

# THE RELATIONSHIP BETWEEN THE USE OF SOCIAL MEDIA AND LONELINESS DURING COVID-19 PANDEMIC<sup>1</sup>

**Gülnur YENİLMEZ KAÇAR\***

## ABSTRACT

During COVID-19 pandemic, there was a significant increase in the use of social media since social media became the primary means of social interaction and communication because of prolonged self-isolation and lockdowns. Based on this fact, it is hypothesized the use of social media had a positive impact on mental health by alleviating loneliness. The current study aims to explore the relationship between the usage of social media and loneliness during the pandemic and to propose a model regarding this. To this end, an online survey was conducted on 178 participants and relevant statistical analyses were carried out on SPSS 22.0. The results revealed a negative correlation between the use of social media (time spent on social media, number of followers, number of accounts) and loneliness. The study demonstrated that social media can be utilized as a beneficial social interaction platform to mitigate loneliness caused by social distancing during the pandemic.

**Keywords:** Social Media, Social Network Sites, Pandemic, Loneliness, Covid-19

## COVID-19 PANDEMİSİ SIRASINDAKİ YALNIZLIK HİSSİ VE SOSYAL MEDYA KULLANIMI ARASINDAKİ İLİŞKİ

### ÖZ

COVID-19 salgını sırasında, uzun süreli sosyal izolasyon ve sokağa çıkma kısıtlamaları nedeniyle sosyal medya başlıca sosyal etkileşim ve iletişim aracı haline gelmiş ve bu nedenle sosyal medya kullanımında önemli bir artış yaşanmıştır. Bundan hareketle, sosyal medya kullanımının yalnızlık hissini hafifleterek ruh sağlığı üzerinde olumlu bir etkisi olduğu varsayılmaktadır. Mevcut çalışma, pandemi döneminde sosyal medya kullanımı ile yalnızlık arasındaki ilişkiyi araştırmayı ve buna ilişkin bir model önermeyi amaçlamaktadır. Bu hedef doğrultusunda 178 katılımcıya online anket uygulanmış ve ilgili istatistiksel analizler SPSS 22.0 üzerinde yapılmıştır. Bulgular, sosyal medya kullanımı (sosyal medyada geçirilen zaman, takipçi sayısı, hesap sayısı) ile yalnızlık arasında negatif bir ilişki olduğunu ortaya koymuştur. Çalışma sosyal medyanın pandemi sırasındaki sosyal izolasyonun neden olduğu yalnızlığı azaltmak için etkili bir sosyal etkileşim platformu olarak kullanılabileceğini ortaya koymuştur.

**Anahtar Kelimeler:** Sosyal Medya, Sosyal Paylaşım Siteleri, Pandemi, Yalnızlık, Covid-19

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\* Lecturer Dr., Trakya University, Department of Foreign Languages, gulnuryenilmez@trakya.edu.tr, ORCID: 0000-0003-0454-741X.

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## INTRODUCTION

The COVID-19 disease, which was first reported in Wuhan, China, spread around the world rapidly and turned into a global health crisis in such a short time. Causing millions of deaths and severe cases of pneumonia, the infectious disease has altered daily life dramatically and led to economic and social disruption on the entire world. As there were no pharmacological measures to prevent the disease at the outset of the pandemic, governments were forced to take strict measures such as curfews, social distancing and travel restrictions, etc.

Given the preventative measures, there was a decline in face-to-face interaction and physical contact among individuals. Therefore, social media channels became the primary tools for them to communicate with their social circles, to do business, to get education, to get news, to pursue interests etc. during the pandemic. Taking all these motives into account, it was inevitable that social media platforms experienced a significant increase in engagement rates. However, the rise in time spent on social media during the pandemic raised concerns as to negative effects on individuals. Whereas some studies conducted before the pandemic indicated negative effects of social media, some others emphasized its positive impacts on people. Considering that social media were the sole means for individuals to socialize with others, it is assumed that social media channels had positive effects on individuals' well-being by alleviating the feeling of loneliness during the COVID-19 lock-downs. Drawing on the mood management theory (Zillmann, 1988), we suggest that there was a negative correlation between the use of social media and the level of loneliness experienced during the pandemic. To examine the relationship between social media habits and loneliness, we designed an exploratory pilot study, conducted an online survey and analyzed the results by using SPSS 22.0 (IBM SPSS Statistics for Windows, Version 22.0., 2013).

