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Adaptation of COVID-19 Rumination Scale (C-19RS) to Turkish: Rumination and Burnout During COVID-19 Pandemic

COVID-19 Ruminasyon Ölçeğinin (C-19RS) Türkçeye Uyarlanması: COVID-19 Pandemisi Sürecinde Ruminasyon ve Tükenmişlik

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ABSTRACT

The aim of this study is to adapt the COVID-19 Rumination Scale to Turkish and to examine whether the level of COVID-19 rumination differs according to demographic variables and burnout levels. There were 835 participants in the study. The findings revealed that the adapted scale is a valid and reliable tool. In addition, it has been found that COVID-19 rumination is significantly higher in women, those who have lost income and lost acquaintances/relatives (human), those who have active COVID-19 patients from their acquaintances/relatives, and those with high burnout levels. The results of this research are important in terms of revealing the target group for intervention or preventive studies to reduce rumination related to COVID-19. In addition, considering that rumination related to COVID-19 is higher in people with high levels of burnout, it is thought that interventions to reduce rumination may also help reduce burnout.

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ÖZET

Bu çalışmanın amacı, COVID-19 Ruminasyon Ölçeği'ni Türkçe'ye uyarlamak ve COVID-19 ruminasyon düzeyinin demografik değişkenlere ve tükenmişlik düzeylerine göre farklılık gösterip göstermediğini incelemektir. Çalışmaya 835 kişi katılmıştır. Bulgular, uyarlanan ölçeğin geçerli ve güvenilir bir araç olduğunu ortaya koymuştur. Ayrıca kadınlarda, gelir kaybı yaşayan ve tanıdık/yakınını kaybedenlerde, tanıdık/yakınlarından aktif COVID-19 hastası olanlarda ve tükenmişlik düzeyi yüksek olanlarda COVID-19 ruminasyonunun anlamlı olarak daha yüksek olduğu tespit edilmiştir. Sonuçlar, COVID-19 ile ilgili ruminasyonu azaltmaya yönelik müdahale veya önleyici çalışmalar için hedef grupların tespit edilmesi açısından önemlidir. Ayrıca tükenmişlik düzeyi yüksek kişilerde COVID-19 ile ilgili ruminasyonun daha yüksek olması göz önünde bulundurulduğunda, ruminasyonu azaltmaya yönelik müdahalelerin tükenmişliği azaltmaya da yardımcı olabileceği düşünülmektedir.

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INTRODUCTION

Pandemics are infectious diseases that spread very rapidly in the same period and threaten the lives of many people in the world. COVID-19 was declared a pandemic by the World Health Organization on March 11, 2020 (Turkish Ministry of Health, 2020). COVID-19 is an important source of traumatic stress because it causes problems such as life-threatening, economic depression, uncertainty, the possibility of contagion to their families, fear of death, and desperation. Although anxiety is a normal human reaction to a threatening and uncertain situation beyond the control of individuals, it can hinder the recovery of individuals and strain their psychological health, especially when anxiety persists for a long time (Khosravi, 2020). This stress experienced during the COVID-19 process can lead to the emergence of ruminative symptoms in individuals.

Rumination is defined as the individual's rethinking of the possible causes and consequences of his or her emotional state without taking action to solve the problem by dwelling on the past (Nolen-Hoeksema, 1987). Rumination is a maladaptive way of coping. Since individuals cannot escape from the vicious circle of their overpowering thoughts, they make the individuals vulnerable psychologically (Nolen-Hoeksema, 2000). Repetitive negative thoughts create the thought that the problem cannot be overcome by creating hopelessness in individuals. Rumination correlates positively with negative moods and negatively with positive moods (McLaughlin, Borkovec, & Sibrava, 2007). Similarly, studies have shown that rumination is negatively associated with problem-solving, motivation, and concentration (Smith & Alloy, 2009) and positively associated with anxiety and depression (Garnefski & Kraaij, 2018). During the Covid 19 pandemic process, the feelings of depression, loneliness, and anxiety increased in individuals (Hoffart, Johnson, & Ebrahimi, 2020). In addition, stress and its resulting rumination are important factors that increase COVID-19 anxiety (Elhai et al., 2020). COVID-19 process also poses a risk for individuals to increase their burnout levels.

