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Examination of the Psychological Effects of COVID-19 on University Students in Türkiye One Year Later from the Pandemic

Pandemiden Bir Yıl Sonra COVID-19'un Türkiye'deki Üniversite Öğrencileri Üzerindeki Psikolojik Etkilerinin İncelenmesi

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Abstract

This study aims to evaluate and compare the levels of depression, anxiety, stress, social media addiction, loneliness, and life satisfaction of university students for the pre-pandemic period and one year after Covid-19. Furthermore, aims to examine whether gender is a determinant in this comparison and to determine to what extent depression, anxiety, and stress are predicted by social media addiction, loneliness, life satisfaction, and tolerance to Covid-19. Participants consisted of 544 university students, 411 women (75.6%), and 133 (24.4%) men, aged between 18 and 40 (22.63-3.46). It was detected that the whole variables in the present study were related to each other. Also, there was a significant difference in favor of after Covid-19 between before and after Covid-19 scores in all of the variables of this study and this difference for some variables was higher in the female group. Additionally, it was observed tolerance to Covid-19, loneliness, social media addiction and satisfaction with life were predictors. Consequently, the difficulties brought by the pandemic may increase the susceptibility of depression, stress, and anxiety by affect loneliness and life satisfaction. Besides, the determination that women are more vulnerable in the face of difficulties related to Covid-19 may be associated that genders differ in the way they perceive and experience these difficulties.

Keywords: COVID-19, Depression, Anxiety, Stress, Social Media Addiction, Loneliness, Satisfaction with Life.

Öz

Bu çalışma, üniversite öğrencilerinin depresyon, anksiyete, stres, sosyal medya bağımlılığı, yalnızlık ve yaşam doyum düzeylerinin pandemi öncesi ve Covid-19 sonrasında bir yıl için değerlendirilmesi ve karşılaştırılmasını amaçlamaktadır. Ayrıca, bu karşılaştırmada cinsiyetin belirleyici olup olmadığının incelenmesi ve sosyal medya bağımlılığı, yalnızlık, yaşam doymu ve Covid-19'a toleransın depresyon, anksiyete ve stresi ne düzeyde yordadığının belirlenmesi amaçlanmaktadır. Çalışmaya yaşları 18-40 (22,63-3,46) arasında değişen 411'i kadın (%75,6) ve 133'ü (%24,4) erkek olmak üzere 544 üniversite öğrencisi katılmıştır. Bu çalışmadaki tüm değişkenlerin birbiriyle ilişkili olduğu tespit edilmiştir. Ayrıca, mevcut çalışmanın tüm değişkenlerinde Covid-19 öncesi ve sonrası puanları arasında Covid-19 sonrası lehine anlamlı bir fark olduğu ve bazı değişkenler için bu farkın kadın katılımcılarda daha yüksek olduğu saptanmıştır. Bununla birlikte, Covid-19'a tolerans, yalnızlık, sosyal medya bağımlılığı ve yaşam doymu durumunun yordayıcı olduğu gözlenmiştir. Sonuç olarak, pandeminin getirdiği zorluklar, yalnızlık ve yaşam doymunu etkileyerek depresyon, stres ve anksiyete yatınlığını artırabilir. Öte yandan, kadınların Covid-19 ile ilgili zorluklar karşısında daha savunmasız olduğunun tespiti, cinsiyetlerin bu zorlukları algılama ve deneyimleme biçimlerinin farklı olmasıyla ilişkilendirilebilir.

Anahtar Kelimeler: COVID-19, Depresyon, Kaygı, Stres, Sosyal Medya Bağımlılığı, Yalnızlık, Yaşam Doyumu.

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Examination of the Psychological Effects of COVID-19 on University Students in Türkiye One Year Later from the Pandemic

The 2019 novel coronavirus (COVID-19) is a global disease that has affected the whole world starting from the Wuhan province of China, where it was first observed, and has serious effects that cause it to be declared a pandemic by the World Health Organization (Dymecka et al., 2021; World Health Organization, 2020). This disease, which is characterized by a picture ranging from mild symptoms to death, has caused large-scale social changes by bringing many difficulties, such as increased death and infection rates, restrictions and quarantine periods, and economic problems, and also it has negatively affected the well-being and mental health of many people (Gabutti et al., 2020; Niedzwiedz et al., 2020). Stress factors that have been found to have an impact on individuals' mental health can be listed as quarantine/social isolation practices, lack of social interaction, loneliness, illness-related uncertainty, fear of infection, death of loved ones, disappointment, financial losses, not being able to go to work/school, misinformation about the current situation and impact on quality of life (Brooks et al., 2020; Bu et al., 2020; Chen et al., 2020; Dymecka et al., 2021). In addition to these stress factors caused by Covid-19 have affected every part of society negatively, one of the groups exposed to these stress factors is university students (Wang & Zhao, 2020).