## 1. LITERATURE REVIEW

### 1.1. The COVID-19 Pandemic

The COVID-19 has spread to all countries in such a short time since the first case was officially reported in Wuhan, China. In order to impede the spread of the virus and to protect public health, governments around the world imposed serious measures such as lock-down, quarantine and social distancing since there was no effective vaccine or medicine to prevent or treat the infectious disease. In Turkey, measures against COVID-19 included curfews, inter-city and international travel restrictions, closure of businesses, adoption of distance education and remote working practices. Nevertheless, the official global death toll from COVID-19 passed six million and the number of total cases reached 500 million as of April, 2022 (Worldometers.info, 2022b) whereas in Turkey, the death toll exceeded 98 thousand and the number of total cases rose up to approximately 15 million as of April (Worldometers.info, 2022a).

Besides millions of deaths, the pandemic imposed burden on the functioning of health system, disrupted production, led to unemployment and closure of businesses, and resulted in disruption to education. Furthermore, it had adverse effects on individuals' mental health (Moreno et al., 2020; Talevi et al., 2020). The strict preventative measures such as obligatory closure of schools and workplaces, restrictions of travelling, stay-at-home orders confined people to their homes. Even though they helped to curtail the spread of the virus, research denote that restrictive procedures such as quarantine brought about negative psychological effects. Longer quarantine period, inadequate information, boredom, etc. were found to be stressors that contributed to post-traumatic stress, anger, low mood and emotional

exhaustion (Brooks et al., 2020). In line with this, studies carried out during pandemic reported an increase in depression, anxiety, stress and loneliness (González-Sanguino et al., 2020; Lei et al., 2020; Osea et al., 2021). Another study demonstrated higher levels of anxiety and insomnia than pre-pandemic period in people with a previous medical history (Hammami et al., 2021).

## 1.2. Social Media and COVID-19 Pandemic

Social media are web-based or mobile technologies that facilitate interactive communication to share information, personal messages or other contents. On the other hand, social network sites (SNSs) are platforms created by users who come together around a common interest to create or maintain relationship (Treem & Leonardi, 2013). They are virtual collection of profiles where users can share with others (Hughes, Rowe, Batey, & Lee, 2012). While social media is a broad concept, including wikis, blogs, social tagging etc., social network site (SNS) is only one of the social media platforms; in other words, it is a subcategory of social media (Ellison & Boyd, 2013). Therefore, Facebook, Instagram and LinkedIn are defined as social network sites whereas all these social network sites are listed under the category of social media as the applications such as WhatsApp and WeChat are.

Due to the strict measures during the pandemic, people spent more time at home than before, which brought about a change in their daily habits, too. According to recent studies, there was a significant increase in the use of social media during stay-at-home orders. The number of global social media users increased by 13 percent last year (Kemp, 2021a), and in Turkey the number of active social media users exceeded 70 percent of the population (Kemp, 2021b). As of January 2021, the average time spent daily on social media was two hours twenty minutes according to global figures (Kemp, 2021a), which was slightly higher than the figures of January 2020 (Kemp, 2020a). However, according to Global Web Index's survey, 47% of the participants reported spending more time on social media during the pandemic (Kemp, 2020b). Besides, a study in US revealed that people spent one to two hours more than usual daily on social media at the height of the pandemic (Statista Research Department, 2021).

What do people do on social media? With the ease of use, accessibility via mobile phones and no cost of charge, social media provide people with numerous opportunities. According to studies conducted in line with "uses and gratifications approach" (Katz, Blumler, & Gurevitch, 1973), there are a large number of motives underlying the use of social media. People utilize social media platforms for communication and social interaction (Cheng et al., 2014; Kim et al., 2011; Lee et al., 2015; Yenilmez Kacar, 2021) either through interpersonal or "masspersonal" communication applications (O'Sullivan, 2005), information seeking (Boztepe Taskiran, 2019; Leung, 2013; Throuvala et al., 2019), information dissemination (Johnson & Yang, 2009; Smock et al., 2011), entertainment (Cheng et al., 2014; Leung, 2013), relaxation (Gaddekar & Krishnatray, 2017; Smock et al., 2011), surveillance (Cheng et al., 2014; Malik et al., 2015) and affection seeking purposes (Apodaca, 2017; Sung et al., 2016), etc.

