the scale's split-half reliability. This involved analyzing the odd and even items of the scale separately. Additionally, independent samples t test results were examined to analyze the difference between the lower and upper quartiles (27%) in the reliability study (Çokluk et al., 2018).

A CFA was conducted to test the scale structural validity. It is recommended that the sample size be more than 384 for CFA analyses (Kline, 2014; Seçer, 2015). In this study, data were collected from 599 participants for CFA analyses. Initially, Mahalanobis distance outliers were examined for CFA adequacy. Due to the violation of the assumption of multivariate normality in continuous data, analysis was performed using the distribution-free estimation method instead of maximum likelihood estimation, following the recommendations in the literature (Hair et al., 2017; Schermelleh-Engel et al., 2003). Next, goodness-of-fit indices and modification indices were calculated for the model. Finally, average variance extracted (AVE) and composite reliability (CR) values were examined (Hair et al., 2017) to assess the model's goodness of fit.

Results

Validity Results

Confirrmatory Factor Analysis

The CFA study was carried out to assess the construct validity of the RES. In the CFA study, the goodness-of-fit indices of the latent model were analyzed. In this regard, t-values were initially examined for the scale results. The item factor loadings and t-values for the RES regarding the CFA results are presented in Table 2.

Table 2. The CR Results for the Items of the Regret Elements Scale

Item No	Standardized factor loading	SE	CR
Item 1	.834	.049	8.22*
Item 2	.915	.049	4.51*
Item 3	.871	.059	5.19*
Item 4	.672	.062	10.19*
Item 5	.570	.060	12.28*
Item 6	.865	.060	7.33*
Item 7	.932	.049	4.45*
Item 8	.920	.043	5.76*
Item 9	.913	.037	7.11*
Item 10	.855	.060	7.08*

*p<.01

The t-values for the items in the latent model being above 1.96 ($p < .05$) at the .05 significance level and above 2.56 ($p < .01$) at the .01 significance level indicate statistical significance (Çokluk et al., 2018; Schumacker & Lomax, 2010). As shown in Table 2, the standardized factor loadings range from .57 to .93. The t-values (CR) for the items range from 4.51 to 12.28. Thus, it can be concluded that the standardized factor loadings (> .45) and t-values ($p < .01$) in the model are significant.

For testing the latent model of the scale, CFA results were examined. The CFA results, following the suggested modification changes, are presented in Fig. 2.