There are studies that emphasize that during the pandemic process, compared to the pre-Covid-19 period there was an increase in the levels of psychological disorders, especially in the symptoms of anxiety, stress, and depression (Bäuerle et al., 2020; Çelik et al., 2023; Wang & Zhao, 2020), perceived loneliness due to isolation and social distance (Bu et al., 2020), in the time spent in internet-based networks and the level of social media addiction (Sujarwoto et al., 2021); on the other hand, it was observed life satisfaction decreased (Soest et al., 2020).

It is known that there are many studies concluding that the symptoms of depression in university students increased with the pandemic process after Covid-19 (Bäuerle et al., 2020; Elmer et al., 2020; Rehman et al., 2021). Besides, it can be seen that in university students had an increase in depression symptoms such as a decrease in enjoying daily activities, difficulty concentrating, loss of purpose, an increase in the sense of unhappiness, lack of self-confidence, feelings of worthlessness, and difficulty in overcoming difficulties after Covid-19 (Niedzwiedz et al., 2020). The results of the study investigating anxiety, which is known to be associated with depression and as high as depression in student groups (Wang & Zhao, 2020), in the context of the effects of the virus, demonstrates that there was an increase in the anxiety levels of university students (Rogowska et al., 2020; Wang & Zhao, 2020). At the same time, it is suggested that female students (Parlapani et al., 2020), living with their families and having higher anxiety levels about academic activities were at higher risk in terms of this rise (Islam et al., 2020). Stress is one of the issues that is frequently researched in the context of its effect on student groups regarding the pandemic, and it has been determined in many studies that the perceived stress level of students boosted especially with the effect of quarantine periods (Rogowska et al., 2020; Savage et al., 2020); that the continuation of education as online and the restriction of physical and social interaction originating from the closure of schools were factors that increased stress in student groups (Al Lily et al., 2020; Rehman et al., 2021). During the pandemic process, university students mostly prefer social media platforms for the purposes of communicating with their friends and family members, expressing their thoughts, and gaining or sharing information (Sujarwoto et al., 2021) and there is an increase in the duration and frequency of using them (Sujarwoto et al., 2021; Ting & Essau, 2021). The fact that social media has become more and more significant for the social lives of university students, especially with the influence of staying at home and the transfer of the education process to the digital environment, has created a risk for the problematic use and addiction of social media (Jiang, 2021; Sujarwoto et al., 2021). In addition to these, considering that the pandemic affects human life in

many ways (Brooks et al., 2019), it can be mentioned that its reflections on the life satisfaction of individuals can also be seen (Dymecka et al., 2021). In this regard, research conducted with university students has indicated that there was a significant decrease in life satisfaction levels with the epidemic (Labrague, 2021). It is emphasized that loneliness, which is stated to be an important public health problem (Lim et al., 2020), has increased in terms of the level of perception (Labrague, 2021). Moreover, it is obvious that being isolated from the friendship network is associated with increased loneliness in terms of student groups (Elmer et al., 2020).

Based on these findings in the literature, it can be mentioned that university students are one of the groups in which the negative effects of the pandemic on mental health are clearly observed. Therefore, it is of critical importance to evaluate the course of these effects and negative experiences with the passage of time. The current study, which is planned within this framework, aims to evaluate and compare the depression, anxiety, stress, social media addiction, loneliness, and life satisfaction levels of university students before the pandemic and one year after Covid-19. This study aims to evaluate and compare the levels of depression, anxiety, stress, social media addiction, loneliness, and life satisfaction of university students for the pre-pandemic period and one year after from Covid-19. Furthermore, examining whether gender is a determinant in this comparison and determining to what extent depression, anxiety, and stress are predicted by other variables in the study related to the mental structure are other purposes of the study.

Method

Participants

Participants consisted of 544 university students, 411 women (75.6%) and 133 (24.4%) men, aged between 18 and 40 ($M = 22.63$ $SD = 3.46$). While 436 (80.1%) of the participants did not have Covid-19, 108 (19.9%) got the disease. The sample size of the study was calculated based on 0.05 sampling error and 384 participants are required for 100 million samples according to 0.05 sampling error (Yazıcıoğlu & Erdoğan, 2004).

The data of the research, in which the snowball sampling method was used, were obtained through a questionnaire created on Google forms. The snowball method, which is one of the methods that is not based on probability, it is aimed to reach new people through the people reached and to grow the number of participants like a snowball (Yıldırım & Şimşek, 2005). In this study, the researchers shared the scale form in their WhatsApp groups were in, and they increased the number of participants by reaching new participants from the individuals in these groups.

Measures

Demographic Information Form

This form contains information about the age, gender, whether you have Covid-19, the level of tolerance to the pandemic process, the thing you have the most difficulty with during the pandemic process, and the level of daily social media use of the participants.

