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Araştırma Makalesi / Research Article

A Comparative Study: Analysis of Factors Affecting Happiness After the Covid-19 Pandemic

Karşılaştırmalı Bir Çalışma: Covid-19 Pandemisinden Sonra Mutluluğu Etkileyen Faktörlerin Analizi

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ABSTRACT

Happiness has been tried to be explained in many fields such as psychology, philosophy, sociology, biology, and religion. Due to the fact that the concept of happiness is constantly being updated in world, this study was obtained using data from the World Happiness Report (WHR) 2020 and the WHR 2021. By taking the life ladder dependent variable stated in the report, the variables related to the occurrence of happiness were analyzed using regression analysis of 8 variables. The world as it is known is grappling with the Coronavirus disease (Covid-19) pandemic. For all countries, it is inevitable that the restrictions, negativities or impossibilities brought by Covid-19 affect their unhappiness. For this reason, the years 2019 and 2020 were evaluated separately and we evaluated the factors affecting the life ladder of countries with regression analysis within the framework of Covid-19. As a result, it has been determined that the factors that make people happy, according to WHR, vary after the Covid-19 pandemic. The positive effect variable in the model in 2019 was separated from the model in 2020 and replaced by the variable of freedom to make life choices.

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ÖZ

Psikoloji, felsefe, sosyoloji, biyoloji, din gibi birçok alanda mutluluk anlatılmaya çalışılmıştır. Dünyada mutluluk kavramının sürekli güncellenmesi nedeniyle bu çalışma Dünya Mutluluk Raporu (WHR) 2020 ve WHR 2021 verileri kullanılarak elde edilmiştir. Raporda belirtilen yaşam merdiveni bağımlı değişken olarak alınarak, mutluluk oluşumu 8 değişken ile regresyon analizi kullanılarak elde edilmiştir. Bilindiği gibi dünya Koronavirüs hastalığı (Covid-19) salgını ile boğuşmaktadır. Tüm ülkeler için Covid-19'un getirmiş olduğu kısıtlamaların, olumsuzlukların

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yada imkansızlıkların mutsuzluğunu etkilemesi kaçınılmazdır. Bu nedenle 2019 ve 2020 yılları ayrı ayrı değerlendirilmiştir ve Covid-19 çerçevesinde regresyon analizi ile ülkelerin yaşam merdivenlerini etkileyen faktörler ortaya çıkarılmıştır. Sonuç olarak, Covid-19 pandemisinden sonra WHR'ye göre insanları mutlu eden faktörlerin değişkenlik gösterdiği tespit edilmiştir. 2019 yılında modelde yer alan olumlu etki değişkeni 2020 yılında modelden ayrılarak yerine yaşam tercihlerini yapma özgürlüğü değişkeni girmiştir.

1. INTRODUCTION

Some changes in the sources of happiness are also observed with the effect of the pandemic. Relationships, health and safety issues are cited as a source of happiness compared to before the pandemic, while Time and Money are less frequently mentioned compared to previous years. On the other hand, within the scope of Ipsos' research; Being healthy and being in good physical condition (55%) ranked first among the sources of happiness [1]. There are many studies in the literature showing how many epidemic diseases affect people's quality of life [2,3]. Baş et al. [4] presented whether the perception of well-being makes a difference with gender. The 2020 WHR investigates how happy its citizens, unaware of the Covid-19 epidemic, which affected the whole world towards the end of the year, perceive themselves as happy [5]. The 2021 WHR focuses on the effects of Covid-19 and what people from all over the world experience [6]. There are many other studies on happiness in the literature. Eralp et al. [7] reveals the polarization and inequality level of life satisfaction and happiness in Turkey. In the study, he examined the determinants of life satisfaction and happiness in the context of religion, income distribution, ideology and trust. Gascoin et al. [8] examined the relationship between preschool teachers' career adaptability and happiness-enhancing strategies they use for children. Helliwell et al. [9] discussed the variables of meaning of work and meaning of life, which are thought to be determinants of happiness in the sample of accounting professionals. Helliwell et al. investigated the effects of participation in sports activities of women who are members of sports centers on their happiness levels according to socio-demographic variables. Limanlı [11] investigated the effect of a tax burden on happiness levels at a provincial level in Turkey through spatial econometric models for 2013 and 2015. Lu et al. [12] examined the relationships between individuals' positive childhood experiences, perceptions of happiness, and psychological resilience. Maruf and Altıntaş [13] examined the relationship between leisure time satisfaction and happiness levels of oil wrestling athletes participating in oil wrestling. Sapsağlam et al. [14] investigated to examine the predictive relationship between emotional intelligence, fear of happiness and humor styles in adolescents. Wood et al. [15] examined the opinions of occupational safety specialists, who are indispensable for working life and working under difficult working conditions, about their work and work and the relationship between life satisfaction, well-being and happiness. Yıldız [16] aimed to analyze the effect of organizational democracy on the organizational happiness levels of employees within the framework of the studies in the field of organizational happiness and organizational democracy in the literature.