Given the social isolation and forced home confinement during the pandemic, social media channels were the only means for people to stay in touch with their social circles, to engage in business, educational practices and hobbies, to get latest news and to pursue interests. People turned to social media platforms for reliable sources to get information for updates on the coronavirus (Watson, 2020) and news related to development of vaccines. They were able to contact their friends, relatives and acquaintances and maintain their existing

relationships thanks to social media. According to recent research, maintaining relationships was the primary motive underlying social media use during the pandemic especially for the people high in extraversion (Bowden-Green, Hinds, & Joinson, 2021). Staying indoors for prolonged periods of social isolation, people used social media to get rid of boredom, to pass time and to relax as they did before the pandemic (Gadekar & Krishnatray, 2017; Papacharissi & Mendelson, 2010; Smock et al., 2011). All these motives contributed to the dramatic increase in engagement on social media platforms.

### **1.3. Social Media and Psychological Well-being**

The rapid escalation in social media consumption during the pandemic requires going through the effects of social media on individuals. There are two opposing views on how social media influence users. A significant portion of studies indicated that social media have negative impacts on individuals such as depression, stress, anxiety (Barry et al., 2017; Griffiths et al., 2014; Hawi & Samaha, 2017), social withdrawal, emotional instability (Throuvala et al., 2019), distorted body image, feelings of personal inadequacy (Gordon, 2019; Hogan, 2015; Scott, 2019), decrease in self-esteem (Hawi & Samaha, 2017; Macmillan, 2017), decrease in life satisfaction (Alheneidi et al., 2021; Hawi & Samaha, 2017; Macmillan, 2017) and loneliness (Alheneidi et al., 2021; Gordon, 2019; Hogan, 2015; Scott, 2019; Youssef et al., 2020). On the other hand, a large body of research reported positive effects of use of social media on individuals such as decrease in loneliness (Macmillan, 2017; Pittman & Reich, 2016), increase in psychological well-being (Ellison, Steinfield, & Lampe, 2007) and self-esteem (Herring & Kapidzic, 2015), decrease in depression and anxiety (Macmillan, 2017; Valkenburg et al., 2005) by providing opportunities to express the self, to build self-identity and community, to get emotional support (Macmillan, 2017) and to gratify the need for connection (Chen, 2011; Lewis et al., 2008). According to the aforementioned research conducted before the pandemic, the findings as to the association between the use of social media and psychological well-being seem to be contradictory.

In the literature, there are a number of studies examining the relationship between the use of social media during the pandemic and psychological health. Some research reported that social media exposure increased the prevalence of anxiety and depression (Gao et al., 2020; Ni et al., 2020). However, the reason was shown as the fact that people relied on social media for seeking information on COVID-19 more and were exposed too much to false reports or misinformation on social media. This phenomenon is defined as infodemic by World Health Organization, which means excessive information containing deceptive or misleading data in virtual environments during an epidemic, leading to confusion (2022). Another study reported that individuals with COVID-19 stress exhibited addictive social media use (Zhao & Zhou, 2021). On the other hand, some other research recommended the use of social media to diminish anxiety and stress (Manuell & Cukor, 2011) and to cope with stressful situations (Abbas et al., 2021).

Considering the strict social distancing measures such as stay-at-home orders during the pandemic, people were deprived of physical contact and social interaction face to face. Therefore, they were more susceptible to negative feelings such as loneliness than pre-pandemic period. Since social media were the sole channels that connected them to their surroundings and enabled them to socialize with others, we suggest that the increase in the use of social media during the pandemic significantly contributed to individuals' well-being especially in reducing the feeling of loneliness under lock-down conditions, which is consistent with the mood management theory (Zillmann, 1988). The theory of mood

management asserts that users consume media according their state of mind. They choose particular media that suit their hedonic needs intuitively in order to boost their mood and terminate negative feelings. Hence, the selection of media to be consumed helps to regulate the mood states (Reinecke, 2017). However, the number of studies examining the link between loneliness and the use of social media is quite few. To address the gap, in line with this theory, we aimed at investigating the relationship between social media habits and level of loneliness during the pandemic in this study. As a part of an extensive research, we conducted an exploratory pilot study to test the following hypotheses:

- **Hypothesis 1:** Time spent on social network sites (SNSs) is negatively correlated with loneliness.
- **Hypothesis 2:** The number of followers is negatively correlated with loneliness.
- **Hypothesis 3:** The number of accounts on social network sites (SNSs) is negatively correlated with loneliness.
- **Hypothesis 4:** Increase in time spent on social media is positively correlated with number of followers.
- **Hypothesis 5:** The number of accounts is positively correlated with the number of followers and time spent on social network sites (SNSs).