Depression Anxiety Stress Scale (DASS)

This scale that was developed by Lovibond and Lovibond (1995) is a self-report scale consisting of 42 items and three structures as depression, anxiety, and stress. It is evaluated with a 4-point Likert and its total point ranges from 0 to 42 (Lovibond & Lovibond, 1995). Also, DASS-21, which is a short version of the scale, has a high level of internal consistency coefficient and concurrent validity; and is sufficient to measure anxiety, depression, and stress (Antony et al., 1998; Henry & Crawford, 2005). The Turkish

adaptation of the scale was carried out by Akın and Çetin (2007). As a result of factor analysis in this study, it was detected that the scale was composed of three structures, as in the original study. Lastly, the Turkish adaptation research of the 21-item short form indicated that this scale is an adequate, valid, and reliable tool that can be used to differentiate clinical and normal people (Yıldırım et al., 2018). There is no reverse item in the scale. As the scale scores increase, the depression, stress and anxiety levels of the individuals also increase. In this study, the 21-item short form of the scale was used, and the participants can be scored between 0-21 in each subscale. The Cronbach Alpha reliability coefficient of the DASS-Anxiety scale in our study was determined as .74 for before Covid-19 and .81 for after Covid-19. Additionally, the Cronbach Alpha reliability coefficient of the DASS-Depression scale in our study was obtained as .90 for before Covid 19 and .90 for after Covid-19 and lastly the Cronbach Alpha reliability coefficient of the DASS-Stress scale in our study was found to be .84 for before Covid 19 and .82 for after Covid-19.

Social Media Addiction Scale-Adult Form (SMAS-AF)

SMAS-AF is a five-point Likert-type, 2 sub-dimension, and 20-item scale developed by Şahin and Yağcı (2017) to measure social media addiction of individuals between the ages of 18-60. As a result of the exploratory and confirmatory analyzes carried out within the scope of the research, it was detected the scale has a construction consisting of two dimensions as virtual tolerance and virtual communication, and 20 items. 1-11 items belong to the virtual tolerance sub-dimension while 12-20 items are related to the virtual communication sub-dimension. Items 5 and 11 are reverse scored, and the highest score that can be obtained from the scale is determined as 100 and the lowest score as 20. The high score received from the scale is evaluated as a person perceives himself/herself as a “social media addict”. The Cronbach Alpha reliability coefficient of the SMAS scale in our study was determined as .88 for before Covid 19 and .87 for after Covid-19.

The Satisfaction with Life Scale (SWLS)

This scale, developed by Diener et al. (1985) to examine life satisfaction of individuals, consists of 5 items rated between 1 (Strongly disagree) and 7 (Strongly agree). The scores that can be obtained from the scale range from 5 to 35 and also high scores indicate a high level of life satisfaction. The first study of Turkish adaptation of the scale was carried out by Köker (1991). At the end of the analysis of this research, it was observed that the item-test correlation coefficient ranged from .71 to .80; the test-retest reliability coefficient was .85. Additionally, another result of this study the scale preserves its single-factor structure consisting of five items. The Cronbach Alpha reliability coefficient of this scale in the present study was found as .86 for before Covid-19 and .86 for after Covid-19.

UCLA Loneliness Scale (ULS)

A Questionnaire was developed by Russell et al. (1978) to determine loneliness levels. The scale contains 20 items and it is evaluated with a 4-point Likert. The total score, which is obtained by summing the scores of all items, ranges from 20 to 80. High scores indicate that loneliness is experienced more intensely. The Turkish adaptation of the original scale was conducted by Demir (1989). Based on these findings, it was stated that Turkish form of the scale has an adequate level of validity and reliability. The Cronbach Alpha reliability coefficient of the ULS scale in our study was obtained as .92 for before Covid-19 and .93 for after Covid-19.

Process

For this research, the 21/398 numbered ethics committee approval was received from University of Health Sciences Hamidiye Scientific Research Ethics Committee on 21/05/2021. The study was made voluntary basis and was asked from participants to tick the box that indicated that they had accepted to participate voluntarily so that they could see the questions. Participants had answered the scale questions used in the study twice, evaluating their situation before and after Covid-19. Completing the scales took 15-20 minutes. In addition, since the scale form was designed to require the participants to fill in all the items in the scale, the forms that were left blank or incomplete could not be sent. The Independent Sample t-Test was performed to determine whether the scores differ before and during the pandemic, and Split Plot Two-Factor Analysis of Variance (SPANOVA) was performed to examine whether significant differences continue in the condition that gender includes in the analysis. Additionally, the Pearson Correlation Coefficient method was used to detect the relationships between the variables; and the Multiple Linear Regression method was used to investigate to what extent anxiety, depression, and stress are predicted by the other variables of the study. The analysis of the data was carried out via SPSS 25.0 package program.

Results

Socio-Demographic Findings

Those with a tolerance level of "1 (Never)" to the pandemic process were 21.1%, those with "2" at the rate of 38.6%, those with "3" at the rate of 31.3%, and those with "4 (High)" at the rate of only 9%. The rate of people using daily social media for 1 hour was 7.7%, using for 2 hours 32.5%, using for 3 hours 28.9%, using for 4 hours 17.5%, and using for 5 hours or more 13.4%. Also, participants were asked what was the most challenging thing during the pandemic process. The rate of those who emphasized social isolation such as not being able to go out, restrictions, quarantine, being closed all the time, staying away from friends was 60%, while the rate of those who were uncomfortable with using masks was 7.35%, the rate of those who had financial difficulties was 3.86%, the rate of those who complained about online education was 15.8% and the rate of those who were sick. The rate of other factors such as being sick or having a relative sick, fear of death, loneliness, restriction of freedom, uncertainty, stress was found to be 21.51%.

