

ORIGINAL ARTICLE

Mental health and psychological resilience among acne vulgaris patients during the pandemic: A cross-sectional controlled study

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Abstract**Background**

The current literature has not yet addressed mental health among acne vulgaris (AV) patients during the COVID-19 pandemic.

Objective: We aimed to investigate the psychological status of AV patients and analyze the influencing factors on psychological symptoms, during the pandemic.

Methods: This cross-sectional study included consecutively selected 220 eligible AV patients and 190 age/sex-matched healthy subjects. The Post-traumatic stress disorder (PTSD) checklist for DSM-5, Depression, Anxiety and Stress Scale-21, Brief Resilience Scale, and the Stressful Life Events List resulting from the pandemic were administered to the participants.

Results: There were not significant differences between the AV patients and the control group in terms of depression, anxiety, stress, psychological resilience levels, and experienced stressful life events. Probable PTSD rate was significantly higher for AV patients (16.4%) than the control groups (9.5%) ($p = 0.040$). High levels of depression and anxiety, low psychological resilience, and high levels in experienced traumatic life events predicted high severity in PTSD symptoms, whereas low psychological resilience predicted high levels of depression, anxiety, and stress in AV patients.

Conclusions: AV patients are at high risk of developing PTSD during the COVID-19 pandemic. The obtained results highlight the need to assess their psychological state, in particular those with low psychological resilience.

KEYWORDS

acne vulgaris, anxiety, COVID-19, depression, PTSD, resilience

1 | INTRODUCTION

Coronavirus disease 2019 (COVID-19) was detected for the first time in December 2019 in Wuhan, China, as a novel pneumonia causing respiratory tract infection.¹ COVID-19, indicating person-to-person transmission and an asymptomatic course, has rapidly spread to the entire world.² Previous studies have shown that infectious disease outbreaks have been associated with mental health symptoms and

disorders (eg, depression, anxiety, post-traumatic stress disorder, insomnia) in survivors, family members, healthcare workers (HCW), and members of affected communities.^{3,4}

Acne vulgaris (AV) is a common inflammatory skin disease of the pilosebaceous unit (PSU) manifesting with comedones, inflammatory follicular papules and pustules, and occasionally nodular cystic lesions on the sebaceous skin regions including the face, nape, chest, and back.⁵ All ages considered, its prevalence is about 9.5%. Several

psychoneuroendocrinological mechanisms have been proposed to explain the relationship between acne and stress. Acne may occur or be aggravated by both endogenous and exogenous stressors, through stimulation of both systemic HPA axis and cutaneous (local) HPA-like axis. Previous studies have shown that acne may constitute a significant risk factor for psychological morbidity in younger and older individuals of both sexes.⁶ Both because of interactive mechanisms between the skin and psych, and the negative visual aspects of AV, patients with moderate-to-severe acne may experience a number of psychological disorders such as poor body image (BI), frustration, anxiety, anger, social isolation, low self-esteem, and depression.⁷ Due to these bidirectional interactions between the acne and the psych, it is important to reveal the outcomes under different stress conditions for better understanding of these relationships.^{6,7}

The COVID-19 pandemic has had an enormous impact on the various aspects of life worldwide through the imposition of many mandatory sanctions in the lifestyle habits.⁸ Considering this new, unrecognized, unpredictable, and uncontrollable pandemic process, it may result in a much more intense outcome than that of common stress factors in daily life. As a result of lack of information regarding this process, a common threat perception has occurred and its negative outcomes include social isolation, concerns for life in quarantine, uncertainty about the future, reduced social and economic opportunities, and massive stress throughout the world.⁹ While AV in itself can be a source of stress for affected patients, it is reasonable to expect that the pandemic process will contribute additionally to this stress. For these reasons, we aimed to investigate the status and relationships between the psychological symptoms and demographic characteristics, stressful life events, and psychological resilience of AV patients, and to draw attention to potential measures that may be undertaken to prevent PTSD and other serious mental health troubles, during the pandemic.

