ORIGINAL ARTICLE - OPEN ACCESS





Factors Affecting Fear, Obsession, and Anxiety Associated with COVID-19: A Cross-Sectional Study in Patients Admitted to University Hospital Outpatient Clinics

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ABSTRACT

Objective: During the coronavirus disease 2019 (COVID-19) pandemic, there has been a significant decrease in outpatient visits and hospital admissions. The increased risk of transmission, especially in environments with high contamination such as hospitals, may increase fear, obsession, and anxiety in patients. This study aims to investigate the factors affecting fear, obsession, and anxiety associated with COVID-19 in patients who are admitted to university hospital outpatient clinics.

Materials and Methods: This study was conducted from January 2021 to February 2021 at Pamukkale University Hospitals outpatient clinics. Demographic information (age, education, sex, marital status, house sharing, employment, and work schedule) and questions related to COVID-19 (visiting a doctor regularly before the pandemic, positive test results, isolation due to contact, losing a friend/family member because of the disease, and delay/avoidance of medical care because of COVID-19-related concerns) were questioned. Fear of COVID-19 Scale, Obsession with COVID-19 Scale, Coronavirus Anxiety Scale, and Short Form-12 were filled.

Results: A total of 535 patients (291 females and 244 males; mean age, 45.59±16.08 years) participated. The Fear of COVID-19 Scale score was 16.74±6.60, that of Obsession with COVID-19 Scale was 2.22±2.74, and that of Coronavirus Anxiety Scale was 0.77±2.32. Female sex, working from home or flexibly, admission to internal medical sciences, and losing a loved one due to the disease increased COVID-19 fear, obsession, and anxiety (p<0.001). Fear, obsession, and anxiety associated with COVID-19 have negatively affected SF-12 physical and mental scores (p<0.001).

Conclusion: The present study suggested that to ensure that treatments can be continued uninterruptedly in patient groups who are at risk in terms of increasing COVID-19 fear, obsession, and anxiety, remote health consultations can be performed.

Keywords: Anxiety, COVID-19, fear, obsession, outpatient clinics, patient admission

Şavkın R, Öztop M, Bayrak G, Büker N. Factors Affecting Fear, Obsession, and Anxiety Associated with COVID-19: A Cross-Sectional Study in Patients Admitted to University Hospital Outpatient Clinics. Erciyes Med J 2022; 44(3): 263-9.

Cite this article as:

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Submitted 16.07.2021

Accepted 21.09.2021

Available Online 13.10.2021

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INTRODUCTION

Coronavirus disease 2019 (COVID-19) is transmitted via respiratory droplets and close unprotected contact, which puts everyone at high risk of exposure (1). Although the world is reeling under the global, social, and economic crises caused by COVID-19 (2), the governments have implemented a range of measures including isolation and quarantine, social distancing, and community containment to delay the spread of the disease (3). The pandemic has also had a devastating effect on the healthcare system. Measures taken to prevent and reduce the spread of COVID-19 and preserve health system capacity have disrupted healthcare services in an unprecedented way (4). In Turkey, routine appointments and all elective and nonemergency surgical procedures were temporarily halted or postponed (5). The COVID-19 continued to spread rapidly despite all these measures. As of February 28, 2021 (when this study was undertaken), 113,467,303 confirmed cases of COVID-19 were reported globally, including 2,520,550 deaths (6), and there was a total of 2,701,588 confirmed cases and 28,569 deaths in Turkey (7).

Since the pandemic was declared, print, electronic, and social media have been flooded with numerous advisories to prevent the transmission. Although all this is being done with the best of intentions, updates on news channels and social media emphasizing the daily number of cases and deaths, and the transmission of inaccurate or sensational information can have significant adverse effects on the mental health of people (8, 9). Furthermore, quarantine and isolation measures applied to positive COVID-19 cases and close contacts, sudden shifts in people's daily routines, and stigmatization (due to chronic disease, occupation, etc.) may also be risk factors for the development of various mental health problems (10, 11). In this period, people are concerned about not only getting infected but also infecting their loved ones and other people around them (9). Studies have reported that sex, age, educational status, job, marital status, and living with the family could be associated with fear, anxiety, and obsession caused due to COVID-19 (12, 13).