Correlation Analysis Findings

First, as a result of the analysis for normality made, it was determined that the skewness and kurtosis values of all scales were between -1.5 and +1.5, therefore the data set showed a normal distribution. The lowest skewness and kurtosis values were determined for after Covid-19 social media addiction (skewness= -.09) and the highest for before Covid-19 depression (skewness= 1.45). Then, it was examined relations between the tolerance level to the Covid 19, daily use of social networking, DASS-Anxiety, DASS-Depression, DASS-Stress, SMAS, SWLS, and ULS. The correlation analysis between the variables was made with the scale scores that the participants answered within the framework of their perceptions of the after Covid 19. According to the correlation analysis results, while all variables except satisfaction with life and tolerance level to the Covid 19 were positively correlated with each other, were found negative relationships between and all other variables with satisfaction with life and tolerance level to the Covid 19 (Table 1).

Table 1*Correlation Results*

	1	2	3	4	5	6	7	8	Tolerance	VIF
1. Tolerance to Covid 19	1	-,20**	-,39**	-,51**	-,47**	-,23**	,43**	-,26**	,800	1,250
2.SN-Daily Used		1	,18**	,27**	,22**	,48**	-,18**	,14**	,952	1,050
3.DASS-Anxiety			1	,54**	,60**	,31**	-,30**	,35**	,489	2,043
4.DASS-Depression				1	,70**	,42**	-,56**	,51**	,630	1,587
5.DASS-Stress					1	,36**	-,36**	,43**	,505	1,980
6.SMAS						1	-,29**	,28**	,945	1,058
7.SWLS							1	-,40**	,819	1,221
8.ULS								1	,933	1,072

Note. **p< .01

VIF: Variance Inflation Factor

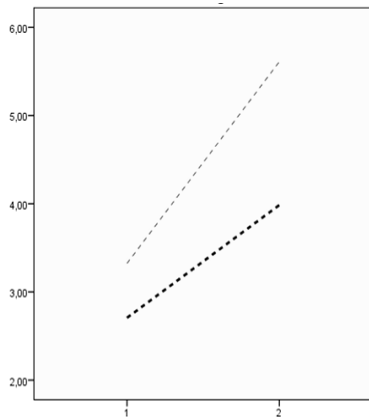
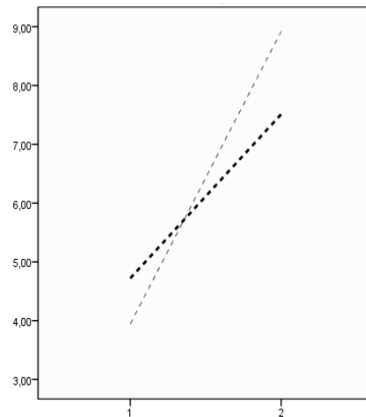
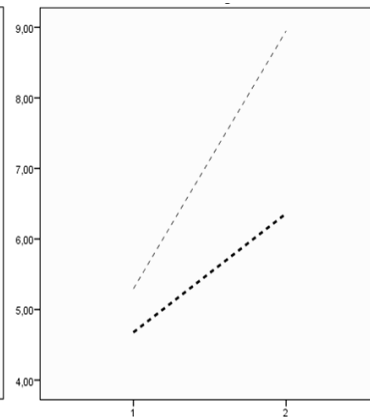
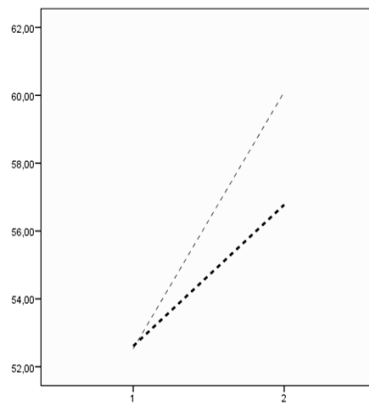
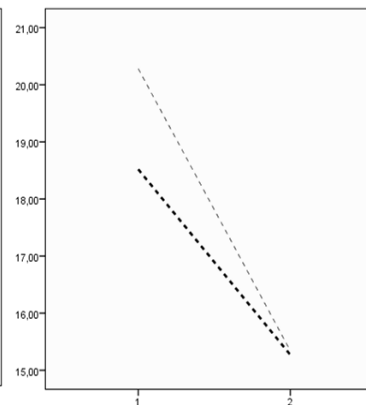
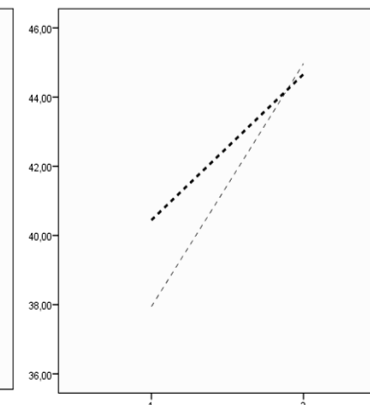
Comparison of Scale Score Means Before and After Covid-19