2 | MATERIALS AND METHODS

2.1 | Study design and selection of participants

This cross-sectional study was conducted between June 1 and September 1 2020 by the dermatology and psychiatry departments of Istanbul Bagcilar Research and Training Hospital of University of Health Sciences of Turkey. Two hundred twenty patients who were diagnosed with AV in the age group of 18 to 35 years were included in the study, independent of the clinical types of the AV lesions. Aside from drug-naïve acne patients, persons under certain acne treatments for at least four weeks were also included in the study: one hundred and fifty-one (68.6%) of 220 acne patients were drug-naïve and 69 (31.4%) were using topical and/or oral acne medications for less than 4 weeks. Patient having other dermatological diseases, previously acquired cutaneous/aesthetic trauma or acquired scars, cognitive impairment, pregnancy, lactation, and subjects using drugs such as immunosuppressives, corticosteroids, or drugs that may lead to cognitive changes, were ruled out from the study. One hundred

and ninety age- and sex-matched controls were included. For this purpose, the subjects' neighbors and friends who met the study criteria and were living the similar area and conditions, were invited to join the study as part of the control group. Inclusion criteria for control group were absence of AV or other dermatological diseases, being literate, and having the mental ability to understand the survey questions. All subjects with significant medical and/or psychiatric pathologies, such as schizophrenia, manic-depressive disorder, psychosis, dementia, and behavioral disorders with social withdrawal or suicidal risk, were excluded. Written informed consent was obtained from the patients after they were informed about the purpose of the study and the related methods, and required approval was obtained from the local ethics committee of the Bagcilar Training and Research Hospital (ref:2020.07.2.06.107). Recording of demographic data and dermatological examination of the subjects was conducted by a dermatologist experienced with AV at the dermatology outpatient clinic. The subjects subsequently consulted with an experienced psychiatrist, who informed them about the conduct of the study and using scales. The purpose of the study was explained to all the participants and detailed information was provided about which scales are used in the study and how to fill them. The subjects were also informed that they should contact their physician without hesitation in case they had any difficulty in understanding the scale questions, at any stage of the study. For this purpose, previously determined psychological surveys were directed to the patients' WhatsApp accounts or e-mail addresses by an experienced psychiatrist, after the patient's written informed consents were obtained for this contact. All participants were invited to answer a self-reported online battery of questionnaires which were made available through the Survey Monkey platform (<https://tr.surveymonkey.com/>). The survey was completed anonymously, and thus, multiple completion by the same person was prevented electronically. Scales were collected online from participants due to the risks associated with COVID-19 infections.

2.2 | Measures

2.2.1 | Demographic and clinical characteristics form

This form was prepared by the researchers to collect sociodemographic data (age, gender, marital status, and education level) and clinical data (onset age of AV, duration of AV, history of psychiatric disorders, and family history of psychiatric disorders), to aid in the analysis.

2.2.2 | Stressful events list due to pandemic

The scale was prepared by authors, using the Stressful Life Events Screening Questionnaire¹⁰ and review of the literature, and used to measure the stressful life event burden during the pandemic. The

scale consists of 10 questions answered as yes or no (no:0 point, yes:1 point), and a total score ranging from 0 to 10. Higher scores on the scale are associated with stressful event burden. Cronbach's alpha internal consistency coefficient was determined as 0.73. A positive and significant relationship was found between the total score of the scale and depression ($r = 0.35$), anxiety ($r = 0.32$), stress ($r = 0.32$), PCL-5 total score ($r = 0.41$) (see Table S1 and S2).

2.2.3 | Post-traumatic stress disorder checklist for DSM-5 (PCL-5)

The PCL-5 is a 20-item measure that assesses PTSD symptomatology: intrusions, avoidance, negative alterations in cognitions and mood (NACM), and hyperarousal. Participants responded to the items on 5-point Likert-type scales (0 = not at all to 4 = extremely) in relation to their experience of the COVID-19 outbreak, with total scores ranging from 0 to 80.¹¹ The Turkish version of PCL-5 was used, which has been shown to be reliable and valid. In this study, ≥ 47 was used as a cutoff point to diagnose possible PTSD.¹² Among the current sample, the PCL-5 and subscales evidenced a Cronbach's alpha of $\alpha = 0.96$ for PCL-5, $\alpha = 0.89$ for intrusions, $\alpha = 0.87$ for avoidance, $\alpha = 0.91$ for NACM, and $\alpha = 0.92$ for hyperarousal.