For all countries, it is inevitable that the restrictions, negativities or impossibilities brought by Covid-19 affect their unhappiness. In this study, it was tried to determine the reactions of individuals happiness levels to changes. How individuals' perceptions of life satisfaction changed according to certain factors were examined. In addition, it was desired to create a model of happiness with the regression model created. An introduction is given in the first part of this article. The second section includes the material and method. The results of the analysis are given in the section 3, discussion in the section 4 and the conclusions in the last part respectively.

2. MATERIAL AND METHODS

2.1 World Happiness Report

The United Nations traditionally publishes the WHR every year. In this report, the effects of Covid-19 on the structure and quality of people's lives were researched, and also the struggle of all governments of the world with the pandemic was discussed to define and evaluate how he copes with the pandemic. This report includes life ladder, by asking respondents to imagine a ladder, the top of the ladder represents the best life possible for you, and the lower part of the ladder represents the worst life possible for you. Many variables are used in this report.

For the Log gross domestic product (GDP) per capita variable, GDP per capita statistics in purchasing power parity are taken with international dollar prices. Social support is explained in the following. The national average of the binary responses (either 0 or 1) to the GWP question. If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not? Healthy life expectancy at birth is based on data extracted from the world health organization's global health observatory data pool in 2020.

Freedom to make life choices is explained in the following. Are you satisfied or not satisfied with your freedom to choose what to do with your life? Generosity, Gallup World Poll (GWP) in GDP per capita "Did you donate to a charity last month?" is the remnant of the decline of the national average given to the question.

Perception of Corruption: The measure is the national average of survey responses to two questions in the GWP. Positive affect is defined as the average of three positive impact measures in GWP: happiness, laughter, and pleasure in the Gallup World Survey waves 3-7. These measurements are the answers to the following three questions in order.What did you feel during many days yesterday? how about happiness? ", did you laugh too much yesterday or did you laugh?" and have you experienced the following emotions yesterday many days? what about joy? "

Negative impact is defined as the average of three adverse impact measures in GWP [6]. Negative affect is measured by asking respondents whether they experienced specific negative emotions

during a lot of the day yesterday. Negative affect, for each person, is given by the average of their yes or no answers about three emotions: worry, sadness, and anger. National averages are created in the same way as for positive affect.

As seen in Figure 1, according to the 2021 WHR, for the fourth time, Finland ranked 1st as the happiest country in the world. It was at the top of the list. Denmark, Switzerland, Iceland, the Netherlands, Norway, Sweden, Luxembourg, New Zealand and Austria followed [17]. The United States ranks 19th, and Turkey ranks 104th.

Afghanistan was the least happy country in the report. According to the 2021 WHR, more than a third of the countries experienced a significant increase in negative emotions due to the impact of the epidemic.