When the comparison of the score differences between before Covid-19 and after Covid-19, it was determined that there was a significant difference in favor of the after Covid-19 scores in all of the DASS-Anxiety, DASS-Depression, DASS-Stress, SMAS, SWLS, and ULS variables. This difference was higher in the female group (Table 2). Whether this difference in favor of women was significant or not was evaluated with split plot two-factor analysis of variance (SPANOVA). It was found that the effect of gender was significant for both DASS-Anxiety [F(1,542)=10.76, p< .001, $\eta^2=019$] and DASS-Stress [F(1,542)=14.92, p< .000, $\eta^2=027$], while the effect of gender was not significant for DASS-Depression [F(1,542)=.48, p>.05 (.488), $\eta^2=001$], SMAS [F(1,542)=1.77, p>.05 (.184), $\eta^2=003$], SWLS [F(1,542)=2.16, p>.05 (.142), $\eta^2=004$], and ULS [F(1,542)=.91, p>.05 (.341), $\eta^2=002$] (Figure 1, 2, 3, 4, 5, 6). According to Cohen (1992), 0.01 small, 0.06 medium, and 0.14 level eta square is interpreted as a large effect. Therefore, a low level of effect can be mentioned for anxiety and stress, while for other variables, there is not a significant difference between the groups.

Table 2*Comparison of Scale Score Means Before and After Covid 19*

	Before Covid 19		After Covid 19		r	Paired Differences		t
	M	SD	M	SD		M	SD	
DASS-Anxiety	3,17	3,15	5.21	4.40	.67*	-2.04	3.26	-14.59*
DASS-Depression	4.13	4.45	8.58	5.95	.53*	-4.44	5.20	-19.92*
DASS-Stress	5.14	4.06	8.31	5.29	.62*	-3.17	4.25	-17.41*
SMAS	52.55	13.03	52.28	13.67	.68*	-6.74	10.78	-14.58*
SWLS	19.85	7.00	15.32	7.37	.52*	-4.53	7.05	14.98*
ULS	38.56	11.27	44.89	13.73	.70*	-6.34	9.99	-14.79*

Note. **p< .001

Figure 1*Anxiety Levels***Figure 2***Depression Levels***Figure 3***Stress Levels***Figure 4***Social Media Addiction***Figure 5***Satisfaction with Life***Figure 6***Loneliness Levels*

Note. Bold lines represent male participants. The first measurement shows the means of scale responses of female and male participants before Covid 19, and the second measurement shows the means of scale responses of female and male participants after Covid 19.

Regression Analysis Results

Multiple linear regression analysis was performed using the stepwise method to determine the predictive effects of the tolerance the Covid-19, daily use of social networking, SMAS, SLS, and ULS on post-Covid-19 anxiety, depression, and stress scores. Before starting the regression analysis, it was examined whether the normal data set showed a normal distribution and whether there was multicollinearity between the independent variables. Skewness and kurtosis values were found to be between -1.5 and +1.5. For the multicollinearity assumption, VIF and Tolerance values were checked. Because VIF values less than 10 and tolerance values are higher than 0.1 (Field, 2005), it was accepted that the assumptions of the regression analysis were met. As a result of the analysis, it was found that anxiety was predicted by the tolerance the Covid-19 at 15% (in the negative direction and significant level; $\beta = -0.29$, $t(3, 540) = -7.31$, $p < 0.001$), by ULS at 07%, by SMAS at 3%, and by 24% in total. Depression was predicted by SWLS at 32% (in the negative direction and significant level; $\beta = -0.28$, $t(4, 540) = -7.31$, $p < 0.001$), by ULS at 09%, by the tolerance the Covid-19 at 07% (in the negative direction and significant level; $\beta = -0.27$, $t(4, 539) = -8.06$, $p < 0.001$), by SMAS at 3%, and by 51% in total. It was determined that stress was predicted by the tolerance the Covid 19 at 21% (in the negative direction and significant level; $\beta = -0.34$, $t(3, 540) = -9.46$, $p < 0.001$), by ULS at 10%, by SMAS at 3%, and by 35% in total (Table 3).

