

The multiple mediating roles of self-esteem and happiness in the relationship between loneliness and depression in Facebook and Instagram users

Facebook ve Instagram kullanıcılarında yalnızlık ve depresyon ilişkisinde benlik değeri ve mutluluğun çoklu aracı rolleri

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SUMMARY

Objective: Social media usage is increasing gradually and the websites that enable social interaction may influence people's loneliness and depression levels. The aim of the present research was to examine the multiple mediating roles of self-esteem and happiness in the relationship between loneliness and depression. **Method:** The study sample was composed of 409 Facebook and Instagram users. Data were collected by using personal information form, Beck Depression Inventory, Oxford Happiness Scale-Short Form, Rosenberg Self-Esteem Scale and UCLA Loneliness Scale. Correlation analysis was carried out to determine the relationship between variables. Multiple mediation analysis was conducted to determine the mediating roles of self-esteem and happiness in the relationship between loneliness and depression. **Results:** The results suggest that self-esteem and happiness, indeed, have mediating roles in the relationship between loneliness and depression, and multiple mediation models were found to be statistically significant. The frequency of accessing Instagram was positively associated with depression and loneliness. Facebook users had higher self-esteem levels compared to Instagram users. **Discussion:** In conclusion, the relationship between loneliness and depression was found to be significantly mediated by self-esteem and happiness. Increased frequency of access to Instagram every day was found to increase the level of depression and loneliness. Additionally, Instagram users were found to have lower self-esteem compared to Facebook users.

Key Words: Depression, loneliness, self-esteem, happiness, Facebook, Instagram

ÖZET

Amaç: Sosyal medya kullanımı giderek artmakta olup sosyal etkileşimi sağlayan web siteleri insanların yalnızlık ve depresyon düzeylerini etkileyebilmektedir. Bu araştırmanın amacı, yalnızlık ve depresyon arasındaki ilişkide benlik değeri ve mutluluğun çoklu aracı rollerinin incelenmesidir. **Yöntem:** Araştırmanın örneklemini 409 Facebook ve Instagram kullanıcısı oluşturmaktadır. Araştırmanın verileri kişisel bilgi formu, Beck Depresyon Envanteri, Oxford Mutluluk Ölçeği-Kısa Formu, Rosenberg Benlik Değeri Ölçeği ve UCLA Yalnızlık Ölçeği kullanılarak toplanmıştır. Değişkenler arasındaki ilişkileri belirlemek amacıyla korelasyon analizleri yapılmıştır. Yalnızlık ve depresyon arasındaki ilişkide benlik değeri ve mutluluğun aracı rollerini belirlemek için çoklu aracılık analizi yapılmıştır. **Bulgular:** Elde edilen sonuçlar, yalnızlık ve depresyon arasındaki ilişkide benlik değeri ve mutluluğun aracı rollere sahip olduğunu ve çoklu aracılık modellerinin istatistiksel olarak anlamlı olduğunu göstermektedir. Instagram'a erişme sıklığının depresyon ve yalnızlık düzeyini artırdığı görülmüştür. Facebook kullanıcılarının, benlik değerinin Instagram kullanıcılarına kıyasla daha yüksek olduğu bulunmuştur. **Sonuç:** Sonuç olarak yalnızlık ve depresyon arasındaki ilişkide benlik değeri ve mutluluğun aracı rolü olduğu bulunmuştur. Günlük Instagram'a erişim sıklığının artmasının depresyon ve yalnızlık düzeyini artırdığı tespit edilmiştir. Ayrıca, Instagram kullanıcılarının Facebook kullanıcılarına kıyasla daha düşük özgüvene sahip olduğu saptanmıştır.

Anahtar Sözcükler: Depresyon, yalnızlık, benlik değeri, mutluluk, Facebook, Instagram

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INTRODUCTION

Social media usage, notably, the use of Facebook and Instagram is increasing day by day. Social media sites such as Facebook and Instagram are more popular than others. The use of Facebook and Instagram was reported to satisfy psychological needs such as the need to belong, self-esteem, etc. of individuals (1-4). Self-presentation may also play a key role in satisfying these psychological needs (5).