This unpredictable, rapidly spreading, turning the world upside down, large-scale health challenge can increase fear, obsession, and anxiety in patients who have to come to environments with a high level of contamination such as in hospitals. The hypothesis of this study was that fear, obsession, and anxiety associated with COVID-19 in patients who applied to university hospital outpatient clinics were affected by the demographic characteristics of the patients (age, education, sex, marital status, house sharing, employment status, and work schedule) and their experiences related to COVID-19 (receiving a positive COVID-19 test result, positive COVID-19 test result for housemates, isolation due to contact of people with confirmed COVID-19, losing a friend or family member due to COVID-19, and delay or avoidance of medical care because of COVID-19-related concerns). Thus, this study aims to investigate the factors affecting fear, obsession, and anxiety associated with COVID-19 in patients who are admitted to university hospital outpatient clinics.

MATERIALS and METHODS

Participants and Procedure

This single-center, cross-sectional study was conducted with patients who were admitted to Pamukkale University Hospitals outpatient clinics between January 2021 and February 2021. Inclusion criteria were as follows: age ≥18 years, admitted to surgical or internal medical sciences outpatient clinics, ability to understand and read Turkish, and volunteered to participate in the study. Patients who had serious visual defects, severe hearing loss, and cognitive dysfunction were excluded.

The ethical approval of the study was obtained from the Pamukkale University Non-Interventional Clinical Research Ethics Committee (Approval Date: 08.12.2020 and Approval Number: 60116787-020/73342). Patients' informed consent was taken, and the questionnaires were read and filled out by the interviewers with the framework of COVID-19 measures through a face-to-face interview method. The COVID outpatient clinic in a local university hospital was separated from other outpatient clinics and served in a different building. HES application code (unique identifier of Life Fits into Home application) of the Ministry of Health of all patients was questioned by the staff at the surgery or internal medicine outpatient clinics entrances, and their body temperatures were measured. The HES code is a unique identification number that helps people in their efforts to follow COVID-19 cases and alert people that they have been infected by the virus so that they should guarantine themselves or ask for medical advice (14).

Outcome Measures

Patients' age, education, sex, marital status, house sharing, employment status, and work schedule were recorded. Also, visiting a doctor regularly before the COVID-19 pandemic, receiving a positive COVID-19 test result, positive COVID-19 test result for housemates, isolation due to contact of people with confirmed COVID-19, losing a friend or family member due to COVID-19, and delay or avoidance of medical care because of COVID-19-related concerns were asked. Additionally, fear, obsession, and anxiety associated with COVID-19 and the quality of life were questioned.

The Fear of COVID-19 Scale: This scale was developed by Ahorsu et al. (15) to evaluate the fear associated with COVID-19 comprises seven questions. This scale includes questions about COVID-19 such as fear, uncomfortable thinking, being nervous, anxiety, fear of death, and sleep status. Participants answer the questions with a score between 1 (strongly disagree) and 5 (strongly agree). A high score in the questionnaire indicates that the individual has a high level of fear associated with COVID-19. The Turkish validity and reliability study of the scale was conducted by Satur et al. (16).

The Obsession with COVID-19 Scale (OCS): It is a self-report mental health screening tool for persistent and disturbing thinking about COVID-19. OCS has been developed to help clinicians and researchers effectively identify individuals with impaired functionality by thought patterns regarding COVID-19 (17). In the total of questions scored between 0 and 4 points, a maximum of 16 points can be obtained from the scale, and a score \geq of 7 indicates dysfunctional thinking associated with coronavirus. The Turkish validity—reliability study was performed by Evren et al. (18).

The Coronavirus Anxiety Scale (CAS): The CAS is a self-reported mental health screening tool for dysfunctional anxiety associated with coronavirus crisis. CAS was developed to help clinicians and researchers effectively identify individuals with impaired functionality due to coronavirus-related anxiety (19). Each item of CAS is rated on a five-point Likert scale from 0 (not at all) to 4 (almost every day) on the basis of experience over the past 2 weeks. The cutoff score of the CAS is 9, and higher scores indicate dysfunctional anxiety associated with COVID-19. The Turkish validity–reliability study was conducted by Evren et al. (18).