Burnout is a syndrome that includes the person's chronic feelings of fatigue, exhaustion, and hopelessness, as well as negative attitudes towards work, life, and, the people around him/her (Maslach & Jackson, 1981). The concept of burnout consists of the components of emotional burnout, depersonalization, and decreased personal achievement (Maslach, & Leiter, M, 2016). General rumination, which is associated with various stressors, is an important symptom of emotional burnout (Boren, 2013). It has been found that stress and burnout in healthcare workers are associated with the COVID-19 process ((Morgantini et al., 2020). On the other hand, Griffith (2020) stated that parental burnout is a risk factor for maltreatment of children during the COVID-19 pandemic. Nikolova, Caniëls, and Curseu (2021) also found a significant relationship between COVID-19 Rumination and burnout.

The unprecedented situation of the COVID-19 pandemic necessitates scientists to investigate the impact of the COVID-19 pandemic on the physical and psychological health of the individual quickly but with the necessary scientific rigor. It is especially important to understand the reasons for people's reactions during the pandemic process and how they cope with the pandemic process (Arden & Chilcot, 2020). Identifying the ruminative responses and associated burnout associated with the COVID-19 pandemic is thought to be important in coping with the possible effects of COVID-19. Again, it is thought that examining whether COVID-19 rumination differs according to the variables of gender, economic loss, acquaintance/close (human) loss, and active COVID-19 patient from acquaintances/relatives variables may guide the intervention. For this, valid and reliable measurement tools that enable the evaluation of the psychological aspects of the COVID-19 pandemic are needed. In this study, it was aimed to adapt

the COVID-19 Rumination Scale (C-19RS), developed by Nikolova et al. (2021), into Turkish to evaluate the rumination levels of individuals triggered by COVID-19. In addition, it is another aim of this study to examine whether the level of Covid-19 rumination differs according to gender, economic loss, loss of acquaintances/relatives (human), and being active Covid-19 patients from acquaintances/relatives, and burnout levels.

METHOD

This research is descriptive and quantitative. In the first section of this research, which consists of two sections, In the first part of the study, the C-19RS was adapted to Turkish and the validity and reliability studies of the scale were carried out within this framework. In the second part of the study, it was examined whether the scores obtained from the adapted scale differ according to gender, economic loss during the COVID-19 pandemic, loss of acquaintances/relatives (human), and active COVID-19 patients from acquaintances/relatives, and burnout levels.

Participants

The study groups of the research consisted of 835 individuals over the age of 18 (Mean age: 37.80, minimum age 18, and maximum age 78). There are two study groups in this study. The first study group of the research consists of 280 people. Data were collected from this group to adapt the scale. The second study group of the research consists of 555 people. Data were collected from this group to examine whether COVID-19 rumination differs according to various demographic variables. Descriptive information about the people in the research group is presented in Table 1:

Table 1. Descriptive information of the study group

Variables		**First Group**		**Second Group**	
		F	**%**	**F**	**%**
Gender	Female	203	72,5	383	69,0
	Male	77	27,5	172	31,0
Education Level	High School and Below	41	14,6	123	22,2
	Associate degree	21	7,5	56	10,1
	Undergraduate	136	48,6	247	44,5
	Postgraduate	82	29,3	129	23,2
Loss of Close Due to COVID-19	No	135	48,2	283	51,0
	Yes	145	51,8	272	49,0
Economic Loss Due to COVID-19	No	124	44,3	270	48,6
	Yes	156	55,7	285	51,4
Having an Active Patient Due to COVID-19	No	199	71,1	369	66,5
	Yes	81	28,9	186	33,5
Total		**280**	**100**	**555**	**100,0**

Table 1 contains descriptive information about the study groups. It is observed that the female participants are more than the male participants and the participants mostly have the undergraduate and postgraduate levels. It is observed that almost half of the participants are people who have lost

acquaintances/relatives and economic losses due to COVID-19. Approximately one-third of the participants had a relative who was ill due to COVID-19 at the time the data was collected.

Ethical Statement

Ethics committee approval dated 25.10.2021 and numbered 160 was obtained from the Mersin University Social and Human Sciences Ethics committee.

Data Collection Tools

In the research, the COVID-19 Rumination Scale, Burnout Scale, and Personal Information Form were used as data collection tools. Necessary permission scales were obtained for the scales used. Information on the measurement tools used is presented below.