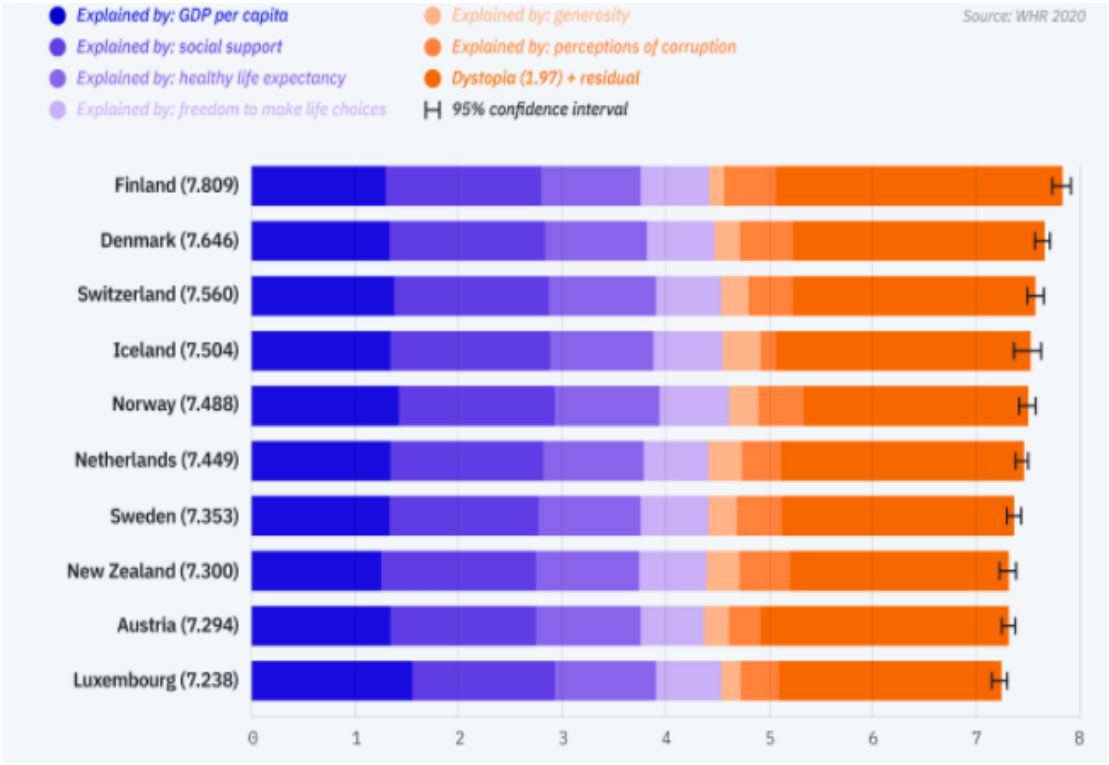


Figure 1. *World Happiness Report Global Ranking for 2021 WHR*

2.2 Datasets

The assessments include 133 countries for the 2020 WHR and 81 countries for the 2021 WHR. Life ladder was taken as a dependent variable. Independent variables are log gdp per capita, social support, healthy life expectancy at birth, freedom to make life choices, generosity, perceptions of corruption, positive affect, negative affect. The data was analyzed by using Statistical Package for the Social Sciences (SPSS)-26.0 program. Regression Analysis were used. $p < 0.05$ was considered statistically significant.

2.3 Multiple Lineer Regression

Multiple regression model, $\hat{Y}_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \cdots + \beta_p X_{ip} + \varepsilon_{ij}$; $i = 1,2,\dots,n \quad j = 1,2,\dots,k$ is defined as, In equality; Y_i: the observed ith value of the dependent variable., X_{ij}: The value of the jth argument at the ith level, β_j: the jth regression coefficient, ε_{ij}: Error term, k: indicates the number of independent variables. In order to apply multiple regression analysis (in order to estimate parameters using the least squares estimation method), some assumptions must be valid. These assumptions are; There is no multicollinearity between the independent variables, the distribution of the error term (ε) is normal, the variance of the error term should be constant for all X values, there is no correlation (autocorrelation) between the error term values, the difference between the error term (ε_i) and the independent variables (X_i) covariance should be equal to zero, that is, it can be expressed as there is no relationship between εi and independent variables [18]. In order to determine whether there is a multicollinearity [19], the correlation matrix between the independent variables is used. Variance inflation values (VIF); As these values get larger (VIF values ≥ 10), it can be said that there is a multicollinearity between the relevant independent variables. In general, when the VIF value is above 10, the presence of multicollinearity between those variables is accepted.