Short Form-12 (SF-12): The SF-12 questionnaire consists of 12 items: physical functionality, physical role, body pain, general health, energy, social functionality, emotional role, and mental health. Items related to physical and emotional roles were answered as yes or no, whereas the remaining items have Likert-type options ranging from 3 to 6. SF-12 provides the Physical and Mental Component Summary by calculating the responses of this 12-item questionnaire. Higher scores indicate better health status (20).

Statistical Analysis

The data were analyzed using SPSS 24.0 (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp.) package program. Continuous variables were given as mean±standard deviation and median (minimum and maximum), and categorical variable values are presented as absolute numbers (n) and percentages (%). The conformity of continuous variables with normal distribution was evaluated using the Kolmogorov-Smirnov test. To determine the factors affecting the COVID-19 Fear Scale, OCS, and CAS scores, simple linear regression analyses were performed. Additionally, multiple linear regression analysis was performed for COVID-19 fear, obsession, and anxiety with logically related predictors (e.g., age, sex, education, occupation, receiving a positive COVID-19 test result, and losing a friend or family member due to COVID-19). The stepwise mode of regression analysis was used because multiple independent variables are taken as predictors. The Mann-Whitney U test was used for comparison of Fear of COVID-19 Scale, OCS, CAS, and SF-12 scores by sex, outpatient clinic admission, and regular doctor visit before the COVID-19 pandemic. Statistical significance was set at $p \le 0.05$.

Variables	Participants (n=535)				
	Median (Min-Max)	Mean±SD			
Age (year)	46 (18–87)	45.59±16.08			
Education (year)	8 (0–20)	8.95±4.68			
	n	%			
Gender					
Female	291	54.4			
Male	244	45.6			
Marital status					
Married	377	70.5			
Single/death of the spouse/divorced	158	29.5			
House-sharing					
Living alone	46	8.6			
Living family/partner/flat mates	489	91.4			
Employment status					
Yes	228	35.7			
No	307	64.3			
Work schedule					
Work from home or flexibly	96	42.1			
Working at workplace full-time	132	57.9			
Policlinic admission					
Surgical sciences	282	52.7			
Internal medical sciences	253	47.3			
Visiting a doctor regularly before the COVID-19 pandemic		-7.0			
Yes	250	46.7			
No	285	53.3			
Receiving a positive COVID-19 test result	200	00.0			
Yes	81	15.1			
No	454	84.9			
Positive COVID-19 test result for someone you share the same house with	10 1	01.9			
Yes	60	11.2			
No	747	88.8			
Isolation due to contact of people with confirmed COVID-19	/ + /	00.0			
Yes	122	22.8			
No	413	77.2			
Losing a friend or family member due to COVID-19	713	11.2			
Yes	97	18.1			
No	438	81.9			
Delay or avoidance of medical care because of COVID-19 related concerns	430	01.9			
Yes	188	35.1			
	347	64.9			
No	34/	04.9			

RESULTS

A total of 535 patients (291 females and 244 males; mean age, 45.59 ± 16.08 years) participated in this study. The average education period was 8.95 ± 4.68 years; 70.5% (n=377) of the pa-

tients were married and 91.4% (n=489) lived with their family/partner/flatmates; 35.7% (n=228) of the patients were working, and 42.1% (n=96) of these patients were working from home or flexibly, 57.9% (n=132) were working full time at the work-place; 52.7% (n=282) of the patients administered to surgical

