# The Relationship Between Attachment Style, Eating Behavior, Emotion Regulation, and Social Media Addiction During COVID-19 Pandemic

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#### **ABSTRACT**

**Objective:** The COVID-19 pandemic affected the usage of social media and other attitudes, such as eating routines. In the present study, the relationship between social media addiction and attachment, eating behavior, and emotion regulation was analyzed in individuals who had an experience of online education or working online during the COVID-19 pandemic.

**Methods:** This study consists of 194 participants who experienced online working or education in Turkey during the COVID-19 pandemic. Demographic form, Bergen Social Media Addiction Scale, Inventory of Experiences in Close Relationships, The Emotion Regulation Difficulty Scale Brief Form, and Eating Attitudes Test-Short Form were used to collect related information. According to demographic information, the present study consists of 141 female and 44 male participants.

**Results:** Anxious attachment, eating behavior and its 2 subscales which were social pressure and preoccupation with eating, emotion dysregulation, and its all subscales were found positively correlated with social media addiction. Regression analyses revealed that only anxious attachment (t=8.01, P < .001) and "goals" that is subscale of emotion dysregulation were found as a predictor of social media addiction (t=4.96, P < .05). In addition, a statistically significant relationship was found between the increase in the frequency of social media usage during the pandemic and social media addiction.

**Conclusion:** According to the results of the study, the usage of social media has increased during the pandemic period, and this increase has brought up the risk of social media addiction. As a result, it was emphasized that the relationship between attachment types and emotion regulation should be considered in future studies about social media addiction.

Keywords: Social media addiction, attachment style, emotion regulation, eating behavior

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## INTRODUCTION

Coronavirus, also called COVID-19, was first reported in Wuhan, China, in 2019 and then, it has spread around the world rapidly.<sup>1</sup> According to World Human Organization (WHO), coronavirus disease was announced as a universal pandemic on March of 2020.<sup>1</sup> The first case in Turkey was reported in March 11, 2020, and lockdown was applied at various intervals after this date.<sup>2</sup> A recent study showed

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that COVID-19 affected psychological well-being negatively, especially depression symptoms, anxiety, deficiency in sleeping, and stress.<sup>3</sup>

During a pandemic, online working conditions have caused excessive using of social media,<sup>3</sup> and using social media requires the internet. According to the data of 2020, the frequency of internet usage was found to be 70%, but after 1 year, the frequency of internet usage was found to be 80% according to the data of the first 3 months of 2021.4 The increase in using the internet may be the consequence of COVID-19 pandemic. While many employees were working online from home due to the pandemic, many students were also studying online. Moreover, a recent study has shown that social media usage increased during lockdown, especially among young people.<sup>5</sup> Both the coronavirus pandemic process and also internet and social media usage in the pandemic had a risk on mental health.<sup>6</sup> A recent study showed that school-aged children faced psychological risks and problems due to excessive usage of social media.8 Another previous study demonstrated that children who used social media excessively showed depressive and stressful reactions and suffered from obesity.9 So, social media addiction and psychological problems were found to be related during the COVID-19 pandemic period.

Social media addiction is related to excessive use of applications and Internet addiction.<sup>10</sup> There are some factors that affect social media addiction: one of them is an individual's attachment pattern. *Attachment theory* refers to the role of emotional bonds between infant and attachment figure, especially caregiver, on people's certain action.<sup>11</sup> This emotional bond not only affects an infant's behavior but also affects teenagers or adults' behavior.<sup>11</sup> There are 3 attachment styles and those are secure, anxious, and avoidant attachment; anxiously or avoidantly attached people often show nervousness in their relationships.<sup>12</sup> According to a review study, there is a positive relationship between insecure attachment styles and social media addiction,<sup>13</sup> and also a recent study has shown that social media addiction was found to be significant for anxious and avoidant attached people.<sup>14</sup>

Furthermore, attachment styles are associated with eating behaviors. A recent meta-analysis study has demonstrated that although eating behavior disorder is linked to insecure attachment style, secure attachment is associated with low level of eating behavior disorder.15 In a new study, binge-eating attitude has been associated with excessive social media usage of insecurely attached people.<sup>16</sup> Also, data have shown that people's eating routine is not the same after the COVID-19 pandemic in Saudi Arabia. <sup>17</sup> Moreover, it was also shown that the pandemic had a negative effect on eating behavior in Italy.<sup>18</sup> It is highly remarkable to see similar results on association with eating and social media addiction in 2 different cultures of different geographical countries such as Saudi Arabia and Italy. During the COVID-19 pandemic, there was a positive relationship between using social media and unhealthy eating behavior, but using social media was found to be not dangerous for people who already have eating disorder problems.<sup>19</sup> Therefore, people who do not have any eating disorder problems are affected more when they use social media.