Many individuals are lonely in life, and this loneliness may cause depression or a depressive mood. The relationship between loneliness and depression has been extensively addressed in the literature (6-9). Increase in loneliness can increase the level of depression concurrently. For example; in a study conducted with 648 university students in Turkey, a positive correlation was found between loneliness and depression (10). Similarly, it has been determined that loneliness was positively associated with depression (11).

Social media accounts, especially Facebook and Instagram, may provide some benefits to lonely and depressed individuals. Such individuals may use social media more frequently in order to address the psychological needs compared to individuals who are not suffering from loneliness and depression. Furthermore, a negative association between loneliness and self-esteem as well as happiness is also well established (12-16). Therefore, use of social media platforms such as Facebook and Instagram may enhance self-esteem and happiness levels of its users; which has been supported by studies in the literature. To illustrate, a study found a positive and significant relationship between self-esteem, happiness and positive and relationship-oriented usage of Facebook (17). Another study indicated the presence of a positive correlation between self-esteem and getting 'likes' and comments on Facebook (18). Moreover, social activity via Facebook was reported to be positively associated with communication, obtaining information and getting 'likes' and comments on social media (18).

On the other hand, excessive social media usage and social media addiction may lower the levels of

self-esteem and happiness whereby, the beneficial effects of social media usage are lost (19-22). Addiction to social media may cause much more loneliness and depression via a lowering of the levels of self-esteem and happiness. Investigation of the relationship between the extent of Facebook usage, self-esteem and life satisfaction indicated the presence of a negative relationship between addictive Facebook usage and self-esteem; moreover, regular Facebook users had more self-esteem compared to the addicted group (23).

Loneliness can directly or indirectly trigger depression or depressive mood. Use of Facebook and Instagram within limits may benefit lonely and depressed individuals by increasing their self-esteem and happiness. The aim of the present study was to examine the multiple mediating roles of self-esteem and happiness in the relationship between loneliness and depression. We hypothesized that both self-esteem and happiness have a mediating role in the relationship between loneliness and depression. Additionally, the relationship between the frequency of every day access to Instagram and Facebook with depression, loneliness, self-esteem and happiness was examined. We also investigated whether there was a difference in the depression, loneliness, self-esteem and happiness scores between Facebook and Instagram users.

METHOD

Participants

A total of 409 Facebook and Instagram users were included in the current study. Considering the conditions about pandemic, convenience sampling method was used. An announcement was made to university students studying at two different state universities in Turkey. Volunteer participants were included in the study. At the beginning of the study, the participants were asked about the social media account they frequently use. Participants are included in the social media group they use frequently and intensively (Facebook or Instagram). The age of the participants ranged from 18 to 47 years ($M=24.06$, $SD=6.22$). Thirty-six participants did not specify their ages. Three hundred and thirty-five female (81.9%) and 74 male (18.1%) parti-

Participants were included in the research. Ninety-one of the participants were Facebook users, while 317 were Instagram users. The criteria for recruitment to this study were that the participant was older than 18 years, volunteered to participate in the research, and answered all the questions in the questionnaire. Prior to data collection, an informed consent form stating the details of the study was provided to the participants; only those participants who volunteered for the study, approved the form and consented to participate were included in the study cohort.

Procedure

The data were gathered with the help of a questionnaire booklet that was filled online. Ethical committee approval was received for the study from Gümüşhane University (Decision no: 2021/2, date: 10/03/2021). Prior to data collection, an informed consent form stating the details about the research was provided to the participants and those who volunteered for the study and provided informed consent were invited to complete the scales. The overall duration of the study was about 15-20 minutes.

Measures

Demographic Information Form: Within the scope of the research, a demographic information form was created in order to collect some demographic information from the participants. In this form, participants were asked questions about gender, age, which of the social media platforms Facebook and Instagram use more often, and how many times a day their Facebook or Instagram account is checked on average.

Beck Depression Inventory: Beck Depression Inventory was developed by Beck, Rush, Shaw and Emery (24) and the Turkish validity and reliability study was carried out by Hisli (25,26). The scale consists of 21 items that are scored with a 4 point Likert type scoring from 0 to 3. This scale's reliability analysis was conducted with the split-half method and correlation was found as .74. Furthermore, the Cronbach Alpha coefficient score was found as .80. The Cronbach Alpha coefficient for the current study was calculated as .86.