Variables	Fear of COVID-19 Scale		Obsession with COVID-19 Scale		Coronavirus Anxiety Scale	
	β (%95 CI)	р	β (%95 CI)	р	β (%95 CI)	p
Age (year)	0.243 (0.066-0.133)	< 0.001	0.024 (-0.01-0.019)	0.584	0.129 (0.006-0.031)	0.003
Gender	-0.231 (-4.161.968)	< 0.001	-0.136 (-1.2120.285)	0.002	-0.141 (-1.0510.265)	0.001
Education (year)	-0.236 (-0.4490.215)	< 0.001	-0.05 (-0.079-0.021)	0.253	-0.116 (-0.10.016)	0.007
Marital status	-0.101 (-2.6780.231)	0.02	-0.034 (-0.713-0.308)	0.436	0.014 (-0.361-0.505)	0.744
House-sharing	-0.006 (-2.143-1.86)	0.89	-0.053 (-1.352-0.309)	0.218	-0.099 (-1.5220.119)	0.022
Occupation	-0.178 (-3.5981.294)	< 0.001	-0.042 (-0.729-0.244)	0.328	-0.085 (-0.822-0)	0.05
Work Schedule	-0.185 (-4.2610.758)	0.005	-0.188 (-1.7960.336)	0.004	-0.143 (-1.2340.061)	0.031
Policlinic admission	0.141 (0.753-2.978)	0.001	0.164 (0.437-1.358)	< 0.001	0.159 (0.349-1.131)	< 0.001
Visiting a doctor regularly before						
the COVID-19 pandemic	-0.136 (-2.9160.688)	0.002	-0.026 (-0.612-0.322)	0.542	-0.11 (-0.9040.117)	0.011
Receiving a positive						
COVID-19 test result	0.007 (-1.435-1.695)	0.87	-0.075 (-1.22-0.077)	0.084	-0.08 (-1.066-0.034)	0.066
Relatives who received a positive						
COVID-19 test result	-0.017 (-2.142-1.413)	0.687	0.041 (-0.384-1.093)	0.346	-0.026 (-0.529-0.284)	0.554
Isolation due to contact of people						
with confirmed COVID-19	0.07 (-0.226-2.441)	0.103	-0.054 (-0.909-0.201)	0.211	0.071 (-0.105-1.144)	0.103
Losing a friend or family member						
due to COVID-19	-0.136 (-3.7750.89)	0.002	-0.122 (-1.4670.266)	0.005	-0.121 (-1.2410.223)	0.005
Delay or avoidance of medical care						
because of COVID-19 related concerns	-0.077 (-2.238-0.108)	0.075	-0.03 (-0.662-0.315)	0.486	-0.021 (-0.518-0.31)	0.622
Short Form-12 Physical Score	-0.142 (-0.3570.091)	0.001	-0.096 (-0.6860.041)	0.027	-0.087 (-0.770.009)	0.045
Short Form-12 Mental Score	-0.187 (-0.4560.174)	< 0.001	-0.24 (-1.3080.638)	< 0.001	-0.194 (-1.3270.528)	< 0.001

sciences and 47.3% (n=253) to internal medical sciences; 46.7% (n=250) of the patients were visiting the doctor regularly before the COVID-19 outbreak. Although 15.1% (n=81) received a positive COVID-19 test result, 22.8% (n=122) were in isolation due to contact with people with confirmed COVID-19; 18.1% (n=97) of patients lost a friend or family member due to COVID-19. The rate of patients delays medical care due to COVID-19-related concerns was 35.1% (n=188) (Table 1).

Table 2 presents the factors affecting the Fear of COVID-19 Scale, OCS, and CAS. Age (p<0.001), female sex (p<0.001), low years of schooling (p<0.001), being married (p=0.02), unemployment (p<0.001), working from home or flexibly (p=0.005), admission to internal medical sciences (p=0.001), regular doctor visits (p=0.002), and losing a relative due to COVID-19 (p=0.002) increased the Fear of COVID-19 Scale score. Female sex (p=0.002), working from home or flexibly (p=0.004), internal medical sciences admission (p<0.001), and losing a relative due to COVID-19 (p=0.005) increased the OCS score. The factors that increased the CAS were age (p=0.003), female sex (p=0.001), low years of schooling (p=0.007), living alone (p=0.022), unemployment (p=0.05), working from home or flexibly (p=0.031), admission to internal medical sciences (p<0.001), regular doctor visits

(p=0.011), and losing a relative due to COVID-19 (p=0.005). Additionally, the increase in Fear of COVID-19 Scale, OCS, and CAS scores negatively affected SF-12 physical and mental scores (p<0.05).

Table 3 shows the comparison of Fear of COVID-19 Scale, OCS, CAS, and SF-12 scores by sex, outpatient clinic admission, and regular doctor visit before the COVID-19 pandemic. Female patients have higher fear (p<0.001), obsession (p<0.001), and anxiety scores (p<0.001) and lower SF-12 mental score (p=0.002) when compared with the male ones. When the patients who were administered to the internal medical and surgical sciences were compared, the patients who administered to the internal sciences had higher fear (p=0.001), obsession (p<0.001), and anxiety scores (p<0.001) and lower SF-12 mental score (p=0.002). Fear of COVID-19 Scale (p=0.002) and CAS (p=0.016) scores were higher in patients who visit a doctor regularly before the COVID-19 pandemic.