## 2. METHOD

### 2.1. Procedure and Participants

To investigate the association between the use of social media and feeling of loneliness, an online survey was carried out on 18-31 May, 2021, in Turkey. Ethical approval for the study was received from the ethics committee of Trakya University. The link of the survey created on Google Forms was shared with people on various WhatsApp groups. All volunteering participants were informed about the study, and all provided informed consent. 178 valid responses were attained through snowball sampling and convenience sampling. The sample consisted of 178 users who had at least one account on social media platforms. 60.1% of the participants were female (n = 107) and 39.9% were male (n = 71). There was no age restriction for participating in the survey.

### 2.2. Measures

*Demographics.* General information on gender and age was collected. As the sample was supposed to consist of a wide range of ages, age group was divided into six groups: 1 = *less than 20-year-old*; 2 = *21-26-year-old*; 3 = *27-32-year-old*; 4 = *33-38-year-old*; 5 = *39-44-year-old*; 6 = *more than 44-year-old*.

*Use of Social Network Sites.* Participants were asked “which SNS do you use the most to communicate with your friends or acquaintances?”, “how many friends/ followers do you have on the SNS you use the most?”, “how many accounts do you have in total on SNSs?” and “how many hours do you spend on SNSs on a daily basis?”. They were provided with five to six options to choose.

*Change in Social Media Habits during Pandemic.* In order to compare social media habits during the pandemic and pre-pandemic, participants were asked to agree or disagree with statements “I spend more time on social media than I did before the pandemic” and “I share more photos, texts or videos on social media than I did before the pandemic” on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

*Loneliness.* Loneliness was measured using the short form of UCLA Loneliness Scale (ULS-8) (Hays & DiMatteo, 1987), which was adapted into Turkish by Yildiz and Duy (2014). Although ULS-8 is comprised of eight items in its original version, seven items were used in the study as the Turkish version of the scale yielded seven items instead of eight during exploratory factor analysis with adequate levels of validity and reliability (Yildiz & Duy, 2014:198). Each item was measured on a 4-point Likert scale with the answers ranging from 1 = *Never* to 4 = *Always*. Higher scores on the scale mean a higher level of loneliness.

### 2.3. Statistical Analyses

Data analyses were conducted by using SPSS 22.0 (*IBM SPSS Statistics for Windows, Version 22.0.*, 2013). Descriptive analyses were carried out to calculate the counts and percentages for categorical variables, and means and standard deviations for ordinal variables. In order to conduct parametric tests, normality assumptions were checked by examining the skewness and kurtosis values of the variables. As skewness and kurtosis values were in the range of -1.5 and +1.5, normal distribution was accepted (Tabachnick & Fidell, 2013). A *t*-test was conducted to determine whether there was a significant difference by gender. One-way analyses of variance (ANOVA) were performed to detect whether there was a significant difference among more than two groups. Pearson's correlation coefficient was conducted to measure the statistical association between variables.

## 3. RESULTS

Descriptive analyses for demographics showed that out of 178 participants, 60.1% were women ( $n = 107$ ) and 39.9% were men ( $n = 71$ ). The highest number of participants were in the age group of 21- 26 ( $n = 92$ , 51.7%) and the least number of participants were in the age group of 27-32 ( $n = 10$ , 5.6%) and in the age group of 39-44 ( $n = 10$ , 5.6%). Participants 20-year-old and below made up 16.3% ( $n = 29$ ); participants 33-38-year old made up 13.5% ( $n = 24$ ); participants 45-year-old and more made up 7.3% ( $n = 13$ ) of the sample.

Descriptive statistics for the use of social network sites by participants are shown in Table 1. According to the findings, Instagram ranked the first as the most used social network site to communicate with friends and acquaintances ( $n = 145$ , 81.5%). Facebook was reported to be the most used SNS only by 10.1% ( $n = 18$ ). Snapchat and LinkedIn ranked the last whereas no participant reported to use TikTok for communication purposes.

Most of the participants (24.7%) had 301-450 followers or friends on the SNS they used the most. 21.9% reported to have more than 750 followers or friends. 15.7% had 151-300 followers or friends, and another 15.7% had 451-600 ( $n = 28$ ). 15.2% had 1-150 followers or friends on the SNS they used the most. Only 6.7% of the participants stated to have 601-750 followers or friends.

As regards the total number of accounts, most of the participants (42.1%) reported to have four or five accounts on all SNSs. It is followed by the participants (36.5%) who had two or three accounts. Only 7.3% said that they had one account, which means they only registered for one SNS and used only it. 5.6% had eight or more accounts on all SNSs.