2.2.4 | The depression anxiety stress scales-21 (DASS-21)

DASS-21 is a 21-item, self-report questionnaire designed to measure the severities of the ranges of depression, anxiety, and stress symptoms. Each item of the DASS corresponds to one of the three subscales (depression, anxiety, and stress) with 7 items per subscale. The scale is a 4-point Likert from 0 (never) to 3 (almost always) and evaluates symptoms from the past week.^{13,14} Among the current sample, the DASS-21 and subscales evidenced a Cronbach's alpha of $\alpha = 0.93$ for DASS-21, $\alpha = 0.86$ for depression, $\alpha = 0.78$ for anxiety, and $\alpha = 0.83$ for stress.

2.2.5 | Brief resilience scale (BRS)

The BRS includes six items. The respondents were asked to indicate how well each statement described their behavior and actions on a 5-point Likert-type scale, ranging from "1" = does not describe me at all to "5" = describes me very well. As Item 2 (I have a hard time making it through stressful events), Item 4 (It is hard for me to snap back when something bad happens), and Item 6 (I tend to take a long time to get over setbacks in my life) were reverse-coded, the data collected were recoded prior to analysis. High scores obtained from the scale after the items coded in reverse order are translated in the scale indicate high psychological resilience.¹⁵ The factor loads for the items were found between 0.68 and 0.91 in the Turkish sample.¹⁶ In this study, Cronbach's alpha of the BRS was 0.69.

2.3 | Statistical analyses

Descriptive statistics were presented in median values and interquartile ranges (IQR) (25%–75%) for the quantitative variables, and frequencies and percentages for the categorical variables. Normality tests were conducted by using one-sample Kolmogorov-Smirnov and Shapiro-Wilk tests and histogram graphs. The Mann-Whitney U test was utilized for comparing the continuous variables among the two groups. Multiple linear regression models were used with the stepwise method to investigate potentially predictive factors for the PTSD, depression, anxiety, and stress symptoms severity in the acne patients. The variables evaluated were determined as significant variables derived from our results and literature review, in accordance with clinical experience. The tests for assumptions-linearity, homoscedasticity, and multicollinearity were conducted by the authors (assumptions met). All the analyses were 2-sided with alpha of 0.05 and performed with the SPSS statistical software (IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp.).

3 | RESULTS

3.1 | Socio-demographic and clinical characteristics of participants

The demographic and clinical data of the subjects are summarized in Table 1. A total of 220 AV patients (174 women, 46 men) with a median (IQR) age of 21 (19–24) years were enrolled in this study. The control group [median (IQR) age of 21 (20–23) years] consisted of 143 women and 47 men. There were no significant differences in age, gender, marital status, history of psychiatric disorders, and family history of psychiatric disorders between the AV patients and control group.

3.2 | Comparison of the AV patients and control group in terms of self-rating inventories

The PCL-5 total scores were significantly higher for AV patients [Mdn (IQR) = 32 (20–42.75)] than the control group [Mdn (IQR) = 29.5 (18.75–29.5)] ($p = 0.022$). All the subscales of PCL-5; Intrusions [Mdn (IQR) = 8 (4.25–11) vs. 7 (3–10), $p = 0.009$], Avoidance [Mdn (IQR) = 3 (2–5) vs. 3 (1–4), $p = 0.029$], NACM [Mdn (IQR) = 11.5 (7–16) vs. 11 (6–14), $p = 0.065$], and Hyperarousal [Mdn (IQR) = 9 (5–13) vs. 8 (5–12), $p = 0.094$] levels were significantly higher in AV patients than control group. Also, the probable PTSD rate was significantly higher for AV patients [16.4% ($n = 36$)] than the control group [9.5% ($n = 18$)] ($p = 0.040$). The subscales of DASS-21: Depression ($p = 0.423$) anxiety ($p = 0.276$) and stress ($p = 0.058$) were not significantly different between the AV patients and the control group. In addition, there were no differences in BRS scores ($p = 0.176$) and SLEP scores ($p = 0.548$) between the AV patients and the control group. These data are summarized in Table 2.