High scores obtained from the scale suggest a higher level of depression.

Oxford Happiness Scale Short Form: This scale was initially developed by Hills and Argyle (27) and the Turkish adaptation study was carried out by Doğan and Akıncı Çötök (28). The scale consists of 7 items that are scored with a 5 point Likert type score. The scale has a single factor structure. The scale's Cronbach Alpha coefficient was found to be .74 and the test-retest reliability value was determined as .85. The Cronbach Alpha coefficient for the current study was calculated as .78. High scores received from the scale indicates a higher level of happiness.

Rosenberg Self-Esteem Scale: This scale was developed by Rosenberg (29). The scale's Turkish adaptation study was conducted by Çuhadaroğlu (30). The Rosenberg Self-Esteem Scale consists of 10 items and five of these items contain five positive and negative expressions. The scale's test-retest reliability value was found to be .75 while the Cronbach Alpha coefficient was reported to be as .75. The Cronbach Alpha coefficient for the current study was found to be .88. Scores obtained from this scale varies in the range of 10 to 40.

UCLA Loneliness Scale: This scale was developed by Russell, Peplau and Ferguson (31). A Turkish adaptation study of the revised 20-item loneliness scale (32), was conducted by Demir (33). The scale's test-retest reliability was determined as .94 while the Cronbach Alpha coefficient was calculated as .96. The Cronbach Alpha coefficient for the current study was calculated as .81. Higher scores obtained from this scale is indicative of a higher level of loneliness. The score of this scale ranges from 20 to 80.

Data Analysis

Correlation analyses were conducted to examine relationships between the different variables. The multiple mediating roles of self-esteem and happiness in the relationship between loneliness and depression were examined with Process macro (Model 6) (34,35). Independent sample t test was used to compare the depression, loneliness, self-

Table 1. The correlation between the different variables examined in this study

	Mean	SD	1	2	3	4
Depression	15.24	9.11	-	-.628***	-.383***	.509***
Happiness	23.11	5.52		-	.378***	-.566***
Self-Esteem	29.92	7.21			-	-.379***
Loneliness	41.39	8.92				-

Note. *p<.05, **p<.01, ***p<.001

esteem and happiness scores of Facebook and Instagram users.

RESULTS

Data shown in Table 1 indicates that depression was negatively correlated with self-esteem ($r = -.38$, $p < .001$) and happiness ($r = -.63$, $p < .001$), and positively correlated with loneliness ($r = .51$, $p < .001$). Happiness was positively correlated with self-esteem ($r = .38$, $p < .001$) and negatively correlated with loneliness ($r = -.57$, $p < .001$). Self-esteem was also negatively associated with loneliness ($r = -.38$, $p < .001$).

Multiple mediation analysis was carried out with Process macro (Model 6 with 5000 bootstraps) (35) (Figure 1). Multiple mediation analyses indicate that self-esteem ($B = .05$, $SE = .02$, 95% CI [.0151, .0971]) had a partial mediating role in the relationship between loneliness and depression. Similarly, the relationship between loneliness and depression was partially mediated by happiness ($B = .24$, $SE = .04$, 95% CI [.1681, .3085]). Since neither self-esteem nor happiness had CI's that included zero, their mediating effects were statistically significant. Moreover, CI from the total indirect effect (including self-esteem and happiness) was also 95% likely to range from .2433 to .4075. Thus, the total indirect effect was significant ($B = .32$, $SE = .04$, 95% CI [.2433, .4075]). Furthermore, the second mediation model (mediating roles of happiness) was found to be stronger than the other mediation models.

Correlation analyses were conducted to examine

Table 2. The mediating roles of self-esteem and happiness

	β	S.E.	t	p	Confidence Intervals	
					Lower	Upper
Lon→SE	-.37	.04	-8.25	.000	-.3791	-.2332
Lon→HP	-.49	.03	-11.44	.000	-.3587	-.2535
SE→HP	.19	.03	4.42	.000	.0813	.2114
SE→DEP	-.13	.05	-3.22	.002	-.2691	-.0652
HP→DEP	-.47	.08	-10.16	.000	-.9208	-.6222
Lon→DEP	.51	.04	11.93	.000	.4346	.6060
Lon→DEP	.19	.05	4.21	.000	.1058	.2910

Note. Lon = Loneliness, SE = Self-esteem, HP = Happiness, DEP = Depression

the relationships between the frequency of access to Instagram and Facebook each day and depression, loneliness, self-esteem and happiness. The frequency of daily use of Instagram was found to be positively correlated with both depression ($r = .11$, $p < .05$) and loneliness ($r = .12$, $p < .05$).