Unhealthy eating behavior is often linked to unbeneficial emotion regulation strategies.<sup>20</sup> Emotional regulation defined<sup>21</sup> as "the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (p. 27). Emotion

regulation is not about rejecting some feelings that are about to moderate the practice of related emotions<sup>22</sup> but consists of some dimensions that are about lack of clarity, limited emotional regulation strategies, impulsivity, awareness, goals, and nonacceptance.<sup>22</sup> These dimensions are important for understanding and approving emotions and also managing situations. If these skills cannot be applied in life, emotion dysregulation can occur and it has a crucial role in the individual's behavior.<sup>22</sup> Recent findings have shown that there is an association between attachment and emotion dysregulation with social media usage.<sup>23</sup> For example, using Facebook was problematically associated with emotion dysregulation.<sup>24</sup> During the COVID-19 pandemic, certain emotion regulation strategies such as cognitive reappraisal have been shown to be useful for escaping social media which includes stressors about COVID-19.4 Especially for women, insecure attachment is a related factor for unhealthy eating behavior with emotion dysregulation; women are at a risk group for binge eating when they had a problem to moderate negative feelings.20

Therefore, recent studies demonstrated that attachment style, eating behavior, and emotion regulation are associated with each other, and also each of them is related to social media addiction one by one. Looking at the literature, there has been no study in which all these variables were studied together, especially in the Turkish population during the pandemic period. For this reason, it was thought that the study would make a unique contribution to the literature. As a result of the study, it was estimated that the variables would predict social media addiction. The main goal of this paper is to analyze the relationship of these variables with the effects of the COVID-19 pandemic.

### **METHODS**

## **Participants**

The sample size was calculated using the G\*Power (version 3.1) application. Type I error was regarded as  $\alpha\!=\!0.05$  and power as 0.95. Considering that some participants will be outliers, the sample consists of 194 participants who had experience working online or online education conditions during the COVID-19 pandemic in Turkey. Participants were included in the study via online survey which was shared on social media sites. There are no incentives for participation.

#### **Materials**

Demographic form has been prepared by researchers and it includes questions related to age, gender, marital status, and diagnosis of COVID-19 in online working or education conditions.

Bergen Social Media Addiction Scale was used for evaluating the social media addiction level of participants. The original form was developed by Anderssan et al.<sup>25</sup> Turkish adaptation of scale was done by Demirci.<sup>26</sup> The scale consists of 6 items and has a 5-point Likert type ranging from quite rare (1) to quite often (5). The minimum score of the scale is 6 and the maximum score is 30. Cronbach's alpha value was found to be 0.79. In the present study, Cronbach's alpha value was found to be 0.84 for this material.

Inventory of Experiences in Close Relationships (YIYE-II) was used for analyzing participants' attachment styles. The original name of the scale is "Experiences in Close Relationships-Revised (ECR-R)," and it was developed by Fraley et al.<sup>27</sup> Turkish translation study was made by Selçuk et al.<sup>28</sup> The Cronbach's alpha value was 0.90 for avoidance

and 0.86 for anxiety. When the test–retest values were examined, it was found to be 0.91 for anxiety and 0.90 for avoidance. The scale consists of 36 questions, 18 of them are related to anxiety and other 18 of them are related to avoidance. Each item is rated on 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). In the present study, Cronbach's alpha value was found to be 0.90 for anxiety and 0.89 for avoidance.