<i>n</i>			<i>%</i>		
<b>Most used SNS</b>			<b>Number of accounts on all SNSs</b>		
Instagram	145	81.5	1 account	13	7.3
Facebook	18	10.1	2-3 accounts	65	36.5
Twitter	11	6.2	4-5 accounts	75	42.1
Snapchat	2	1.1	6-7 accounts	15	8.4
TikTok	0	0	8≤ accounts	10	5.6
LinkedIn	2	1.1			
<b>Number of followers/ friends on most used SNS</b>			<b>Time spent daily on SNSs</b>		
1-150	27	15.2	≤ 1 hour	20	11.2
151-300	28	15.7	2-4 hours	103	57.9
301-450	44	24.7	5-6 hours	34	19.1
451-600	28	15.7	7-8 hours	18	10.1
601-750	12	6.7	8< hours	3	1.7
751≤	39	21.9			

**Table 1.** Descriptive statistics for the use of social network sites

On a daily basis, most of the participants (57.9%) spent 2-4 hours on SNSs. Only 1.7% spent more than 8 hours a day on SNSs. On the other hand, 11.2% were found to be spending less than one hour thereon.

Descriptive analyses were conducted to demonstrate if there was a change in social media habits during pandemic (see Table 2.). Descriptive statistics for the increase in time spent on social media revealed an overall mean score of 4.07 ( $SD = 1.06$ ) on a 5-point Likert-type scale. This demonstrates that a significantly high number of participants spent more time on social media than they had done before the pandemic. However, descriptive statistics for the increase in sharing content on social media yielded a lower mean score of 2.38 ( $SD = 1.15$ ). This indicates that there was nearly no change in content sharing habits of participants during the pandemic.

	N	Minimum	Maximum	<i>M</i>	<i>SD</i>
<b>Change in social media habits during pandemic</b>					
Increase in time spent on social media	178	1.00	5.00	4.07	1.06
Increase in sharing content on social media	178	1.00	5.00	2.38	1.15

**Table 2.** Descriptive statistics for change in social media habits

An independent-samples t-test was conducted to compare the change in social media habits for women and men. As to the increase in time spent on social media, there was not a significant difference in the scores for women and men ( $p = .262$ ). On the other hand, as to the increase in sharing content on social media, there was a significant difference between women ( $M = 2.59$ ,  $SD = 1.19$ ) and men ( $M = 2.08$ ,  $SD = 1.02$ );  $t(164.349) = 3.013$ ;  $p < .01$ ) (See Table 3.). These results suggest that gender has an impact on the change in sharing contents on social media. Whereas female participants tended to share more contents on social media than they had done before the pandemic, male counterparts did not report such an increase in sharing contents during the pandemic.



	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
<b>Increase in time spent on social media</b>				1.124	176	.262
female	107	4.14	1.06			
male	71	3.96	1.06			
<b>Increase in sharing contents on social media</b>				3.013	164.349	.003*
female	107	2.59	1.19			
male	71	2.08	1.02			

**Table 3.** T-test results comparing females and males on change in social media habits during pandemic

To measure loneliness, the UCLA loneliness scale (ULS-8) was used. It was adapted into Turkish and is composed of seven items (Yildiz & Duy, 2014). Cronbach's alpha for these items was calculated and found to be highly reliable ( $\alpha = .788$ ) (Hinton et al., 2004: 364). Table 4. provides an overview of the items in the scale.

	Minimum	Maximum	<i>M</i>	<i>SD</i>	<i>Cronbach's</i> <i>α</i>
<b>During the pandemic, how often have you felt the following?</b>					.788
Item 1: People are around me but not with me.	1	4	2.49	0.9	
Item 2: I can find companionship when I want it (reversed)	1	4	2.15	0.93	
Item 3: I feel left out.	1	4	1.97	0.94	
Item 4: There is no one I can turn to.	1	4	1.71	0.91	
Item 5: I am unhappy being so withdrawn.	1	4	2.28	1.05	
Item 6: I lack companionship.	1	4	1.57	0.88	
Item 7: I feel isolated from others.	1	4	2.30	1.01	

**Table 4.** Descriptive statistics for loneliness

To test the contribution of the number of followers to loneliness, increase in time spent on social media and increase in sharing contents on social media during pandemic, one-way analysis of variance (ANOVA) tests were conducted. Results are summarized in Table 5. The first one-way ANOVA revealed that follower number was related to the feeling of loneliness ( $F(5, 172) = 4.89, p = .00$ ). To examine the difference between the categories, a post hoc Tukey test was performed with significance level of  $p < 0.05$ . The results revealed that the participants with 1-150 followers, the ones with 451-600 and the ones with more than 750 followers differed in loneliness values. The participants with more than 750 followers ( $M = 1.71, SD = .49$ ) exhibited lower levels of loneliness than the ones with 451-600 ( $M = 2.18, SD = .64$ ) and the ones with 1-150 followers ( $M = 2.42, SD = .55$ ). This suggests a negative correlation between the number of followers and the feeling of loneliness.