3. EXPERIMENT

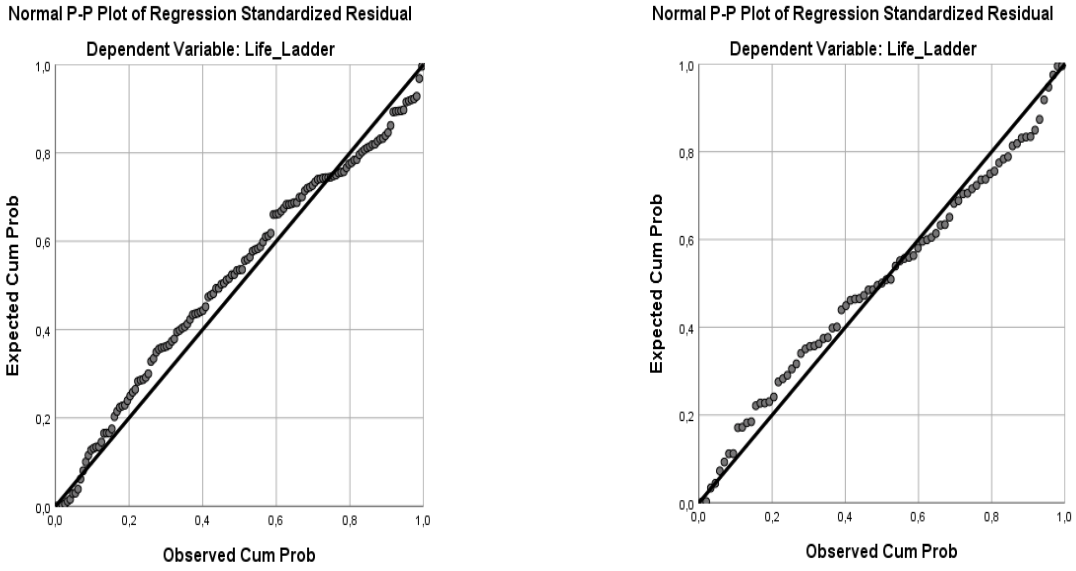
Table 1 contains descriptive statistics for WHR's 2020 and 2021 variables. These variables are life ladder, log GDP per capita, social support, healthy life expectancy at birth, freedom to make life choices, generosity, perceptions of corruption, positive affect, negative affect.

Table 1. Descriptive Statistics of demographic attributes in the data set

Variables	2020 WHR			2021 WHR		
	Mean	Std. Deviation	N	Mean	Std. Deviation	N
Life Ladder	5,2917	1,26430	133	5,8736	0,99758	81
Log GDP per capita	8,6321	2,10299	133	9,746	0,94884	81
Social support	1,0914	0,81494	133	0,8437	0,1102	81
Healthy life expectancy at birth	58,2235	19,19366	133	66,9773	6,10818	81
Freedom to make life choices	0,7714	0,13357	133	0,8194	0,09425	81
Generosity	6,1449	17,41822	133	-0,0047	0,13952	81
Perceptions of corruption	0,7235	0,17971	133	0,709	0,20294	81
Positive affect	0,6363	0,25220	133	0,7215	0,08472	81
Negative affect	0,3417	0,17420	133	0,2906	0,0749	81

In the model created for the 2019 WHR, log gdp per capita, freedom to make life choices, generosity, negative impact variables, which is one of the valid criteria for the application of multiple regression analysis, which causes the multicollinearity problem, were removed. The analysis was

repeated (VIF <10). In addition, the Durbin Watson statistical value was found to be 2.007. There is no autocorrelation in the model. The normality of the distribution of the error term (ε) can be seen in Figure 2(a), where the assumption is met.



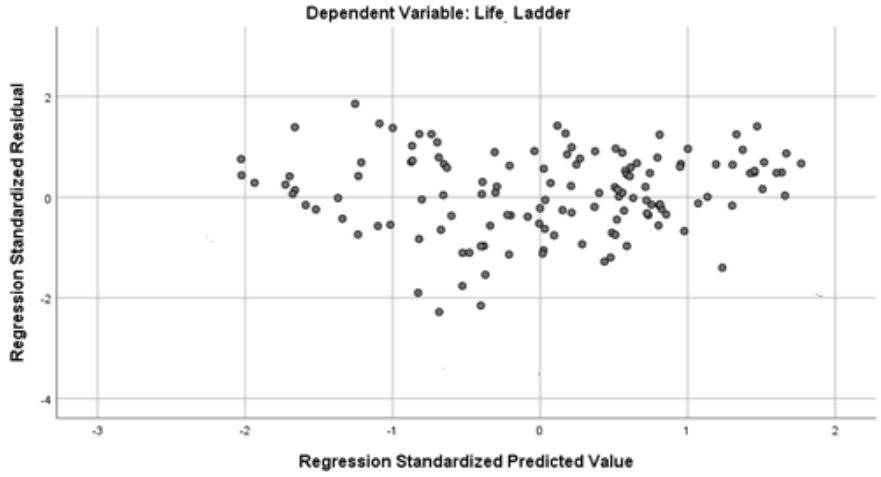
(a) (b)