C-19RS. This scale was developed to determine the ruminative symptoms that may occur when considering the Covid 19 disease and related concerns of individuals affected by the COVID-19 pandemic process. The scale is a 5-point Likert type consisting of 6 items and the answers range from strongly disagree to strongly agree. The Cronbach Alpha internal consistency coefficient of the scale was calculated as .85 (Nikolova et al., 2021). The scale was adapted to Turkish within the scope of this study.

Burnout Syndrome Inventory Short Version. The Burnout Syndrome Inventory Short Version, which was developed by Pines (2005) and adapted into Turkish by Tümkaya, Çam, and Çavuşoğlu, was used. The scale consists of 10 items with response options ranging from 1 (Never) to 7 (Always). Burnout levels are determined by dividing the total scores obtained from the scale by the number of items (10). A score between 1 and 2.4 indicates very low, a score between 2.5 and 3.4 indicates a risky burnout, a score between 3.5 and 4.4 indicates burnout, and a score between 4.5 and 5.4 indicates a very serious burnout problem. A score of 5.5 and above indicates the need for professional help (Pines, 2005). The Cronbach Alpha internal consistency coefficient of the scale is .91, and the test-retest reliability is .70 (Tümkaya, Çam, & Çavuşoğlu, 2009). In this study, the Cronbach Alpha internal consistency coefficient of the scale was calculated as .94.

Personal Information Form. In this study, the "Personal Information Form", which was prepared by the researchers, was used. Personal Information Form" consist of questions intended for determining the participants' gender, age, education level, the experience of losing a relative, and revenues due to COVID-19 and having an active patient due to COVID-19.

Data Collection

The data were collected online by contacting the participants by telephone and e-mail and are based on volunteerism. "Informed Consent" was obtained from the participants while the data was collected via the Google form. Participants who did not agree to participate in the study voluntarily could not continue the data collection process. In addition, to prevent the same participants from filling in the scales again, the button to prevent data entry from the same device was used again. Thus, data security has been tried to be ensured. Data were collected in 2021.

Data Analysis

The Confirmatory Factor Analysis (CFA) technique was used to confirm the structure of the scale. CFA assumes that there are no univariate and multivariate outliers. In order to detect univariate outliers, the z-value for each observed variable should take a value between +3.29 and -3.29 (Tabachnick & Fidell,

2001). It was observed that there was no univariate outlier in the analysis. Mahalanobis distance was calculated to determine multivariate outliers. In this framework, 20 observations were excluded from the analysis because they were evaluated within the scope of multivariate outliers. For the reliability analysis of the scale, the Cronbach Alpha Internal Consistency Coefficient was calculated. The t-test was used to examine the differentiation of rumination for COVID-19 according to demographic variables, and one-way ANOVA was used to examine the differentiation according to burnout levels. The Scheffe test was used to determine between which groups the difference was in ANOVA. The reason for choosing the Scheffe test is that the variances are homogeneous and this test is a post hoc test that does not take into account the assumption that the number of observations in the groups is equal (as cited in Kayri, 2009). The parametric assumptions sought in the study are normality, homogeneity of variances, and the assumption that participants are independent of each other. In the analysis of the data, Lisrel was used in CFA, and SPSS 25 Package programs were used in the other analyses.

RESULTS

Below, firstly, the findings of the scale adaptation process are presented, then the findings related to the differentiation of rumination related to COVID-19 according to other variables are presented.

Study 1: Scale Adaptation Process

Language Validity

To ensure the language validity of the scale, the scale was first translated into Turkish by 4 experts from the field of Psychological Counseling and Guidance. Then, the Turkish form of the scale was translated back into English by a professional linguist. The original, Turkish form and the reversed scale form of the scale were evaluated by two experts from the field of psychological counseling and guidance, and linguistic and semantic harmony was tried to be achieved.