Figure 2. The CFA Results

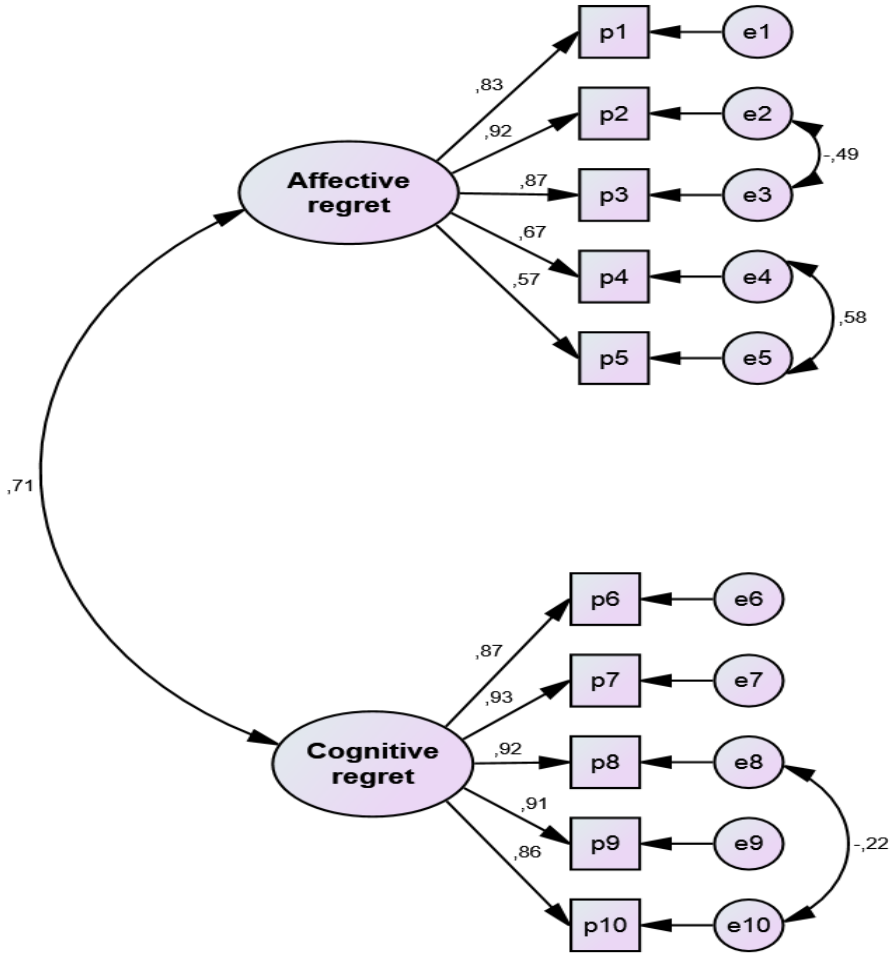


Fig. 2 displays the factor loadings, intercorrelations between the subdimensions, and modification processes of the two-dimensional, 10-item model of the RES. In a CFA study, it is emphasized that second-level CFA and modification processes should be done (Seçer, 2015). In the imlicit model, the proposed modification was made between p2-p3 and p4-p5 for the affective regret sub-dimention, and between p8-p10 for the cognitive regret sub-dimention. The item correlation values being equal to or greater than .45, can be interpreted as significant (Çokluk et al., 2018; Seçer, 2015). As observed in Figure 1 and Figure 2, the item correlation values range from .57 to .92. The positive and significant correlation between the subdimensions of affective regret and cognitive regret (< .85) is evident. Following this stage, the goodness-of-fit indices for the scale were researched. The results of the goodness-of-fit indices for the scale are presented in Table 3.

Table 3. Goodness-of-Fit Index Results

Goodness-of-Fit Indices	x^2/sd	RMSEA	SRMR	RMR	NFI	NNFI (TLI)	CFI	GFI	AGFI
Perfect Fit Criteria	≤ 2	≤ .05	≤ .05	≤ 05	≥ .95	≥ .95	≥ .95	≥ .95	≥ .90
Acceptable Fit Criteria	≤ 5	≤ .08	≤ .10	≤ .10	≥ .90	≥ .90	≥ .90	≥ .90	≥ .85
Results	2.09	.043	.07	.08	.89	.91	.94	.92	.86

Kaynak: Kline, 2011; Seçer, 2015.

As shown in Table 3, the goodness-of-fit indices for the scale [x^2 / df (≤ 5), SRMR (≤ .10), RMR (≤ .10), CFI (≥ .90), NNFI /TLI (≥ .90), GFI (≥ .90), and AGFI (≥ .85)] indicate acceptable goodness-of-fit according to the criteria (Çokluk et al., 2018; Kline, 2014; Seçer, 2015). Furthermore, the RMSEA value (≤ .05) falls within the boundaries of excellent fit, and the NFI value (< .90) is very close to the acceptable goodness-of-fit criterion. It can be concluded that the two-dimensional, 10-item RES demonstrates sufficient model fit. The scale comprises five items for each sub-dimension of affective regret and cognitive regret.

Criterion-Related Validity

In the literature, satisfaction with life has been found to be negatively correlated with regret (Moyano-Diaz et al., 2023). For this reason, satisfaction with life was used as a criterion variable in the study. To test the criterion-related validity of the RES, its relationship the satisfaction with life scale (SWLS) has been examined. The findings regarding criterion-related validity are presented in Table 4.

Table 4. Corelation Results between the Regret Elements Scale, Subdimentions and Satisfaction with Life Scale

Variables	Mean	SS	Skewness	Kurtosis	r [95% CI]			
					1	2	3	4
1. Affective Regret	11.24	4.64	1.072	.996				
2. Cognitive Regret	13.26	5.87	.689	-.566	.59 [.53, .64]*			
3. Regret Elements (RES)	24.49	9.37	.822	.236	.86 [.84, .88]*	.91 [.90, .93]*		
4. Satisfaction with Life	16.97	5.78	.377	.879	-.15 [-.22, -.07]*	-.14 [-.22, -.06]*	-.16 [-.24, -.08]*	

* p< .01

As shown in Table 4, the SWLS, affective regret subscale, cognitive regret subscale, and RES exhibit skewness and kurtosis values within the normal range. Negative correlations were found between the SWLS and the RES, affective regret subscale, and cognitive regret subscale. Positive relationships were observed between the RES and the affective regret subscale, as well as between the RES and the cognitive regret subscale.