Figure 2. *Graph showing normal distribution of errors*

Figure 3(a) checked whether there was a heteroscedasticity problem and the extreme values were also calculated by taking into account the Mahalanobis distance. There is no heteroscedasticity problem and extreme value problem in the model.

In the model created for 2020 WHR, the log gdp variable per capita, which has more than 0.80 relationship with other independent variables, was excluded from the model and the analysis was repeated. VIF was found to be <10. In addition, the Durbin Watson statistics value was found to be 1.928. There is no autocorrelation in the model. The normality of the distribution of the error term (ε) can be seen in Figure 2(b), where the assumption is met. Figure 3(b) checked whether there was a problem of heteroscedasticity, and extreme values were also calculated by taking into account the Mahalanobis distance. There is no heteroscedasticity problem and extreme value problem in the model. For the model obtained after providing the validity criteria for the application of multiple regression analysis; When Table 2 is examined, it is seen that according to the 2020 WHR report, the variables in the model explain the model, at a rate of approximately 79.8%, while according to the 2021 WHR report approximately 78.8%.

(a)



(b)

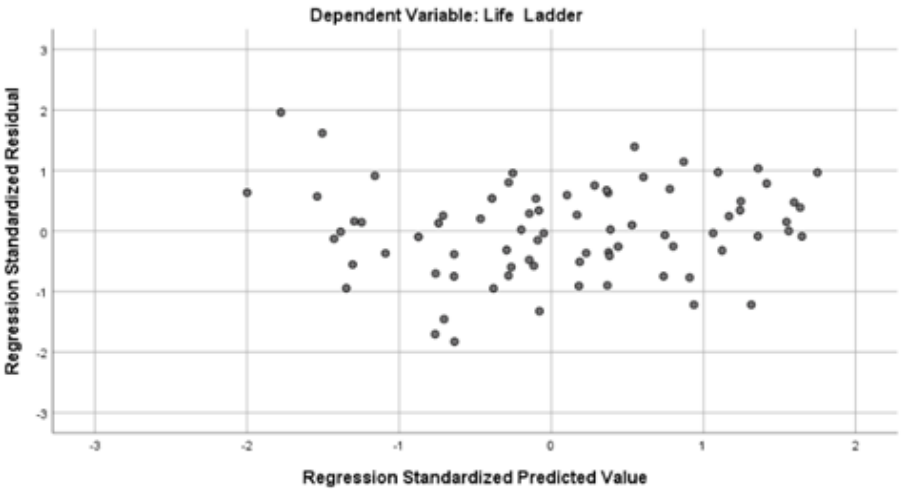


Figure 3. *Heteroscedasticity problem*

Table 2. Model Summary

Year	R Square	Adjusted R Square
2019	0,798	0,793
2020	0,788	0,768

It can be seen from Table 3 that the models created for the years 2020-2021 are meaningful. ($p < 0.05$).

Table 3. ANOVA

		F-statistic	Sig.
2019	Regression Resid Total	134,719	,000
2020	Regression Resid Total	38,739	,000

When Table 4 was examined, it was seen that according to the 2020 WHR report, the variables social support, healthy life expectancy at birth, perceptions of corruption, and positive affect significantly explained the life ladder variable ($p < 0.05$). According to the 2021 WHR report, it was determined that the effect variables Social Support, healthy life expectancy at birth and perceptions of corruption significantly explained, while the other variables were not found to be significant for 2021 in Table 5.

Table 4. Coefficients of attributes in the data set for 2020 WHR

Variables	2020 WHR		
	Standardized Coefficients B	Sig.	VIF
Social support	1,094	**0,000**	5,503
Healthy life expectancy at birth	1,316	**0,000**	6,349
Perceptions of corruption	-0,142	**0,001**	1,094
Positive affect	0,401	**0,000**	4,475

There are no insignificant variables in the model that emerged for the 2020 WHR report ($p<0.05$). As a result, our multiple regression model is as follows.