Table 3

Results of Predictive Effects of the Tolerance the Covid-19, Daily Use of Social Networking, SMAS, SLS, and ULS on DASS-Anxiety, DASS-Depression, DASS-Stress

		Predictive Variables	B	SE	β	t	R ²	F	ΔR^2
Anxiety	Constant		1.86	1.07		1.74		57.92*	.239
	Tolerance the Covid-19		-1.41	.19	-.29	-7.31*	.150		
	ULS-After Covid-19		.07	.01	.2	5.62*	.066		
	SMAS-After Covid-19		.06	.01	.18	4.43*	.027		
		Predictive Variables	B	SE	β	T	R ²	F	ΔR^2
Depression	Constant		5.98	1.30		4.59*		141.89*	.509
	SWLS-After Covid-19		-.23	.03	-.28	-7.97*	.317		
	ULS-After Covid-19		.12	.02	.27	7.95*	.093		
	Tolerance to Covid-19		1.79	.22	-.27	-8.06*	.070		
	SMAS-After Covid-19		.09	.01	.19	6.04*	.033		
		Predictive Variables	B	SE	β	t	R ²	F	ΔR^2
Stress	Constant		3.51	1.19		2.96*		98.29*	.350
	Tolerance the Covid-19		-2.03	.22	-.34	-9.46*	.214		
	ULS-After Covid-19		.11	.01	.29	7.81*	.103		
	SMAS-After Covid-19		.08	.01	.19	5.29*	.033		

Note. *p< .001

When Table 3 is examined, it is seen that the common predictive variables in all three models are the tolerance Covid-19 and SMAS. It has been observed that the decrease in the tolerance to Covid-19 and the increase in SMAS are effective in increasing the psychological symptoms. In addition, SMAS was found to be the highest predictive variable for anxiety and stress. It was determined that SWLS was only a predictive variable for depression and did not enter the models created for anxiety and stress. As a result, it is seen that each of the independent variables of the study is included in the models and three meaningful models are formed in the study.

Discussion

The present study aims to detect whether university students' anxiety, depression, stress, social media addiction, satisfaction with life, and loneliness levels differ before and after Covid-19 and to examine whether gender has a determinative effect on this differentiation. Another purpose of this research is to determine the relationships between the levels of tolerance to Covid-19, daily use of social networks after Covid-19, anxiety, depression, stress, social media addiction, satisfaction with life, and loneliness, and to investigate what level anxiety, depression and stress are predicted by other variables of this study.

In this study, it was determined that there is a decrease in tolerance level to Covid-19. In an early study on the subject, finding that indicated of half of the participants stating they can endure until the danger passed, but this process negatively affects their relationships and causes boredom brings to mind the possibility that this picture will progress adversely in the future (Bilge & Bilge, 2020). Difficulty in tolerating the negative consequences of the pandemic can be related to the situations affecting students psychologically and socially, such as quarantine obligation, stay-at-home calls, curfews, and ultimately online education, which have been applied as precautions since the beginning of the pandemic. As a result of these, it can be observed that university students who were socially isolated, lost their daily routine, being away from environments that offers them the opportunity for social interaction, and had to spend most of their time at home. It is possible to state that tolerating these negative outcomes is getting hard due to these difficulties that have been available for a long time.

On the other hand, as a result of correlation analysis, it was found that a decrease in tolerance level to Covid-19 was negatively correlated with depression, anxiety, and stress. Many studies in the literature concluded that depression and anxiety symptoms and perceived stress levels boosted at the duration of pandemic (Bäuerle et al., 2020; Rehman et al., 2021), and there was a negative relationship between low tolerance level and symptoms of depression and anxiety (Bilge & Bilge, 2020).

In addition to these, a decrease in tolerance level to Covid-19 was negatively correlated with loneliness levels; and was positively related to satisfaction with life. It is obvious that another major result of the restrictions in the pandemic illustrated that the level of perceived loneliness increased with Covid-19 (Bu et al., 2020). In this context, the narrowing of all social networks of university students due to restrictions and the continuation of interpersonal relationships online as well as education can be evaluated as a factor raising the feeling of loneliness. Loneliness felt in high levels may be linked with the appearance of life dissatisfaction and depressive symptoms, such as the levels of unhappiness, despair, and the lack of pleasure and introversion (American Psychological Association, 2013).

Furthermore, in the present study, it was detected that a decrease in tolerance level to Covid-19 was negatively correlated with social media addiction, and also daily usage of social networks increasing at the duration of the pandemic was positively correlated with social media addiction. This finding is confirmed by the research in the literature discovering that social media usage and social media addiction are related (Luo et al., 2021). It is also observed that some researchers stated that excessive exposure to disaster on social media may be a trigger factor for depression (Zhao & Zhou, 2021) and the time on social media creates a risk for clinical anxiety (Vannucci et al., 2017). These determinations confirmed the result of the current study indicating that social platforms used and social media addiction, which increased with Covid-19, are positively associated with some psychopathologies such as anxiety and depression.

Another result obtained from correlation findings was that there was a relationship between decreased satisfaction with life and increased levels of perceived loneliness, stress, depression, and anxiety. Similarly, in the studies reached in the literature, it was adverted that the impacts of the pandemic especially stay-at-home calls and social isolation lead to a rise in the levels of loneliness (Banerjee & Rai, 2020), anxiety, and depression (Hwang et al., 2020); and, also a drop in satisfaction with life (Labrague, 2021). It is probable that individuals' hope and expectations about life may be affected negatively, and a pessimistic mood may emerge due to the fact that the pandemic conditions have still continued to a large extent. These conditions mentioned can be considered as some factors which decrease the level of satisfaction with life by adversely influencing the well-being and psychological resilience of people.