The Emotion Regulation Difficulty Scale Brief Form (DERS-16) was used to determine the emotion regulation difficulty of the participants. It was published by Bjureberg et al.<sup>29</sup> and was adapted into Turkish by Yiğit and Güzey-Yiğit.<sup>30</sup> There are 16 items and 5 subscales which are clarity, goals, impulse, strategies, and non-acceptance. The scale has 5-point Likert structure (1 = never to 5 = always). The internal consistency coefficients were found to be 0.92. Cronbach's alpha coefficient values were found to be 0.86 and 0.88. according to 2 different parts of material.<sup>30</sup> In this study, Cronbach's alpha value was found to be 0.9; the subscale's reliability was found to be 0.84 for clarity, 0.84 for goals, 0.87 for impulse, 0.87 for strategies, and 0.78 for nonacceptance.<sup>30</sup> In the present study, Cronbach's alpha value was found to be 0.85 for clarity, 0.77 for goals, 0.88 for impulse, 0.88 for strategies, and 0.81 for nonacceptance in this study.

Eating Attitudes Test-Short Form (EAT-26) was used to evaluate participants' eating behavior. The original form of scale was developed by Garner et al.<sup>31</sup> The Turkish version of this scale was developed by Erguney-Okumus and Sertel-Berk.<sup>32</sup> The scale has 3 subscales which are preoccupation with eating, restricting, and social pressure. Also, 20-point is a cut point. Having 20 or more points is a cue about unhealthy eating attitudes.<sup>32</sup> The Cronbach's alpha coefficients were found to be 0.84.<sup>32</sup> In the present study, Cronbach's alpha value was 0.78.

#### **Procedure**

Ethical approval was taken from Ankara Yıldırım Beyazıt University Ethical Council in December 9, 2021, no: 34. The participation link was shared on some social media sites, such as Instagram, Twitter, and Facebook using Google Forms. The reason for selecting this social media application is that these sites are the more popular sites in Turkey at 2021.<sup>33</sup> Totally 194 participants completed the online survey. At the beginning of the questionnaire, participants were informed about research and their rights. After the informed consent part, there is a passage about the COVID-19 pandemic. This passage includes some information about pandemic process, for instance, the first case in Turkey, the date of closing schools, time of lockdowns, and passing the online working and education process. For this study, only participants who had online working and education experience could participate in the study. The exclusion criterion is to continue working in the workplace or office during the pandemic.

## **Statistical Analysis**

Nine participants with extremely high Z scores as outliers were eliminated from the analysis. The remaining 185 participants were included in the analysis. To conduct statistical analysis, Statistical Package for the Social Sciences (version of 22.0) was used. Shapiro–Wilks and Kolmogorov–Smirnov tests were used to examine the normal distribution results for the variables. George and Mallery<sup>34</sup> demonstrated that if the value of skewness and kurtosis is between -1 and +1, then it demonstrated that variables were normally distributed. One-way analysis of variance (ANOVA) and independent t-test were used to examine demographical variables' association

with social media addiction. In this study, the Pearson product moment correlation coefficient was used to see the relationship between basic variables. Then, multiple regression analysis was conducted with these correlated variables to examine predictors of social media addiction.

#### **RESULTS**

In this study, 141 females (31.9%) and 44 males (30.1%), totaling 185 adults between the ages of 19 and 63, took part. Descriptive statistics for the variables used in this study are presented in Table 1.

#### **Correlation Analysis**

The relationship between social media addiction, attachment, eating behavior, and emotion regulation was investigated using Pearson correlation analysis. According to results, social media addiction was positively correlated with anxious attachment (r=0.36; P<.01), emotion regulation difficulties (r=0.30; P<.01), and its subscales which are goals, impulse, strategies, clarity, and non-acceptance (r=0.31; P<.01, r=0.24; P<.01, r=0.28; P<.01, r=0.29; P

Table 1. Demographic Data of the Participants

	N	%
Gender		
Female	141	76.2
Male	44	23.8
Marital status		
Married	67	36.2
Single	116	62.7
Divorced	1	0.5
Widowed	1	0.5
Education level		
High school graduate	3	1.6
University graduate/ postgraduate	102	55.1
Student	80	43.2
Monthly income		
Low to minimum wage	20	10.8
3.000₺-5.000₺	41	22.2
5.001₺-7.000₺	61	33.0
7.001₺-10.000₺	33	17.8
Over 10.000₺	30	16.2
Job		
Government employee	14	7.6
Professional job employee (lawyer, teacher, doctor, engineer, etc.)	78	42.2
Student	87	47.0
Unemployed	5	2.7
Retired	1	0.5
Having social media	175	94.6
Number of social media		
None/1/2/3	144	77.8
More than 3	41	22.1
Thoughts about social media usage		
Increased	141	76.2
Decreased	6	3.2
Same	38	20.5
COVID-19 diagnosis	37	20.0
Having quarantine because of COVID-19 diagnose or contact with patients	77	41.6