Independent sample t-test was conducted to examine whether there was a difference in the mean scores of depression, loneliness, self-esteem and happiness according to the social media account used. The results showed that Facebook users had higher level of self-esteem compared to Instagram users.

DISCUSSION

The main goal of this research was to probe the multiple mediating roles of self-esteem and happiness in the relationship between loneliness and depression. Statistical analysis of the data obtained showed that both self-esteem and happiness played mediating roles in the relationship between loneliness and depression and supports the hypothesis of the current study. Moreover, the frequency of daily access to Facebook was not associated with depression, loneliness, self-esteem and happiness. However, the frequency of daily access of Instagram users was found to be positively associated with depression and loneliness. Facebook users were found to have higher self-esteem levels compared to Instagram users.

A positive correlation between loneliness and depression is expected and is supported by many studies in the literature (36-38). Symptoms of lone-

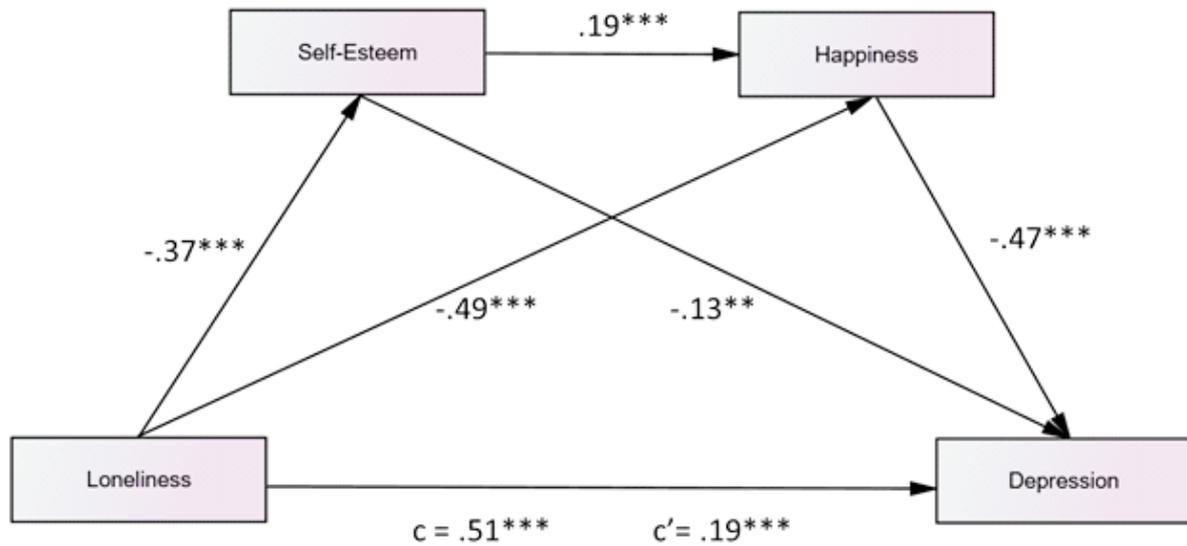


Figure 1. The multiple mediating roles of self-esteem and happiness in the relationship between loneliness and depression. * $p < .05$, ** $p < .01$, *** $p < .001$

loneliness and depression may prevent individuals from meeting their psychological needs, which may motivate these individuals to use social media sites such as Facebook and Instagram. In order to prevent any bias, the current study was therefore conducted with apparently healthy individuals who are regular Facebook and Instagram users. Individuals who use social media accounts like Facebook and Instagram can satisfy some of their psychological needs through social media and be benefited from it (5,39,40). The pandemic has changed social interaction for many individuals. This also increased the risk of loneliness in the general population (41,42). A study found out that participants who felt lonely during quarantine were more likely to use social media sites to cope with a lack of social communication (43).