As a result of the analysis performed for comparing pre and post Covid-19, it was determined that while the mean scores of social media addiction and satisfaction with life were higher before Covid-19, anxiety, depression, stress, and loneliness scores increased after Covid-19. Detecting that university students' depression, anxiety, stress, and loneliness levels increased or worsened after the pandemic (Elmer et al., 2020) supports this result. Firstly, the transfer of education to online platforms has decreased the social interactions of students who were not prepared for this, while increasing the time they spent at home and the school work they had to do online. Uncertainty accompanying daily life stress, which was occurred due to this situation, caused an increase in the degree of anxiety and stress. On the other hand, lockdowns calls and stay-at-home orders not just affect physical distancing but to fallen down social contact by damaging interpersonal relations. The knowledge focusing on the idea that being a student during the quarantine arose as a higher risk factor and this loneliness can be trouble for them (Bu et al., 2020) and the observation that the most significant decrease in the level of well-being is between the ages of 18-28, women, and single individuals (Özmen et al., 2021) verified that

there was an increase in psychological symptoms of university students, who were thought to be in an intense social network before the pandemic.

One of the central impacts that emerged from lockdown was that people had to live with other family members in an environment where their personal space decreased for a while. Contrary to the usual, the increased time spent at home with family members brings conflicts and, thereby leads the degree of anxiety to rise (Chen et al., 2020; Wu et al., 2020). This is a situation that causes university students who are already struggling with some difficulties to be more depressed and anxious. In addition to this, that concern about the virus and increased family conflict during the pandemic were united with lower life satisfaction (Soest et al., 2020) may be one of the reasons for the decrease in life satisfaction after Covid-19.

Another question is examined in this study is whether significant differences in psychological symptoms, social media addiction, loneliness, and life satisfaction for the pre-and post-Covid-19 continue if gender is included in the analysis. Although pandemic has affected groups of students of both genders, as can be seen from the results of this study, the reflections of negative consequences were much more obvious among female students. In some studies confirming the results of the present research, it has been stated that female students had a higher risk in terms of encountering the effects of the virus on mental health (Elmer et al., 2020). Similarly, there are some researchers claiming females had higher tendencies of anxiety levels of stress (Prowse et al., 2021), depression (Elmer et al., 2020), and anxiety (Parlapani et al., 2020) associated with Covid-19. That females are more vulnerable with respect to mental health may arise from the difference in the way stressors are perceived and experienced. It is known that women are more vulnerable when they face an anxiety-provoking or traumatic situation (Li & Graham, 2017), they experience repetitive thought intensely (Graham et al., 2020), and they are more likely to react with sadness to negative events (Hess et al., 2000). When this situation mentioned is evaluated in terms of specific to Covid-19 and the results of our study, it can be stated that all the changes, difficulties, and potential dangers experienced by female students were experienced with more intense and negative emotions. This explains the fact that the anxiety and stress levels of females, which also were observed to be high in the situations before the pandemic, continue to increase after Covid-19. Additionally, the increase in the level of loneliness reported by women after Covid-19 may be related to decreased social support. Because of many restrictions carried out as precautions during the pandemic process, the current communication has been limited, interpersonal interaction has deteriorated and social support has decreased. Generally, if the information that the sources of social support of women and the social support that they receive or give are higher (Fuhrer et al., 1999) is considered, it seems possible that women feel higher levels of loneliness than males. A higher decrease in life satisfaction among female students is consistent with the observation that women's vulnerability is higher in the face of the effects of Covid-19 in terms of life satisfaction (Anastasiou & Marie-Noelle, 2021). As mentioned before, women both have been feeling the effects arisen from the pandemic more intensely and experiencing more psychological problems, such as anxiety, depression, and stress. These reasons explain that female students had lower levels of satisfaction with life. The finding showing an increase in social media addiction in favor of female students may be due to the fact that they are at higher risk for psychological problems, such as loneliness, depression, and stress (González-Sanguino et al., 2020; McQuaid et al., 2020), experience academic difficulties more, and are more negatively affected by social isolation (Prowse et al., 2021). Moreover, the usage motivations of social networking include satisfying factors such as entertainment, relaxation, pass time, and social interaction (Whiting & Williams, 2013). In this context, it can be considered that women, which tend these satisfying features of social media in order to increase their decreasing life satisfaction and make life more enjoyable, spend more time on social sites, and have higher levels of addiction associated with this.