Construct Validity

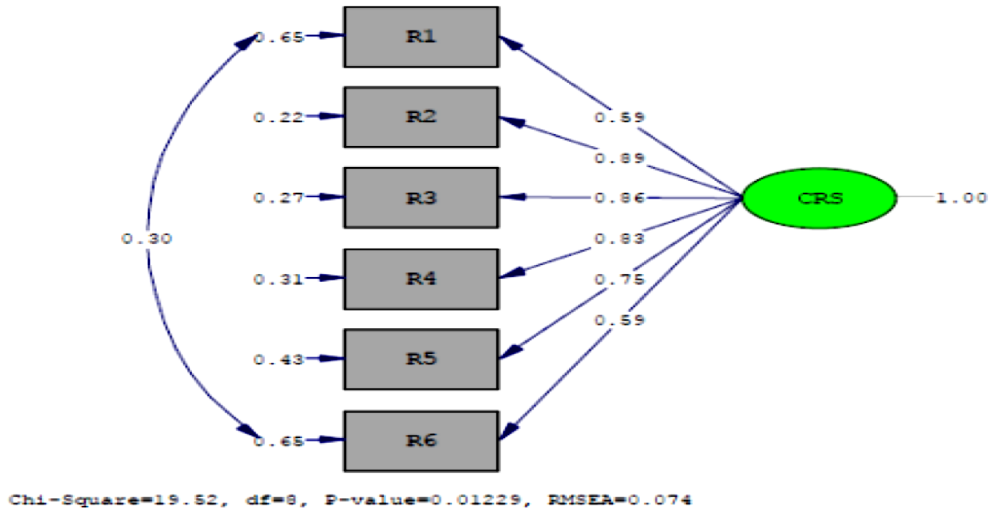
CFA was used to test the construct validity of the scale. It is stated that it is more appropriate to use the confirmatory factor analysis technique in testing an existing structure or theory (Güngör, 2016). Although there are various fit indices in CFA, the χ2 degree of freedom, and significance values, Comparative Fit Index (CFI), Root Mean Square Error Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) values related to model-data-fit are particularly suggested to be reported (Kline, 2016). The goodness of fit indices obtained as a result of CFA and recommended to be reported are presented in Table 2:

Table 2. Fit indices for confirmatory factor analysis

Model	*χ2*	*df*	*P*	*χ2/Sd*	RMSEA	CFI	SRMR
First-order one-factor model	87.00	9	0.00	9.66	0.17	0.95	0.06
First-order one-factor model (With a modification between items 1 and 6)	19.52	8	0.00	2,44	0.07	0.99	0.02

When the fit indices in Table 2 are examined, the χ2/Sd value in the first model is 9.66. This value is greater than the acceptance limit of 5. The RMSEA value was calculated as 0.17 and it was observed that this value was above the acceptable limit of 0.08 (Tabachnick & Fidell, 2001). Thereupon, modification

suggestions were examined and the analysis was repeated by correlating the error covariances of the 1st and 6th items, which have a semantic relationship between them. In the analysis, it was observed that χ2/Sd value was 2.44 and RMSEA value was 0.07 in the second model and these values were within the limits accepted for good fit (Cokluk, Şekercioğlu, & Büyüköztürk, 2012; Sümer, 2000; Tabachnick & Fidell, 2001). In addition, when it is 0.90 and above, the CFI value indicating a good fit (Sümer, 2000) is 0.95 in the first model and 0.99 in the second model. The SRMR value of 0.08 and below, which indicates a good fit (Sümer, 2000), was calculated as 0.06 for the 1st model and 0.02 for the second model. When the fit indices emerging in this framework are examined, it is observed that the fit between the model and the data is sufficient. The results of the CFA are presented in Figure 1:



Note:
All t values are significant.

Figure 1. Diagram of CFA

In Figure 1, standardized solution values for C-19RS items are included. The absence of a factor loading below .30 in the items of the scale indicates that all items are compatible with the structure. The t and R2 values of the scale items are presented in Table 3.

Table 3. t and R^2 values for scale items

Items	t	R^2
1	10.03	0.35
2	17.75	0.78
3	16.82	0.73
4	16.05	0.69
5	13.94	0.57
6	10.13	0.35

When Table 2 is examined, it is observed that the t value of all indicators is above 2.96 and all t values are significant at the 0.01 level. When the regression coefficients of the items are examined, it is seen that the 2nd item (0.78) has the highest contribution, and the 1st and 6th items (0.35) have the lowest contribution. When all the values are examined together, it is observed that the structure of the COVID-19 Rumination Scale was confirmed by CFA.