Convergent Validity

In the context of Structural Equation Modeling (SEM), which was used in the study, validity indices such as AVE and CR were examined to assess the construct validity of the measurement tool. The calculations revealed an AVE of .61 and CR of .88 for the affective regret subscale, an AVE of .80 and CR of .95 for the cognitive regret subscale, and an AVE of .71 and CR of .95 for the entire scale. Based on these structure validity values, the measurement tool can be considered to have sufficient validity (Hair et al., 2017). It can be said that the

RES provides convergent validity.

Reliability Results

Tablo 5 presents the reliability results of the RES, including Cronbach's Alpha, test-retest reliability, and independent samples t-test analysis based on the lower-upper group variable.

Table 5. Reliability Results for the Regret Elements Scale

			Item-Total Corelations		All Scale	
Item No	**Mean**	**SS**	**Affective Regret**	**Cognitive Regret**	**α**	**α**
Item 1	2.40	1.16	.658			
Item 2	2.42	1.18	.707			
Item 3	2.28	1.16	.653			
Item 4	2.14	1.14	.576		.86	
Item 5	1.98	1.11	.494			.92
Item 6	2.72	1.37		.712		
Item 7	2.64	1.32		.794		
Item 8	2.54	1.29		.786		
Item 9	2.67	1.29		.772	.93	
Item 10	2.66	1.31		.727		

As seen in Table 5, the item-total correlations of the affective regret subscale range from .494 to .707. The item-total correlations of the cognitive regret subscale range from .712 to .794. The internal consistency coefficient (Cronbach's Alpha) is found to be .86 for the affective regret subscale, .93 for the cognitive regret subscale, and .92 for the overall scale. These findings suggest that the scale items have high discriminant power.

To analyze the split-half reliability of the RES, the Spearman-Brown reliability coefficient method was employed. The calculated split-half reliability coefficient for the entire scale is .95, indicating high reliability. The split-half reliability coefficient for the affective regret subscale is .75, and for the cognitive regret subscale, it is .91.

To assess the test-retest reliability of the RES, a test-retest study was conducted with a two-week interval and 52 participants. The reliability coefficients obtained from the test-retest analysis were .70 for the affective regret subscale, .72 for the cognitive regret subscale, and .75 for the entire scale. These results indicate high reliability of the scale when measured using the test-retest method.

As part of the reliability study, a differential item analysis based on the difference in mean scores between upper and lower groups was conducted. Accordingly, the RES total score was ranked, and a lower group comprising 27% (n=162) and an upper group comprising 27% (n=162) were formed. The difference between the means of the two groups was examined using an independent samples t test. The results of the independent samples t test based on the upper and lower group variable are presented in Table 6.

Table 6. Independent Group T Test Results based on the Lower-Upper Group Variable

Item No	Group	N	Mean	SS	sd	t-test
Item 1	The Upper %27 Group	162	3.52	1.23	314.57	9.44**
	The Lower %27 Group	162	2.32	1.05		
Item 2	The Upper %27 Group	162	3.66	1.19	308.10	10.99**
	The Lower %27 Group	162	2.33	.95		
Item 3	The Upper %27 Group	162	3.34	1.35	289.95	8.36**
	The Lower %27 Group	162	2.25	.96		
Item 4	The Upper %27 Group	162	3.06	1.43	280.47	7.50**
	The Lower %27 Group	162	2.04	.95		
Item 5	The Upper %27 Group	162	2.72	1.51	283.24	5.70**
	The Lower %27 Group	162	1.90	1.02		
Item 6	The Upper %27 Group	162	4.27	1.07	322	13.27**
	The Lower %27 Group	162	2.62	1.16		
Item 7	The Upper %27 Group	162	4.27	.99	322	16.28**
	The Lower %27 Group	162	2.50	.96		
Item 8	The Upper %27 Group	162	4.14	1.02	322	15.98**
	The Lower %27 Group	162	2.38	.95		
Item 9	The Upper %27 Group	162	4.16	1.03	322	13.02**
	The Lower %27 Group	162	2.68	.99		
Item 10	The Upper %27 Group	162	4.11	1.08	322	11.84**
	The Lower %27 Group	162	2.69	1.07		