Table 4 presents the estimated regression equations predicting Fear of COVID-19, Obsession with COVID-19, and CAS scores. In Fear of COVID-19, the R^2 value of 0.22 revealed that the predictors explained 22% variance in the outcome variable with F (2, 223)=31.230, p<0.001. Increasing age (β =0.415, p<0.001) and

Variables	Fear of COVID-19 Scale	Obsession with COVID-19 Scale	Coronavirus Anxiety Scale	Short Form-12 Physical Score	Short Form-12 Mental Score	
Gender						
Female (n=291)	18 (7–35)	2 (0-12)	0 (0–16)	38.66 (3.63-63.06)	43.45 (16.58–72)	
Male (n=244)	15 (5–33)	1 (0–12)	0 (0-12)	40.50 (18.07-61.48)	47.61 (4.77–68.55	
р	< 0.001	< 0.001	< 0.001	0.071	0.002	
Outpatient clinic admission						
Surgical sciences (n=282)	16 (5–31)	1 (0–12)	0 (0-12)	40.29 (19.69–63.06)	47.23 (4.77–68.55	
Internal medical sciences (n=253)	17 (7–35)	2 (0–12)	0 (0–16)	38.77 (13.63–59.07)	43.08 (16.58–72)	
р	0.001	< 0.001	< 0.001	0.115	0.002	
Visiting a doctor regularly before the						
COVID-19 pandemic						
Yes (n=250)	18 (5–35)	1 (0–12)	0 (0–16)	38.46 (18.07-61.09)	43.63 (4.77–72)	
No (n=285)	16 (7–35)	1 (0–12)	0 (0–16)	39.55 (13.63–63.06)	46.15 (17.78–68.5	
p	0.002	0.937	0.016	0.240	0.094	

Table 4. Estimated regression equations predicting Fear of COVID-19, Obsession with COVID-19, Coronavirus Anxiety Scale scores Standardized Regression model Unstandardized coefficients coefficients β SF [%95 CI] β t p Fear of COVID-19 Scale 0.218 0.031 0.415 Age (year) 6.985 0.000 [0.157, 0.280]Gender -2.4530.817 -0.179-3.0040.003 [-4.062, -0.844] Obsession with COVID-19 Occupation 1.163 0.493 0.155 2.357 0.019 [0.190, 2.135]Gender -0.8170.377 -0.142-2.1670.031 [-1.559, -0.074] 0.411 -0.1300.044 Marital status -0.833-2.027[-1.642, -0.023] -0.906 0.450 -0.129-2.012 0.045 [-1.793, -0.018] Losing a friend or family member due to COVID-19 Coronavirus Anxiety Scale -0.3500.109 -0.206 -3.226 0.001 [-0.564, -0.136] Education (year) -1.082-2.906 0.004 Receiving a positive COVID-19 test result 0.372 -0.186[-1.815, -0.348]

being female (β =-0.179, p=0.003) important risk factors for Fear of COVID-19. In Obsession with COVID-19, the R² value of 0.094 revealed that the predictors explained 9.4% variance in the outcome variable with F (4, 221)=5.702, p<0.001. Being unemployed (β =0.155, p=0.019), being female (β =-0.142, p=0.031), being married (β =-0.130, p=0.044), and having lost a friend or family member due to COVID-19 (β =-0.129, p=0.045) are important risk factors for Obsession with COVID-19. In Coronavirus Anxiety, the R² value of 0.097 revealed that the predictors explained 9.7% variance in the outcome variable with F (3, 222)=7.990, p<0.001. Low education level (β =-0.206, p=0.001), and being positively diagnosed with COVID-19 (β =-0.186, p=0.004) are important risk factors for Coronavirus Anxiety.

CI: Confidence interval

DISCUSSION

In this study, we aimed to determine the factors affecting fear, obsession, and anxiety associated with COVID-19 in patients who were admitted to university hospital outpatient clinics. The factors that negatively affected fear, obsession, and anxiety associated with COVID-19 were female sex, working from home or flexibly, admission to internal medical sciences, and losing a relative due to COVID-19. Additionally, it was determined that the increase in fear, obsession, and anxiety associated with COVID-19 negatively affected SF-12 physical and mental scores.