Regression analysis results indicated that anxiety and stress were negatively predicted by tolerance to Covid-19 negatively, loneliness, and social media addiction positively. It is known that the pandemic has affected psychological resilience and this has made it difficult to cope with emotional difficulties (Killgore et al., 2020). Based on this information, it can be deduced that withstanding in the current situation is getting more difficult in this process, and thus decrease in the level of tolerance contributes to the formation of anxiety and stress. Difficulties and fears originated from the virus and the emergence of anxiety sources; on the other hand, decreased sense of control over life has an influence on the development of anxiety. When the low levels of tolerance accompany these situations, it is possible that the level of anxiety will increase by worsening the existing symptoms or the course of it will worsen. These described effects illustrate the decisive role of the difficulty in tolerating Covid-19 on anxiety and stress.

When the present situation is examined in terms of loneliness and social networking addiction, which are other predictors, it is possible to state that the lack of social interaction, which is the result of long-term bans on going out and being in public areas, has boosted the levels of perceived loneliness; and also performing economic, social, and cultural aspects of many daily life routines via online platforms has caused an increase in the usage of social networking and addiction. It is possible to consider that these are becoming more and more difficult to tolerate since they are among the consequences of the pandemic process. The combined effect of these predictive factors explains the high levels of stress and anxiety detected in the analysis. If the literature is examined, it can be observed that there are some studies mentioning that the feeling of loneliness reported during the Covid-19 is a significant predictor and risk factor for anxiety (Boursier et al., 2020; Palgi et al., 2020); and anxiety, depression or stress are positively related to loneliness and social media addiction (Luo et al., 2021; Varma et al., 2021). These findings are consistent with the results of the current study.

When the results specific to depression are examined, it is observed that satisfaction with life, loneliness, tolerance to Covid-19 and social media addiction were determined as predictors and that tolerance to Covid-19 and satisfaction with life had a negative effect. This effect of life satisfaction on depression seems to be related to the fact that Covid-19 negatively affects the subjective well-being of individuals by bringing about challenging conditions and life changes. Furthermore, the fact that the pandemic conditions obligate many individuals to stay away from their lifestyle, goals, and plans is one of the remarkable factors that reduce the level of satisfaction. In addition to this, it can be considered that even though time has passed and various treatment methods have been tried, individuals' resilience and hope levels have decreased due to the continuation of the effects of the virus. The finding that this decline has a role in the dropping of life satisfaction (Padmanabhanunni & Pretorius, 2021) verifies the conclusion of the current study that there was a decrease in the level of tolerance to Covid-19 and life satisfaction. Loneliness, which was the second predictor of depression, may affect individuals' mood through the absence of positive emotional experiences with others due to the lack of social interactions. Especially, the finding that loneliness is a precursor to hopelessness, which is one of the symptoms of depression (Padmanabhanunni & Pretorius, 2021; Palgi et al., 2020), is significant in terms of indicating the effect of loneliness on the symptoms of depression. Lastly, similar to this study, it was determined that social media may be a trigger factor for depression (Zhao & Zhou, 2021), creates a risk for clinical anxiety (Vannucci et al., 2017) and is associated with severe stress (Luo et al., 2021). All of these findings indicate the importance of social networking addiction predicting equally three symptom clusters examining in the present study. Also, this study has some limitations. The limitations of the study can be expressed as the subjective evaluations of the participants regarding before and after Covid-19 and the effect of these subjective evaluations on the results obtained, the majority of the participants being female university students, and therefore the restricted representation of male students.

Conclusion

As a result of the analysis performed for comparing pre and post Covid-19, it was determined that while the mean scores of social media addiction and satisfaction with life were higher before Covid-19, anxiety, depression, stress, and loneliness scores increased after Covid-19. Besides, correlation analysis presented that a decrease in tolerance level to Covid-19 was negatively correlated with depression, anxiety, stress, social media addiction, and loneliness levels; and was positively related to satisfaction with life. Another result of the study is about gender. According to this, although pandemic has affected groups of students of both genders, as can be seen from the results of this study, the reflections of negative consequences were much more obvious among female students.

If these findings are briefly evaluated, it can be mentioned that these results that confirm the hypotheses of the current study have shown that Covid-19 has ongoing effects and it is possible that these effects will still continue in the future. The findings of this and similar studies (B auerle et al., 2020; Bu et al., 2020; Sujarwoto et al., 2021), it may be beneficial to find effective methods to be reduced the effects of the pandemic process, which is likely to continue, and to be established preventive mechanisms.

Compliance with Ethical Standards

Ethical Approval

All study procedures involving human participants followed institutional and/or national research committee ethical standards and the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Ethical approval was also received from the University of Health Sciences Hamidiye Scientific Research Ethics Committee (21/05/2021 number: 21/398).

Author Contributions

The investigation, conceptualization, methodology, formal analysis, and writing-review & editing tasks were carried out by Y.B..  .T.Y. contributed to conceptualization, data collecting, and the writing of the original draft, as well as writing-review & editing. A.B. was involved in data collecting, writing the original draft, and editing. E.B. participated in data collecting, writing the original draft, and editing. Z.Z. contributed to data collecting and writing the original draft.

Declaration of Conflicting Interests

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