**p<.001

When examining the independent samples t test results based on the upper and lower group variable in Table 6, it can be observed that the t-values range from 5.70 to 16.28. A statistically significant difference has been found between the means of the lower 27% and upper 27% groups ($p < .001$). In this context, it can be stated that the RES has a high level of discriminant validity, as it can effectively differentiate the intended characteristic being measured.

Discussion

In the literature, the themes of life review and regret are frequently addressed in counseling/therapy studies to understand the emotional states of adult individuals. The current study aimed to adapt the RES, developed by Buchanan et al. (2016), to Turkish in order to assess the regret status of adult individuals. The analyses conducted on the Turkish version of the scale yielded supportive evidence for its psychometric properties.

Validity studies, including CFA and criterion-related validity, were conducted in the research. According to the CFA results, the goodness-of-fit indices for the scale were found to be significant, indicating satisfactory model fit (x^2 / df = 64.849/31 = 2.09, p = .000). The goodness-of-fit indices for model fit are as follows: x^2 / df = 2.09, RMSEA = .043, SRMR = .07, RMR = .08, NFI = .89, NNFI/TLI = .91, CFI = .94, GFI = .92, AGFI = .86. In the literature, the recommended cutoff values for goodness-of-fit indices are reported as follows: x^2 / df (≤ 5), RMSEA (≤ .080), SRMR or RMR (≤ .10), NFI, NNFI, CFI, and GFI (≥ .90), AGFI (≥ .85) (Çokluk et al., 2018; Kline, 2014; Seçer, 2015). It is emphasized that x^2 / df, RMSEA, SRMR, CFI, and GFI criteria

should be met to have an acceptable model (Hair et al., 2017; Schermelleh-Engel et al., 2003). In the current study, it can be stated that the majority of these criteria are met. Therefore, the two-factor and 10-item latent structure of the RES has been confirmed. The adequacy of the model fit indices for the scale can be considered sufficient. The first five items of the scale are related to affective regret, while the subsequent five items are related to cognitive regret. It can be interpreted that obtaining higher scores indicates a greater experience of regret.

The calculations for the covergent validity resulted in AVE=.61 and CR=.88 for the affective regret subscale, AVE=.80 and CR=.95 for the cognitive regret subscale, and AVE=.71 and CR=.95 for the overall scale. The relevant literature suggests that AVE should be ≥.50 and CR should be ≥.70 (Hair et al., 2017). Based on the values of covergent validity, it can be said that the measurement tool has sufficient validity.

In order to establish criterion-related validity of the scale, correlations between the SWLS and the RES, as well as its sub-dimensions (affective regret and cognitive regret), were examined. A negative relationship was found between SWLS and RES. Similarly, negative relationships were observed between SWLS and the subdimensions of the scale (affective regret and cognitive regret). Accordingly, as regret, affective regret, and cognitive regret scores increase, SWLS scores decrease. There is a negative correlation between regret and satisfaction with life. In related studies, a negative correlation was determined between regret and satisfaction with life (Buchanan et al., 2016; Moyano-Diaz et al., 2023; Lee & Jang, 2016).Buchanan et al. (2016) found a moderately positive relationship between regret and distress and self-blame. Bozkurt (2017) reported a weak negative relationship between SWLS and Regret. It is known that life satisfaction is closely related to subjective well-being and happiness (Diener et al., 2002; Moyano-Diaz et al., 2023; Lee, & Jang, 2016). In this context, the results from the literature support the findings of the present study. Based on these results, it can be said that individuals experiencing regret are less satisfied with life and experience lower levels of satisfaction with life.