The second one-way ANOVA test showed a main effect of follower number on increase in time spent on social media during pandemic ( $F_{Welch}(5, 60.346) = 4.29; p = .002; F_{Brown-Forsythe}(5, 102.292) = 3.23; p = .009$ ). A post hoc analysis using Games-Howell revealed that the participants with 451-600 followers ( $M = 4.64, SD = 0.68$ ) had significantly higher values for the increase in time spent on social media during pandemic than the ones with



151-300 followers ( $M = 3.68$ ,  $SD = 1.09$ ) and the ones with 1-150 followers ( $M = 3.67$ ,  $SD = 1.49$ ). Participants with 451-600 followers spent far more time on social media than these two groups during pandemic.

The last one-way ANOVA test indicated a main effect of follower number on increase in sharing contents on social media during pandemic ( $F(5, 172) = 3.63$ ,  $p = .004$ ). A post hoc Tukey test revealed that the participants with more than 750 followers ( $M = 2.87$ ,  $SD = 1.22$ ) had higher values for increase in sharing contents on social media during pandemic than the participants with 151-300 followers ( $M = 1.96$ ,  $SD = .96$ ) and the ones with 301-450 ( $M = 2.05$ ,  $SD = .96$ ). Participants with the highest number of followers shared more contents on social media than these two groups during pandemic.

	Loneliness		<i>F</i>	<i>p</i>	Increase in time spent on social media				Increase in sharing contents on social media				
	<i>M</i>	<i>SD</i>			<i>M</i>	<i>SD</i>		<i>F</i>	<i>p</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Follower no.			4.89	.000			Welch	4.291	.002				
1-150	2.42	0.55			3.67	1.49	Brown-Forsythe	3.239	.009	2.33	1.21	3.635	.004
151-300	2.11	0.72			3.68	1.09				1.96	0.96		
301-450	2.08	0.59			4.16	0.81				2.05	0.96		
451-600	2.18	0.64			4.64	0.68				2.71	1.12		
601-750	2.02	0.63			4.08	1.08				2.42	1.31		
751≤	1.71	0.49			4.1	0.99				2.87	1.22		

**Table 5.** One-way analysis of variance by follower number

The findings of ANOVA tests suggest a correlation between main variables of the study. To attain a broader insight into the interrelationship among variables, a Pearson correlation was carried out. Table 6. displays the means, standard deviations of variables and Pearson's correlation coefficients. Bivariate correlation coefficients indicated that the feeling of loneliness was moderately correlated with the number of followers,  $r = -.31$  ( $p < .01$ ) being the second highest coefficient on the table. Loneliness was weakly but statistically significantly related to the number of accounts,  $r = -.26$ , and time spent on SNSs,  $r = -.20$ , (both  $p < .01$ ). The increase in sharing content on social media was significantly related to the number of followers,  $r = .23$ ,  $p < .01$ , the increase in time spent on social media,  $r = .31$ ,  $p < .01$ , and time spent on SNSs,  $r = .17$ ,  $p < .05$ . There was a moderate correlation between increase in time spent on social media and time spent on SNSs,  $r = .30$ ,  $p < .01$ . Increase in time spent on social media was also weakly correlated with the number of followers,  $r = .17$ ,  $p < .05$ . Time spent on SNSs was moderately correlated with the number of accounts,  $r = .32$  ( $p < .01$ ) being the highest coefficient on the table. Time spent on SNSs was also weakly correlated with the age,  $r = -.26$ ,  $p < .01$ , and the number of followers,  $r = .19$ ,  $p < .05$ . The number of accounts was weakly related to the number of followers,  $r = .29$ ,  $p < .01$ , and the age,  $r = -.19$ ,  $p < .05$ .

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1 age	2.62	1.43	—						
2 number of followers	3.49	1.71	.027	—					
3 number of accounts	2.69	0.93	-.186*	.287**	—				
4 time spent on SNS	2.33	0.86	-.262**	.190*	.324**	—			
5 increase in time spent on social media	4.07	1.06	-.065	.165*	.044	.295**	—		
6 increase in sharing content on social media	2.39	1.15	.127	.233**	.014	.170*	.307**	—	
7 loneliness	2.07	0.63	-.086	-.313**	-.262**	-.204**	-.035	-.127	—

\**p* < .05; \*\**p* < .01.  
The table is diagonally symmetrical.