Reliability of the C-19RS

The Cronbach Alpha internal consistency coefficient was calculated for the reliability of the C-19RS. It is stated that the scale is unreliable when the Cronbach Alpha value is between .00 and .40 when it is between .41- .61, the scale is low reliable when it is between .61-.80, the scale is moderately reliable, and when it is .81< 1, the scale is highly reliable. (Özdamar, 1999). In the analysis, the Cronbach Alpha internal consistency coefficient of the scale was calculated as .89. This finding shows that the scale is highly reliable.

Findings of Study 2

In the second part of this study, the differentiation of COVID-19 rumination in terms of demographic characteristics and burnout levels of the participants were examined. The t-test results of the participants' C-19RS scores by Demographic Variables are presented below.

Table 4. t-test results of C-19RS scores by demographic variables

Variables		N	$\bar{X}$	Sd	Df	T	p
Gender	Female	383	18,39	6,27	553	1,93	.05*
	Male	172	17,29	6,24			
Loss of Close Due to COVID-19	Yes	283	18,74	6,31	553	2,66	.01*
	No	272	17,33	6,17			
Economic Loss Due to COVID-19	Yes	270	19,14	6,08	553	4,05	.00*
	No	285	17,01	6,29			
Having an Active Patient Due to COVID-19	Yes	186	19,31	6,28	553	3,38	.00*
	No	369	17,42	6,18			

*p ≤.05

The t-test results of the mean score of COVID-19 Rumination according to the participants' gender, loss of relatives during the COVID-19 pandemic, economic loss during the COVID-19 pandemic, and whether or not their relatives were sick as a result of COVID-19 are presented in Table 4. In the analysis, the average score for participants differs significantly in favor of female participants, those who lost their relatives in the COVID-19 pandemic, those who experienced economic losses during this period, and participants who were active COVID-19 patients during this period. In other words, the rumination scores of female participants and participants who lost their relatives in the COVID-19 pandemic, experienced economic losses, and were active COVID-19 patients during this period were significantly higher.

One-way analysis of variance was conducted to determine whether the COVID-19 ruminations of the participants differed according to their burnout levels. For this purpose, the mean and standard deviation values calculated according to the burnout levels of the COVID-19 ruminations of the participants are given in Table 5.

Table 5. Mean and standard deviations of participants' COVID-19 rumination scores by burnout level

Burnout Level	N	%	$\overline{X}$	Ss
1. Very low burnout	136	24,5	14,73	5,58
2. Danger signs of burnout	102	18,4	16,71	5,20
3. Burnout	106	19,1	18,17	5,59
4. Very serious problem of burnout.	88	15,9	18,77	6,30
5. Requires immediate professional help.	123	22,2	22,22	5,90
Total	555	100,0	18,05	6,27

Table 5 shows the distribution of the participants according to their burnout levels and the mean scores and standard deviations of the Rumination Scale to COVID-19 calculated according to their burnout levels. As seen in the table, 22.2% of the participants have burnout that requires professional help, 15.9% have a very serious burnout problem and 19.1% have burnout. Also, 18.4% of the participants are at risk of experiencing burnout. In other words, a total of 57.2% of the participants experience burnout.

It is observed that there are differences between the rumination scores of the participants according to the level of burnout. One-way analysis of variance was used to determine whether this difference was significant, and the Scheffe test was used to find the source of the difference. Analysis results are presented in Table 6.

Table 6. Variance analysis and scheffe test results on the comparison of participants' COVID-19 ruminations by burnout level

Source	Sum of Squares	Df	Mean Squares	F	P	Significant diference
Between Groups	3871,00	4	967,75	29,68	.00*	5-1, 5-2, 5-3, 5-4, 4-1, 3-1
Within groups	17931,58	550	32,60			
Total	21802,59	554				

As seen in Table 6, the COVID-19 Rumination Scale mean scores of the participants differ significantly according to their burnout levels. According to the results of the Scheffe test, which was conducted to determine the source of the difference, the scores of the group experiencing burnout that required professional help were significantly higher than all the other groups. The scores of the group have very serious problems of burnout and burnout were also significantly higher than the scores of the group with a very low level of burnout.