Variables	Total (n = 410)	Patients (n = 220)	Controls (n = 190)	p
Age, median (IQR)	21 (19–24)	21 (19–24)	21 (20–23)	
Gender, n (%)				0.356
Female	317 (77.3)	174 (79.1)	143 (75.3)	
Male	93 (22.7)	46 (20.8)	47 (24.7)	
Marital status, n (%)				0.086
Married	29 (7.1)	20 (9.1)	9 (4.7)	
Unmarried	381 (92.9)	200 (90.9)	181 (95.3)	
Education, n (%)				0.123
High school and below	161 (39.3)	94 (42.7)	67 (35.3)	
University and above	249 (60.7)	126 (57.3)	123 (64.7)	
Household economic situation, n (%)				0.037
Bad	44 (10.7)	28 (12.7)	16 (8.4)	
Average	285 (69.5)	158 (71.8)	127 (66.8)	
Good	81 (19.8)	34 (15.5)	47 (24.7)	
History of Psychiatric Disorders, n (%)				0.813
No	339 (82.7)	181 (82.3)	158 (83.2)	
Yes	71 (17.3)	39 (17.7)	32 (16.8)	
Family history of psychiatric disorders, n (%)				0.111
No	349 (85.1)	193 (87.7)	156 (82.1)	
Yes	61 (14.9)	27 (12.3)	34 (17.9)	
Onset age of AV, years, median (IQR)		16 (14–18)		
Duration of AV, years, median (IQR)		4 (2–7)		

Abbreviations: AV, Acne Vulgaris; IQR, Interquartile range 25%–75%.

TABLE 1 Comparisons of demographic and clinical characteristics between acne patients and control group

TABLE 2 Psychometric Properties for Self-Rating Scales and Subscales

Scales	Total (n = 410)	Patients (n = 220)	Controls (n = 190)	p	Differences Between Groups (95% CI)
PCL-5 total score, median (IQR)	31 (19–40)	32 (20–42.75)	29.5 (18.75–29.5)	0.022	2.5 [7 to 19.75]
Intrusions	7 (4–10)	8 (4.25–11)	7 (3–10)	0.009	1 [0 to 2]
Avoidance	3 (1.75–4)	3 (2–5)	3 (1–4)	0.029	0 [–1 to 2]
NACM	11 (6.75–15)	11.5 (7–16)	11 (6–14)	0.065	0.5 [–2 to 3]
Hyperarousal	8 (5–13)	9 (5–13)	8 (5–12)	0.094	1 [–1 to 3]
PCL-5 cutoff score, n (%)				0.040	
≥47	54 (13.2)	36 (16.4)	18 (9.5)		6.9 [–2.1 to 16]
47 below	356 (86.8)	184 (83.6)	172 (90.5)		–6.9 [–16 to 2.1]
DASS-21 total score, median (IQR)	15 (8–23)	15 (8–23.75)	16 (6.75–21)	0.191	–1 [–4 to 3]
Depression	5 (2–9)	5.5 (3–9)	5 (2–8.25)	0.423	0.5 [–1 to 1]
Anxiety	3 (1–6)	3 (1.25–6)	3 (1–5.25)	0.276	0 [–1 to 1]
Stress	6 (3–8)	6 (4–9)	6 (3–8)	0.058	0 [–2 to 1.5]
BRS total score, median (IQR)	18 (16–22)	18.50 (16–21)	18 (16.75–22)	0.176	0.5 [–1.5 to 4]
SLEP total score, median (IQR)	2 (1–3)	2 (1–3)	2 (1–3)	0.548	0 [–1 to 0.5]

Abbreviations: BRS, Brief resilience scale; DASS-21, Depression, anxiety, and stress scale-21; IQR, Interquartile range 25%–75%. NACM, Negative alterations in cognitions and mood; PCL-5, Post-traumatic stress disorder checklist for DSM-5; SLEP, Stressful events list due to pandemic.

3.3 | Multiple linear regression analysis for post-traumatic stress symptom (PTSDs) levels in AV patients

Multiple linear regression was conducted for predicting PTSDs severity (Table 3). High depression levels ($p < 0.001$), high anxiety levels ($p < 0.001$), low psychological resilience ($p < 0.001$), and high experience stressful life events ($p = 0.001$) predicted high PTSDs severity in AV patients [$N = 220$, $R^2 = 0.495$, $F(4, 215) = 10.469$, $p < 0.001$].