**Table 6.** Descriptive statistics and bivariate correlations among variables

## DISCUSSION AND CONCLUSION

In this study, we investigated whether the usage of social media was beneficial for reducing the feeling of loneliness during Covid-19 pandemic by conducting an online survey. There are a high number of studies demonstrating the negative effects of social media on individuals' well-being. However, the findings of this study revealed that social media can be utilized as a means of alleviating the feeling of loneliness during pandemic. This is in line with mood management theory, which asserts that individuals are driven by the motive of reducing negative feelings while using social media (Reinecke, 2017).

According to our findings, Instagram was the most used SNS to communicate with friends and acquaintances while Facebook lags far behind it. This particular finding confirms the "Digital 2021: Turkey report", indicating that Instagram ranks the most used SNS in Turkey among others with the percentage of 89.5% (Kemp, 2021b). Moreover, participants aged under 27 constituted the major part of our sample (68%) and this age group were reported to be using Instagram the most while they avoid Facebook as it is most often used by old people by previous research (Throuvala et al., 2019; Yenilmez Kacar, 2020).

The number of followers/friends represents the extent of social circles of individuals on online platforms. According to Dunbar (1993), individuals can sustain meaningful relationships with approximately 150 people, which is a cognitive limit for human beings. However, in our study, most of the participants (69%) reported to have more than 300 followers or friends only on the SNS they use the most, who cannot be deemed as meaningful relationships. 21.9% had more than 750 followers/ friends, all of whom cannot be among their meaningful friends in face-to-face communication setting. However, we found a negative correlation between the feeling of loneliness and the number of followers/ friends participants had. Higher number of followers/ friends showed lower levels of loneliness they experienced during the Covid-19 pandemic. One-way analysis of variance also showed that the participants with more than 750 followers had lower levels of loneliness than the ones with 1-150 followers. This particular finding supported H2. Through social interaction with their friends or followers on social media, users can get comment, like or see that they were viewed by them and attain the affection and attention they need which is consistent with prior research (Bodroža & Jovanović, 2016; Leung, 2013; Malik et al., 2015).

The total number of accounts participants had on all SNSs give implications as to the engagement on SNSs by participants. Only 7.3% of the participants had one account in total, which means they only registered for one SNS and used only it. However, most participants (42.1%) had four or five accounts, which suggests their engagement on SNSs is high.

Moreover, 14% of the participants reported to have six or more accounts on SNSs, which demonstrated that they had more than one account on any SNS. This suggests that they also had different audiences on their different accounts on the same SNS and had wider online social circles in total. Wider social circles bring about more social interactions and may require more engagement on SNSs, which means more time spent thereon. Drawing upon these assumptions, we examined the association between the number of accounts and the number of followers in addition to the association between the number of accounts and time spent on SNSs. We found a significant relationship between them, which supports H5. The higher the number of accounts participants had, the higher the number of their followers/friends. In addition, the higher the number of accounts participants had, the more time they spent on SNSs. As the total number of accounts on SNSs rose, they had more followers/friends in total, which means they interacted with more people and spent more time on SNSs. Correspondingly, the level of loneliness they felt decreased, in turn (See Figure 1.). According to our findings, there was a negative association between time spent on SNSs and loneliness, which supports H1. More time spent on SNSs indicated lower levels of loneliness. This is consistent with prior research showing lonely people tended to use social media more to handle lack of social relationships (Cauberghe et al., 2021; Pittman & Reich, 2016) but conflicts with some other research showing an increase in loneliness with higher numbers of hours spent online during pandemic (Alheneidi et al., 2021; Lisitsa et al., 2020). Furthermore, correlation analysis revealed a significant negative relationship between number of accounts and loneliness, which confirms H3. The higher the number of accounts the participants had in total, the lower levels of loneliness the participants experienced. This demonstrated that when the participants had more accounts, they engaged more on social network sites and interacted with more people, whereby they relieved the feeling of loneliness.

As to time spent on social media, our findings showed that most of the participants (57.9%) spent two to four hours on SNSs on a daily basis, which indicates that the activities on SNSs comprised a significant portion of their daily life during pandemic. This finding is in line with the “Digital 2021: Turkey”, reporting the average time spent on social media as approximately three hours on a daily basis in Turkey (Kemp, 2021b). As expected, we identified a negative correlation between age and time spent on social media. The older the participants, the less time they spent on social media, which suggests a higher level of loneliness, too. However, we could not find support for this assumption as we could not find a statistically significant correlation between age and loneliness. On the other hand, as the age got higher, the number of accounts participants had decreased, too.