Life ladder for 2020 WHR=-2,325+1,094X_1+1,316X_2-0,142X_3+0,401X_4

Table 5. Coefficients of attributes in the data set for 2021 WHR

Variables	2021 WHR		
	Standardized Coefficients B	Sig.	VIF
Social support	0,407	**0,000**	2,382
Healthy life expectancy at birth	0,314	**0,001**	2,712
Freedom to make life choices	0,134	0,100	2,219
Generosity	-0,032	0,608	1,297
Perceptions of corruption	-0,192	**0,007**	1,642
Positive affect	0,031	0,670	1,827
Negative affect	-0,078	0,254	1,584

In multiple linear regression analysis, the contribution of some of the independent variables forming the model to the model may be insignificant. Therefore, it is necessary to determine the independent variables that will explain the dependent variable in the "best fit" way and to exclude unimportant variables from the model.

At this stage, the most accurate model will be obtained by determining the variables that do not contribute to the model by using the backward selection method. In the first step, all variables are included in the model. In the next steps, one at a time, the independent variable with the lowest partial F value is discarded and the process continues.

The contribution of the discarded variable is tested each time. If the contribution of the discarded variable is statistically significant, the discarding process is not performed and the process is stopped there [20].

As seen in Table 6, the following multiple regression model was obtained by removing the nonsignificant variables (p>0.05) in the model that emerged for the 2021 WHR report. R^2 value of the final model obtained for the year 2020 was 78.3% and the standard error was 0.47.

Table 6. Coefficients of attributes in the data set for 2021 WHR

Variables	2021 WHR	
	Standardized Coefficients B	Sig.
Social support	0,436	**0,000**
Healthy life expectancy at birth	0,319	**0,000**
Freedom to make life choices	0,158	**0,015**
Perceptions of corruption	-0,215	**0,001**

Our multiple regression model for 2021 WHR is as follows.

Life ladder for 2021 WHR=-1,560+0,436X_1+0,319X_2+0,158X_3-0,215 X_4

Social support, healthy life expectancy at birth, perceptions of corruption, and positive affect were the most influential factors on the life ladder of countries for 2019. The most influencing factors for 2020 are social support, healthy life expectancy at birth, perceptions of corruption, and positive affect freedom to make life choices. The variables that affected the life ladders least were generosity, and negative affect variables.

4. DISCUSSION

In 2019, the variables of social support, healthy life expectancy at birth, perceptions of corruption, and positive affect were the factors that most affected their happiness. However, when we look at the 2020 result, the factors affecting people's happiness have changed. Freedom to make life choices variable was included in the model for 2020. The positive effect variable came out of the model. Freedom to make life choices, as it is known, has become limited with Covid-19. Before Covid-19, such a variable was not included in the model because people were already able to make free choices with their own decisions. With the pandemic, curfews, having to wear masks and taking away their freedom to be wherever they want whenever they want, this variable has become meaningful for the happiness factor. On the other hand, among the reasons for the positive affect variable to leave the model, it can be interpreted as if it left the model, since people's laughter and cheerfulness were very low and its contribution to the model was low.

5. CONCLUSION

In this study, it was examined whether the factors affecting happiness vary in the Covid-19 environment. As a result, it has been determined that the variables that make people happy differ between 2019 and 2020, and Covid-19 overshadows the happiness of its people. According to the WHR, more than a third of the countries experienced a significant increase in negative emotions due to the impact of the epidemic. For all countries, it is inevitable that the restrictions, negativities or impossibilities brought by Covid-19 affect their unhappiness. After the Covid-19 pandemic, it has been observed that the factors that make people happy, according to WHR, vary. The variable Freedom to make life choices, which was not seen in 2019, entered the model, while the positive effect variable left the model. So we have seen how much our making free decisions and being cheerful during the day affect our happiness in our lives with the pandemic.

CONFLICTS OF INTEREST

No conflict of interest was declared by the authors.

AUTHORS' CONTRIBUTIONS

Gülcan GENCER: Literature review, method design and planning, data collection and analysis, reporting. Kerem GENCER: Literature review, method design and planning, data collection and analysis, reporting.

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