Table 2. Pearson Correlations of Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1												
2	0.36**	1											
3	0.13	0.51**	1										
4	0.30**	0.56**	0.30**	1									
5	0.31**	0.38**	0.27**	0.77**	1								
6	0.27**	0.53**	0.28**	0.93**	0.65**	1							
7	0.18*	0.57**	0.24**	0.83**	0.53**	0.75**	1						
8	0.23**	0.43**	0.36**	0.71**	0.48**	0.57**	0.53**	1					
9	0.24**	0.39**	0.14*	0.83**	0.52**	0.74**	0.59**	0.53**	1				
10	0.16*	0.17*	0.11	0.19**	0.13	0.13	0.22**	0.22**	0.12	1			
11	0.15*	0.21**	0.18*	0.27**	0.20**	0.20**	0.29**	0.29**	0.20**	0.82*	1		
12	-0.01	-0.07	-0.06	-0.09	-0.07	-0.07	-0.06	-0.05	-0.11	0.62**	0.17*	1	
13	0.17*	0.14	0.05	0.12	0.09	0.10	0.17*	0.10	0.05	0.47**	0.18*	0.21**	1

<sup>1,</sup> Social Media Addiction; 2, Anxious Attachment; 3, Avoidant Attachment; 4, The Emotion Regulation Difficulty Scale Brief Form (DERS-16) Total Score; 5, Goals; 6, Strategies; 7, Non-acceptance; 8, Clarity; 9, Impulse; 10, Eating Attitudes Test-Short Form (EAT-26) Score; 11, Preoccupation with eating; 12, Restriction; 13, Social Pressure.

P < .01, respectively). Total eating behavior score was found to be positively correlated with social media addiction (r = 0.16; P < .05), social pressure (r = 0.17; P < .05), and preoccupation with eating (r = 0.15; P < .05) which are subscales of eating behavior. All values related to the correlation analysis are given in Table 2.

#### **Analysis of Variables Associated with Social Media Addiction**

Independent t test and ANOVA were applied to analyze the differentiation between social media addiction and demographic data such as gender, age, and social media usage frequency. During the analysis, social media addiction was considered as dependent variable and other variables as independent variables. As a result of the analysis, a statistically significant difference was found only between the frequency of social media use (F = 12.18; P < .05), which changed during the pandemic period and social media addiction. Results of ANOVA analysis are given in Table 3. According to the post hoc Tukey analysis, the social media addiction of individuals whose social media usage frequency increased during the pandemic was found to be higher (X=3.11; SE=0.17) than those who have same social media usage frequency during the pandemic.

# **Results of Regression Analysis**

In this study, regression analysis was performed to examine the effects of attachment, eating behavior, and emotion regulation

Table 3. One-Way ANOVA Analysis

	Sum of Squares	df	Mean Square	F	Р
Between groups	21.33	2	10.66	12.18	<.05
Within groups	159.30	182	0.87		
Total	180.64	184			

on social media addiction. According to the results of the correlation analysis, regression analysis was performed with the variables. Anxious attachment and goals, a sub-dimension of emotion requlation, were found to predict social media addiction. The anxious attachment style was entered in the first block; in the second block. all the subscales of emotion regulation were included stepwise, and lastly, in the third block, only "social pressure and preoccupation with eating" subscales of eating attitude were included in stepwise. As shown in Table 4, according to the regression analysis, model 1 was found to be statistically significant (F change = 27.76; R = 0.36;  $R^2 = 0.13$ ; P < .05). Therefore, anxious attachment style explained 13% of the change in social media addiction. In the second step, it was found that the goals predicted social media addiction and resulted in a significant increase in  $R^2$  (F change = 7.38; R = 0.40;  $R^2 = 0.16$ ; P < .05). Accordingly, anxious attachment and goals have an effect size of 16% on social media addiction. However, in the third model, none of the subscales of eating attitude predicted social media addiction. As a result of the analysis, it was found that anxious attachment style and goals predict social media addiction during the pandemic period. All variables related to the regression analysis are given in Table 4.