In terms of reliability analysis, the study employed Cronbach's Alpha coefficient, Spearman-Brown two-half reliability, and test-retest reliability. Additionally, an independent groups t test was conducted to analyze the differences between the lower 27% and upper 27% groups. In the current study, the Cronbach's Alpha coefficient was found to be .92, for the affective regret subscale was .86, and for the cognitive regret subscale, it was .93. The item-total correlations of the scale ranged from .49 to .79. The two-half reliability coefficient for the scale was found to be .95. The two-half reliability coefficients for the affective regret subscale and the cognitive regret subscale were respectively .75 and .91. The test-retest reliability of the entire scale was .75. The reliability coefficient for the affective regret subscale was .70, and for the cognitive regret subscale, it was .72. Lastly, an independent groups t test showed a significant difference between the mean regret scores of the lower 27% and upper 27% groups ($p < .001$). A reliability coefficient of ≥ .70 indicates high reliability (Büyüköztürk et al., 2018; Çokluk et al., 2018; Fraenkel et al., 2012; Seçer, 2015). In light of these results, it can be stated that the scale has a high degree of reliability and a good discriminant validity.

Limitations

Regarding the limitations of the study, several suggestions can be made. This study was conducted with adult individuals, similar to the original scale (Buchanan et al., 2016). In future studies, in order to obtain generalizable results, research can be conducted with adult individuals of different ages, educational levels, and residing in different geographical regions. Most of participants in this study were women. Researchers can test this scale on adults again by trying to equate the gender variable. A large of participants in this study are individuals in the first adulthood period. More research is needed to say that the scale is suitable for all adults, Depending on the average age of the study. Satisfaction with life was considered in terms of criterion validity in the study. In future research, more comprehensive evidence can be obtained by examining the relationships between self-efficacy, positive-negative experiences, and regret to establish criterion validity. One limitation of the study is related to convergent validity. Although convergent validity was achieved in this study, obtaining more valid results in future studies could be enhanced by using a measurement tool that specifically assesses issue to regret, thereby contributing to furter examination of the relationships.

Conclusion

In conclusion, it has been observed that the RES is a valid and reliable scale for assessing general regret. The scale adapted into Turkish, is highlighted as an important assessment tool to determine general, affective and cognitive regret in adults. It is predicted that complex of regret can be better understood by using the scale validated in this study. It is anticipated that mental health professionals will frequently use this scale in psychological counseling/therapy sessions to understand emotions related to regret and regulate the future. Adults could mainly express their regrets in psychological counseling/therapy sessions. Regret, by its nature, is considered an important power as it contributes to both reviewing the past and shaping the future. The adult can prepare for future in a healtier way by reviewing his/her past mistakes. In these cases, it is predictable that this scale will be widely used.

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Appendix

Pişmanlık Unsurları Ölçeği

Yönerge: Aşağıda yaşamınızın son zamanlarında verdiğiniz kararlarla ilgili pişmanlık durumunu ne kadar deneyimlediğinizle ilgili ifadeler bulunmaktadır. İlgili ifadeye ne kadar katıldığınızı lütfen işaretleyiniz.

Yaşamımda verdiğim kararlarla ilgili olarak…	Kesinlikle katılmıyorum (1)						Kesinlikle katılıyorum (7)
1. Karar verme tarzımdan dolayı kendime kızıyorum.	1	2	3	4	5	6	7
2. Üzüntü duyuyorum.	1	2	3	4	5	6	7
3. Kendimi suçluyorum.	1	2	3	4	5	6	7
4. Acı çekiyorum.	1	2	3	4	5	6	7
5. Kahroluyorum.	1	2	3	4	5	6	7
6. Başka bir tercihte bulunsaydım işlerim daha iyi yolunda gidebilirdi.	1	2	3	4	5	6	7
7. Keşke farklı bir karar verseydim.	1	2	3	4	5	6	7
8. Farklı karar vermem gerekirdi.	1	2	3	4	5	6	7
9. Farklı bir karar verseydim daha iyi durumda olurdum.	1	2	3	4	5	6	7
10. Keşke daha önce farklı bir tercihte bulunsaydım.	1	2	3	4	5	6	7

Değerlendirme: Ölçekten 10-70 arasında puan alınabilmektedir. Puanlar yükseldikçe yaşamdan daha çok pişmanlık duyulduğu şeklinde yorumlanabilir. Ölçeğin ilk beş maddesi duygusal pişmanlığı ve son beş maddesi bilişsel pişmanlığı ölçmektedir.