Several studies have suggested that social media and internet usage are negatively related to self-esteem and happiness (44-46); however, some studies also indicate the opposite (39,47). A study showed that positive social feedback received by Facebook users increased both their self-esteem and happiness levels (48). This suggests the presence of inconsistencies in the relationship between

social media, self-esteem, happiness, depression and loneliness as well as the need to study it further.

The findings of the current study suggest that loneliness is a variable that increases depression. However, the relationship between loneliness and depression may not be that clear and simple. Individuals who experience loneliness may prefer to use popular social media accounts to relieve their loneliness and communicate with other people in order to mitigate the negative feelings associated with loneliness. However, the results of the current study show that the use of social media was not beneficial for participants who are lonely since loneliness was observed to decrease people's self-esteem levels and thereby their level of happiness. This decrease in happiness can also exacerbate feelings of depression. According to a study, there is a relationship between people spending more time on social media and reduced communication with family members and social circles, which can lead to feeling socially isolated and depression (49). In an experimental study, it was found that the experimental group, whose use of Facebook, Instagram and Snapchat was limited to 10 minutes

Table 3. The correlation between daily access to Facebook, daily access to Instagram, depression, loneliness, self-esteem, and happiness

	Daily Login (Average) Facebook Users (N=90)	Instagram Users (N=315)
Depression	.057	.114*
Loneliness	-.060	.120*
Self-Esteem	-.045	-.023
Happiness	-.020	-.093

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4. Comparison of depression, loneliness, self-esteem and happiness scores according to Instagram and Facebook usage

	Social Media Type	N	xfl	SS	t	p
Depression	Facebook	91	13.69	9.86	1.85	.065
	Instagram	317	15.69	8.86		
Loneliness	Facebook	91	42.62	9.53	-1.46	.144
	Instagram	317	41.06	8.72		
Self-Esteem	Facebook	91	31.44	7.49	-2.26	.024
	Instagram	317	29.52	7.04		
Happiness	Facebook	91	23.50	5.52	-.80	.425
	Instagram	317	22.98	5.53		

per platform per day, showed significant reductions in loneliness and depression at the end of 3 weeks compared to the control group (50). Several studies have shown that loneliness is negatively correlated with self-esteem and happiness (51,52). Similarly, various studies have shown that depression is negatively correlated with self-esteem and happiness (53). A mediator role of self-esteem in the relationship between loneliness and depression has been suggested (54). All of these published data therefore support the findings of the current study.

In addition to our findings on the mediating role of self-esteem and happiness, the positive correlation between the frequency of access to Instagram each day with depression and loneliness can be explained by the social comparison theory. Those who experience loneliness might use social media to satisfy their psychological needs. However, users can also make upward social comparisons on social media, which, in turn, can further increase loneliness and depression. Such social comparison may also negatively affect the feelings of self-esteem and happiness in those individuals. Instagram, in particular, is an image based social media site (55,56), suggesting that individuals may make more upward social comparisons when they are regular Instagram users. While there are opinions supporting this conclusion, since Instagram's main feature is photo sharing, it offers plenty of opportunities for social comparison. When users are exposed to other people's profiles, this can cause negative emotions such as jealousy and even depression when the user compares their own life with others (2, 57,58). This may explain why Instagram users were found to have lower self-esteem levels when compared to Facebook users in the current study.

Limitations

Lack of gender balance and a difference between number of Facebook and Instagram users who were

recruited to the study can be considered as the limitations of the current study. This study is a correlational research. Due to the high rate of social media usage among university students included in the study, it is not possible to create a group who do not use social media and to study experimentally due to the pandemic, and the inability to compare two groups using and not using social media is another limitation. Moreover, while comparing Instagram and Facebook users, no match was made between these two groups in terms of some parameters such as age, education level, lifestyle, financial situation.

CONCLUSION

In conclusion, the relationship between loneliness and depression was found to be significantly mediated by self-esteem and happiness. Increased frequency of access to Instagram every day was found to increase the level of depression and loneliness. Additionally, Instagram users were found to have lower self-esteem compared to Facebook users. These findings can be explained by the upward social comparison of social media users.

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