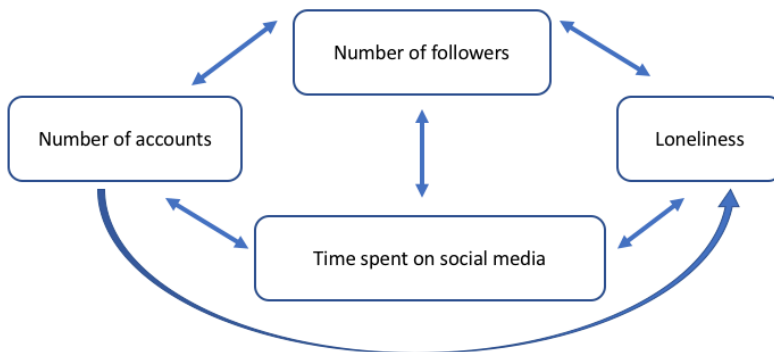
Due to the lockdown restrictions and social distancing during the pandemic, we assumed that the time spent on social media increased dramatically. Our analysis confirmed this assumption and revealed that participants spent much more time on social media than they did before the pandemic, which is consistent with prior research indicating that users spend 1-2 additional hours on average per day on social media compared to pre-pandemic period (Cauberghe et al., 2021; Lisitsa et al., 2020; Statista Research Department, 2021). Although participants passed more time on social media during the pandemic, participants did not share more photos, texts or videos on social media compared to pre-pandemic period according to descriptive analysis. However, correlation analysis demonstrated that the higher the increase in time spent on social media during the pandemic, the higher the increase in the habits of sharing content on social media. The participants who reported to be spending

more time on social media than before the pandemic were more inclined to share photos, videos, text, etc. as a way of interacting with others to reduce the feeling of loneliness.

There was a significant difference between women and men in terms of the increase in posting content during pandemic: Whereas women reported to share more content on social media, men did not report such an increase. This particular finding is consistent with previous research, which indicated that women tended to post more photos than men (Malik et al., 2015; Stefanone et al., 2011; Yenilmez Kacar, 2020). Women were found to be more inclined to perform self-presentation and to seek attention and affection through their posts (Stefanone et al., 2011; Yenilmez Kacar, 2020)

The increase in time spent on social media during the pandemic was assumed to be related to higher number of followers/ friends. Taking this assumption into account, we conducted a correlation analysis, which confirms H4. As the number of followers rose, so did the increase in time spent on social media. Since participants resorted to utilize social media, which are the only vehicle to maintain social interactions during the pandemic, the higher the number of follower they had, the more time they passed on social media to communicate with their followers, who are the primary social interaction partners under lockdown. One-way analyses of variance also showed that the participants with 451-600 followers reported a higher increase in time spent on social media than the participants with 1-150 followers. Moreover, as the number of followers rose, the increase in content sharing ascended, too. The participants with more than 750 followers reported a higher increase in sharing content on social media during pandemic than the participants with 151-300 followers according to ANOVA analysis, revealing that the participants with more followers posted more content to interact with their social circles online.

After executing statistical analyses, we identified associations among social media usage and loneliness and we established an analytical model that illustrates all the meaningful relationships among variables that can be seen in Figure 1. This model may constitute a basis for developing a more comprehensive model to explain social media habits and feeling of loneliness including other factors such as general belongingness, social connectedness and demographic variables.



**Figure 1.** Analytical model illustrating associations

All in all, we found out that individuals spent much more time on social media than they did before the pandemic and the use of social media alleviated loneliness experienced during the

pandemic, which is consistent with earlier research (Cauberghe et al., 2021; Ponnusamy et al., 2020). The results of the study also support the theory of mood management, which states that individuals use and choose particular media to regulate their negative emotions (Zillmann, 1988).

According to studies, loneliness itself bears a risk for physical health by leading to heart disease, high blood pressure and obesity (Lisitsa et al., 2020) in addition to posing a threat to mental health by causing depression and anxiety (Palgi et al., 2020; Tso & Park, 2020). Therefore, research on loneliness is vital especially during the pandemic, which entailed a prolonged period of social isolation. This particular study demonstrated during lockdown periods and social isolations, social media functioned as a substitute for face-to-face communication settings.

The findings of our study might guide the implementation of some measures to protect mental health of the public during crises such as pandemics. Future research should be replicated with a wider sample in order to generalize the findings to whole population, and should also consider the other factors such as personality traits in determining the association between the use of social media and loneliness

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