Since the beginning of the pandemic, the primary focus of the healthcare system has become COVID-19 cases while other patients remained in the background, and outpatient visits across all departments have decreased significantly in the period (21). We found that 35.1% of patients delayed or avoided medical care because of COVID-19-related concerns. The reason why patients are hesitant to seek medical help is that they may be afraid of getting infected at the hospital (22). Additionally, patients who are admitted to internal medical science (47.3%) and those who regularly visited doctors (46.7%) had higher levels of COVID-19-related fear and anxiety. This may be due to the higher risk of getting severe COVID-19 and related complications due to the presence of chronic comorbidities.

There are conflicting findings in the relationship of fear and anxiety associated with COVID-19 with age (19, 23, 24). Our results showed that fear, obsession, and anxiety increase with age. Older age is the best-known predictor of mortality from COVID-19 (24), and this fact has been widely reported on news platforms and social media (25). The prominence of misinformation and negative messages, especially focusing on age discrimination, may have increased the level of fear and anxiety in elderly patients who applied to the hospital.

Although there was no sex difference in COVID-19 anxiety (19), female patients had higher levels of COVID-19 fear (23, 26). In our study, when compared with males, females had significantly higher fear, obsession, and anxiety associated with COVID-19. They also had lower mental health scores, consistent with the finding that the pandemic has a greater psychological impact on females (27). Although women adapt better to environmental stresses, they are generally weaker physically and become ill more often. Getting sick more often may have contributed to higher levels of fear, obsession, and anxiety in women (23).

Fear of COVID-19 is significantly higher in patients with low education levels (26), and as the education level increases, fear and anxiety decrease (28). We also found that having a higher education level reduces fear and anxiety. This may be because people with low levels of education often have less knowledge and fewer skills to deal with public health emergencies (29).

The results of our study showed that those who are working in the workplace and full time have less COVID-19 anxiety than those who are unemployed and part-time or home-based. It may be that full-time employees at work have less exposure to news and events related to the pandemic than those who are unemployed or work from home/flexibly. In a study that emphasized the importance of social interaction for mood improvement, it was stated that being confined to the home and lack of positive social activities may increase anxiety (28).

Although Bakioğlu et al. (23) reported that the fear associated with the virus did not differ significantly according to whether they had infected relatives, Milman et al. (30) stated that people who have been diagnosed with COVID-19, know someone who has been diagnosed, or have lost a loved one due to COVID-19 have higher anxiety. This study presented that the loss of a loved one also increases COVID-19-related fear, anxiety, and obsession. Losing a loved one is a psychologically difficult situation to deal with, and closely observing the serious symptoms and deadly effects of COVID-19 or losing a loved one can increase anxiety.

One of the limitations of our study is that the study population is limited to a university hospital in a single province. Second, we focused on changes measured in a short time frame during the COVID-19 outbreak; studies focusing on the long-term effects of these results on patients are needed.

CONCLUSION

There has been a significant decrease in outpatient visits and hospital admissions during the pandemic. This may be associated with an increase in fear of getting infected, obsession, and anxiety. The present study results revealed that female sex, working from home or flexible, admission to internal medicine, and losing a relative due to COVID-19 are factors that negatively affect fear, obsession, and anxiety associated with COVID-19. Considering the results of the present study, remote health consultations can be performed to ensure that treatments can be continued uninterruptedly in patient groups who are at risk in terms of increasing COVID-19 fear, obsession, and anxiety.

Acknowledgements: We wish to thank Assist. Prof. Hande Senol for her statistical support.

Ethics Committee Approval: The Pamukkale University Non-Interventional Clinical Research Ethics Committee granted approval for this study (date: 08.12.2020, number: 60116787-020/73342).

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – RŞ, MÖ, GB, NB; Design – RŞ, MÖ, GB, NB; Supervision – RŞ, NB; Resource – MÖ, GB; Materials – MÖ, GB; Data Collection and/or Processing – MÖ, GB; Analysis and/or Interpretation – RŞ, NB; Literature Search – RŞ, MÖ, GB, NB; Writing – RŞ, MÖ, GB, NB; Critical Reviews – RŞ, MÖ, GB, NB.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

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