## **DISCUSSION**

The aim of this study is to investigate the relationship between attachment style, emotion regulation, and eating behavior on social media addiction during the COVID-19 pandemic. First of all, demographic variables were analyzed on the effect of social media addiction. However, while no significant relationship was found between variables such as gender, age, education level or socioeconomic status, and social media addiction in the study, some studies

Table 4. Multiple Linear Regression

	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F	Standardized Coefficient ß	Р
Model 1	0.36	0.13	0.12	27.76		<.001
Attachment: Anxious					0.36	
Model 2	0.40	0.16	0.15	18.25		<.001
Attachment: Anxious					0.28	
Emotion Regulation: Goals					0.19	

Dependent variable: Social media addiction

<sup>\*</sup>P < .05; \*\*P < .01.

in the literature have found a significant relationship with sociodemographic variables. For example, a recent study showed that social media addiction is related to age, that is, young people are more addicted to social media.<sup>14</sup> It has also been shown that women are more dependent on social media sites than men in terms of gender differences.<sup>35</sup> The reason for this inconsistency may be that previous studies were not performed during the pandemic period. Considering that this study was conducted during the COVID-19 pandemic, it can be said that the change in the frequency of use of social media applications during the pandemic process is related to social media addiction. A study on this subject showed that during the pandemic period, the use of social media has increased due to the excessive use of official messages, checking e-mails, and following the current news about COVID-19, especially among adults.<sup>36</sup> So, the result of our study showed that the frequency of social media use has increased regardless of some demographic variables during the COVID-19 pandemic.

In this study, the correlations of the variables with social media addiction were investigated. The correlation analysis of this study showed that all subscales of emotion regulation, anxious attachment, and only 2 subscales of eating attitude—social pressure and preoccupation with eating—were positively associated with social media addiction. For the attachment styles, there was no significant correlation between avoidant attachment style and social media addiction. This result is supported by the result of a study conducted by Senormancı et al.<sup>37</sup> that people with anxious attachment use the internet more, but no relationship was found for people with avoidant attachment in the Turkish population. While people with anxious attachment style were found to have a need for social interaction, avoidant attached people were found to be reluctant to establish social relationships.38 Therefore, it was thought that this result could be used to explain why social media addiction is more related to anxious attachment style rather than avoidant attachment style.

When investigating the correlation of emotion regulation with social media addiction, a recent study demonstrated that emotion regulation was negatively affected by using some social media applications, such as Facebook, 24 but the other previous study showed that using social media is beneficial to avoid negative effects of COVID-19 pandemic.4 Present study supported that all subscales of emotion dysregulation were positively correlated with social media addiction. Regarding the sub-dimensions of emotion regulation, impulsivity is associated with lack of control, non-acceptance is related to lack of approval of emotional reactions, strategy sub-dimension reflects have inadequate emotion regulation strategy, goals sub-dimension is related to problem in goal-oriented behaviors, and clarity subdimension is related to having poor emotional clarity.<sup>22</sup> Considering the relationship between these subscales and social media addiction, it was thought that problem experienced in these subscales might cause escape behavior. The previous study in the literature also emphasized that escape behavior was associated with behavioral addiction, especially related to internet usage.<sup>39</sup> Therefore, difficulty in emotion regulation and its subscales may be associated with an escape behavior for social media addiction.

While looking at the correlation with eating behavior, social pressure and preoccupation with eating were positively correlated with social media addiction but the restriction of food was not found to be correlated with social media addiction. Previous research showed that there was a positive association between excessive usage of social media and unhealthy eating behavior during the pandemic.<sup>23</sup>

Present study's results were consistent with that results, but only 2 subscales of eating behavior were found to be positively related to social media addiction. When the relationship between social pressure and eating attitude was examined, it had been determined that social pressure was related to the changing in eating behavior, and as a result of this relationship, people experienced preoccupation with eating.<sup>40</sup> From this point of view, it can be estimated that pressures of being thin on social media can be related to sub-scales of eating attitudes which are social pressure and preoccupation with eating.