3.4 | Multiple linear regression analysis for depression, anxiety, and stress levels in AV patients

Low psychological resilience ($p < 0.001$) predicted high depression levels in AV patients [$N = 220$, $R^2 = 0.249$, $F(1, 218) = 72.12$, $p < 0.001$]. Low psychological resilience ($p < 0.001$), having a history of psychiatric disorders ($p = 0.045$) and having a family history of psychiatric disorders ($p = 0.004$) predicted high anxiety levels in

AV patients [$N = 220$, $R^2 = 0.239$, $F(3, 216) = 4.06$, $p = 0.045$]. Low psychological resilience ($p < 0.001$) predicted high stress levels in AV patients [$N = 220$, $R^2 = 0.288$, $F(1, 218) = 88.06$, $p < 0.001$]. These data are summarized in Table 4.

4 | DISCUSSION

To the best of our knowledge, the present study is the first one which addresses to the meaningful associations of PTSD and depression, anxiety, and stress, as well as psychological resilience in AV patients, compared to a control group, during COVID-19 outbreak. The principal findings of this study were the absence of significant differences between the AV patients and the control group in terms of depression, anxiety, stress, psychological resilience levels, and experience of stressful life events. The probable PTSD rate was significantly higher for AV patients (16.4%) than the control group (9.5%), with the higher PTSDs levels and PTSDs cluster scores in AV patients, compared to the control group. High levels of depression, and anxiety symptoms, low psychological

TABLE 3 Multiple linear regression analyses for PTSDs Severity[†]

	Unstandardized Coefficients					95% CI	
	B	SE	β	t	p	Lower Bound	Upper Bound
Depression	1.162	0.246	0.315	4.726	<0.001	0.678	1.647
Anxiety	1.153	0.292	0.254	3.946	<0.001	0.577	1.729
BRS	-0.745	0.203	-0.210	-3.668	<0.001	-1.146	-0.345
SLEP	1.509	0.466	0.161	3.236	0.001	0.590	2.429

Abbreviations: B, Unstandardized Coefficients; BRS, Brief resilience scale; CI, Confidence interval. PTSDs, Post-traumatic stress disorder symptoms; SE, Standard Error of the Estimate; SLEP, Stressful events list due to pandemic. [†]: $N = 220$, $R^2 = 0.495$, $F(4, 215) = 10.469$, $p < 0.001$; β : Adjusted Coefficients.

TABLE 4 Multiple Linear Regression Analyses for Depression, Anxiety, and Stress Symptoms Severity

	Unstandardized Coefficients					95% CI	
	B	SE	β	t	p	Lower Bound	Upper Bound
Depression ¹							
BRS	-0.481	0.057	-0.499	-8.493	<0.001	-0.593	-0.370
Anxiety ²							
BRS	-0.359	0.047	-0.458	-7.664	<0.001	-0.452	-0.267
Family history of psychiatric disorders ^a	1.935	0.664	0.177	2.914	.004	0.626	3.243
History of Psychiatric Disorders ^a	1.146	0.569	0.122	2.016	.045	0.025	2.267
Stress ³							
BRS	-0.504	0.054	-0.536	-9.384	<0.001	-0.610	-0.398

Abbreviations: B, Unstandardized Coefficients; CI, Confidence interval; SE, Standard Error of the Estimate; β , Adjusted Coefficients.

^a(0: No(ref.), 1: Yes)

¹ $N = 220$, $R^2 = 0.249$, $F(1, 218) = 72.12$, $p < 0.001$.

² $N = 220$, $R^2 = 0.239$, $F(3, 216) = 4.06$, $p = 0.045$.

³ $N = 220$, $R^2 = 0.288$, $F(1, 218) = 88.06$, $p < 0.001$.

resilience, and high levels of experienced stressful life events predicted high PTSDs severity in AV patients, whereas low psychological resilience predicted high levels of depression, anxiety, and stress symptoms in AV patients. Additionally, having a personal and family history of psychiatric disorders in AV patients predicted high anxiety levels.