DISCUSSION

Evidence was obtained that the Turkish version of the adapted C-19RS in this study is a valid and reliable scale. The scale consists of six items as in the original and shows a single factor structure. Factor loading values and fit indices of the scale are within acceptable limits. The Cronbach alpha internal consistency coefficient of the scale was calculated as .89, which is slightly higher than the original scale, which was .85. In addition, the fact that the scale can reveal differences between the groups examined according to gender, economic loss, acquaintance/close (human) loss, and active COVID-19 patients from acquaintances/relatives variables and burnout level in the study supports its psychometric quality. Psychological scales developed for COVID-19 are generally developed to measure anxiety (Chandu, Pachava, Vadapalli, & Marella, 2020) and fear (Ahorsu et al., 2020; Haktanir, Seki, & Dilmaç, 2020). This

scale, which evaluates rumination triggered by the COVID-19 pandemic, is important because it is the first in Turkish.

The finding of higher COVID-19 rumination in women is consistent with the literature. For example, Nikolova et al. (2021) also found that women had higher levels of COVID-19 rumination. In a study examining the studies on COVID-19, it was concluded that women who are pregnant, postpartum, miscarriage, or exposed to intimate partner violence are also at high risk for psychological problems during the pandemic (Almeida, M., Shrestha, Stojanac, & Miller, 2020). In terms of the frequency of the disease and the deaths related to the disease in the COVID-19 pandemic, it is stated that women are more fortunate or advantageous, but women carry the socio-economic burden of the pandemic more (Yasin, 2020). Considering the increase in psychological and physical violence against women during the COVID-19 process (Ünal and Gülseren, 2020), it is thought that the pandemic has increased the negative impact of gender inequality on women, and this may create a basis for psychological difficulties including rumination.

It is an expected result that the rumination levels of individuals who report the economic loss, loss of a loved one, and that their relatives are seriously ill due to COVID-19 are higher. Unemployment, economic depression, and uncertainties in the COVID-19 process increase anxiety and rumination in this process. These problems, which occur with the epidemic, can create hopelessness in the person and create the thought that the problem cannot be overcome. Depression, loneliness, and anxiety feelings increase in individuals who experience these processes (Hoffart, Johnson, & Ebrahimi, 2020). The anxiety and depression levels of parents who were quarantined due to Covid -19, suffered economic damage, and whose children were diagnosed as COVID-19 positive were found to be higher (Orsini et al., 2021). Again, the loss of a loved one and/or illness are also sources of traumatic stress. Nikolova, et al. (2021) also found that individuals who reported that their close relatives were seriously ill due to COVID-19 had higher COVID-19 rumination levels.

In this study, it was determined that a total of 57.2% of the participants experienced burnout during COVID-19 and COVID-19 rumination was higher in those whose burnout level required professional help and who had serious burnout problems. Similarly, Nikolova et al. (2021) stated that COVID-19 anxiety triggers emotional burnout and lowers the individual's energy. Individuals are likely to be preoccupied with constant worries about the health of themselves and their loved ones, which can consume them over time. Cao et al. (2020) found that individuals with relatives or acquaintances with COVID-19 have higher psychological distress. Ye et al., (2020) determined that there is a relationship between the rumination and psychological resilience of individuals and their depression levels during the COVID-19 process. In this context, it is observed that rumination related to COVID-19 is a risk factor in burnout, and rumination is experienced more intensely in people who are directly affected by COVID-19.

Limitations and Recommendations

This study was carried out with individuals over the age of 18. Therefore, the scale has limitations to measure COVID-19 rumination in adolescents and children. Different studies can be done to determine rumination in children and adolescents during the pandemic period. The data of the research was carried out online due to pandemic conditions. For this reason, the research was limited to people who have access to the internet and whose education level is higher than the general population. It is recommended that further research on the subject be planned in such a way as to eliminate this limitation. With the

COVID-19 Rumination Scale adapted in the study, the differentiation of the participants according to some demographic variables and burnout levels was examined. It is thought that it would be beneficial to develop future studies to include COVID-19 rumination and variables such as anxiety, depression, trauma, etc. that are thought to be related to rumination. Considering that women and those who experience economic loss and loss of relatives during the pandemic period have higher rumination levels, it is thought that these should be given priority in intervention studies. Considering that rumination is more common in those with high burnout levels, it would be beneficial to consider this in psychological interventions.

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Author Contribution

This study was conducted by all the authors working together and cooperatively. All of the authors substantially contributed to this work in each step of the study.

Conflict of Interest

It has been reported by the authors that there is no conflict of interest.

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