As a result of this study, when the predictors of social media addiction were investigated, anxious attachment style and goals, which are a subscale of emotion regulation, were found to be predictors of social media. In the literature, not only substance-related addictions but also behavioral addictions (gambling, internet usage) were found to be associated with emotion regulation difficulties with deficiency of attachment style.41 For social media addiction, it has been mentioned that excessive usage of social media sites was predicted by anxious type of attachment with emotional dysregulation.<sup>23</sup> According to another previous study, emotion regulation was found to be related to predictors of social media addiction with anxious type of attachment except with avoidance attachment.<sup>42</sup> These findings supported the present study nearly because anxious attachment and emotion dysregulation were predictors of social media addiction, but only 1 subscale of emotion dysregulation which is "goals" predicted social media addiction with anxious type of attachment. Goals, a sub-scale of the emotion dysregulation scale, emphasized difficulties in goal-oriented action.<sup>22</sup> There are 3 questions under this subscale that are: "When I am upset, I have difficulty getting work done; When I am upset, I have difficulty focusing on other things; When I am upset, I have difficulty thinking about anything else."30 Therefore, it is expected that the person can move away from goal-oriented behavior when he cannot regulate his emotions. When the relationship between escape from the goals and social media addiction was examined, it was found that, especially, health workers have used social media platforms to deal with the negative emotions they experienced during the COVID-19 pandemic.43 Therefore, it was thought that when people cannot regulate their emotions, they use social media more, which may cause them to be unable to focus on the goals in their personal lives. Although the total score of eating behavior and 2 subscales were found positively correlated, the inability of these variables to enter the model in the regression analysis may be explained by the fact that the difficulty in emotion regulation is more effective than eating behavior. The findings of the study suggested that individuals' ability to regulate their emotions has a greater effect on social media addiction rather than eating attitudes. In addition, when the reasons why eating behavior is less effective on social media addiction than emotion regulation were examined, previous findings showed that people with unhealthy eating behavior are less affected by social media addiction than people with healthy eating routines during the COVID-19 pandemic.<sup>19</sup> Therefore, the reason why eating behavior has little effect on social media addiction can be explained by the low effects on people with eating problems of social media addiction.

The main contribution of this study is that it covers the pandemic period because people in many countries were quarantined at home during the pandemic period. Also, daily social media usage rates have increased during pandemic.<sup>5</sup> As these characteristics have changed during the pandemic, new findings should be added to the literature to show differences in the pandemic. Therefore,

the biggest contribution of this study is to examine the variables together with the impact of the COVID-19 pandemic. In addition, another importance of this study is that in the literature, there are no sufficient data for the Turkish adult population with these variables during the COVID-19 pandemic. Therefore, this study had light on the other studies which will be planned to be conducted for the Turkish population. It should be considered that people with an anxious attachment style and difficulty in emotion regulation are at risk for social media addiction. Therefore, it is recommended that professionals working in the psychology or psychiatry field should pay attention to that in their psychological interventions or therapies.

The main limitation of this study is that the severity of the pandemic has decreased with the availability of the vaccine at the time of data collection. Therefore, people were asked to answer the questions by remembering the period when they were in quarantine, but the results might have been different if this study had been done during the quarantine period. Also, having a cross-sectional study design is drawback of the present study because this study design cannot provide any causality and using self-report limited study because of incorrect memory recall and social desirability. Furthermore, the sample size of present study is small in order to generalize the results. For future studies, it is recommended to include emotional eating instead of eating behavior due to the effect of emotion regulation on social media addiction and the sample size can be increased.

The usage of social media has increased with the availability of online working conditions and education conditions during the COVID-19 pandemic period. However, the risk of social media addiction also increased during this period. It has been revealed that social media addiction is predicted by anxious attachment and goals which are subscales of difficulties with emotion regulation. Thus, it is clear that this study will guide the experts working with social media addiction in the clinical field.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of Ankara Yıldırım Beyazıt University (Date: December 9, 2021, No: 34).

**Informed Consent:** Written informed consent was obtained from all participants who participated in this study.

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