Similar to the findings of our study, there are some studies showing no significant relationship between having acne and experiencing anxiety and depression.¹⁷ However, the majority of studies regarding this relationship are pointing out a probable relationship between AV patients and depression,¹⁸ anxiety,^{18,19} and stress.²⁰ In a recent review including 42 studies, it was reported that anxiety and depression may be associated with acne.²¹ We believe that some variances in experimental methodology and sample demographics may contribute to the discrepancies in these findings. Another reason for the lack of significant differences in our study may be related to the significant psychological burden of the current epidemic period on all participants, which may have masked the stress caused by acne alone. One of the notable findings of our study is the recorded higher total PTSDs level and the higher PTSD ratio, together with all PTSDs cluster scores in acne patients compared to the control group, despite the absence of any difference between the two groups in terms of psychological resilience and experienced stressful life events. To the best of our knowledge, this situation has never been cited in the previous literature. Additionally, there is no study regarding PTSD seen in acne patients, although there exist some reports showing the relationship between psoriasis,²² chronic urticaria,²³ atopic dermatitis,²⁴ and PTSD. In these reports, it has been mentioned that the relationship between these skin diseases and PTSD might be associated with some shared mechanisms involved in hypothalamic-pituitary-adrenal and sympathoadrenal medullary axes, and neuroendocrine and immune systems.²²⁻²⁵ With reference to the mentioned bidirectional mechanisms,²⁵ PTSD may be suggested as an underlying triggering factor for chronic, recurrent, treatment-resistant, and stress-reactive skin diseases. Although they need to be supported by additional studies, the above-mentioned shared mechanisms^{5,6} may also be valid in the pathogenesis of the detected association between the negative impacts of AV and PTSD.

Another remarkable finding of this study is that low psychological resilience is a significant predictor for high PTSD, depression, anxiety, and stress symptoms. Indeed, psychological resilience is an ability of an individual to adapt to and cope with adverse life situations such as a trauma, threat, or health issues.^{26,27} Resilience is protective against some mental disorders such as anxiety and PTSD, while low psychological resilience is an important risk factor for impaired mental health.²⁸ According to our literature review, there exists no similar report indicating any relationship between the psychological pathologies and psychological resilience in AV patients. In recent community-based studies during the COVID-19 pandemic, it has been reported that low psychological resilience might be related to distress and poor psychological status. Considering detected findings in our study, together with the aforementioned associations, it

can be suggested that psychological resilience is a fundamental variable in the reduction and prevention of the negative psychological effects of the pandemic in acne patients.

This study had some limitations. They are, namely, the relatively small sample size, relatively short running time, inequality in the subjects having different acne lesions, and inclusion of some patients who were previously started on anti-acne treatments in the previous 4 weeks, besides drug-naïve patients. Additionally, being the presentation of a single center results, using online questionnaires, may raise concerns and may cause response bias. Though the validity and reliability of the telephone-administered surveys may be questioned, these questionnaires have been used in many studies; they are considered valid for screening psychiatric disorders and present near-perfect reliability and very high agreement with the face-to-face version.^{29,30} We believe that any shortcomings are justifiable under the current undesirable conditions resulting from the pandemic, both because the patients' appointments were restricted by preventive measures and from the hesitation of the patients to apply to the hospital during this period. The results are nonetheless striking enough to reach significant conclusions: first are the higher levels of PTSD detected compared to the control group, which indicates the enormous impact of the pandemic on the patients with AV. Second is the fact that this is the first study confirming the relationship between psychological conditions and psychological resilience in AV patients. And thirdly, this being the first population-based study measuring the psychological resilience of AV patients in our country during the COVID-19 pandemic, which is valuable to country-based epidemiological databases. Further broad-based and long-term studies are nonetheless required to better understand the adverse effects of this global disaster and to confirm our results.

5 | CONCLUSIONS

This study focused on the psychological outcomes of the COVID-19 outbreak in AV patients, regarding which there was already a gap in the literature. This study demonstrates the high risk of PTSD in patients with AV during the pandemic and how it may be associated with high levels of depression and anxiety symptoms, significant experienced stressful life events, and low psychological resilience. In addition, a substantial association between psychological symptoms and low psychological resilience was detected in AV patients. It underscores the need to assess the psychological status of AV patients during the pandemic, especially in those with low psychological resilience. It should be kept in mind that immense disasters the likes of the COVID-19 pandemic constitute traumatic life events, and they can lead to both increased vital risk perception and extra psychological burdens on the psyche of AV patients.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

ETHICAL APPROVAL

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The data that support the findings of this study are openly available in [Health Sciences University, Istanbul Bagcilar Training and Research Hospital ethics committee], reference number [2020.07.2.06.107].

INFORMED CONSENT

Informed consent was obtained from all individual participants included in the study.

DATA AVAILABILITY STATEMENT

The data sets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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