Evaluation of Anxiety Status of Adolescents with COVID 19

COVİD-19'lu Adolesanların Kaygı Durumlarının Değerlendirilmesi

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ABSTRACT

Objective: Adolescents with COVID-19 are usually asymptomatic or they have milder symptoms, but the psychological effects of the disease on adolescents is unknown. In our knowledge, to date no published studies have evaluated the anxiety status of adolescents with COVID-19 infection. In this study, we aimed to investigate the anxiety status of adolescents with COVID-19.

Material and Methods: Eighteen adolescents hospitalized with moderate symptoms of COVID-19 and seventeen adolescents non hospitalized with mild symptoms of COVID-19 and 29 healthy adolescents were enrolled in the study. The State and Trait Anxiety Inventory (STAI) questionnaire was performed to both groups and scores were compared.

Results: The adolescents with COVID-19 had significantly higher anxiety scores in the State Anxiety Inventory (SAI) (p:0.019) and the Trait Anxiety Inventory (TAI) (p:0.048) than healthy adolescents. Comparison of adolescents with mild and moderate symptoms showed no significant difference both in SAI (p:1.0) and TAI (p:0.98) scores.

Conclusion: COVID-19 has a psychological impact on adolescents causing higher anxiety scores independent from the disease severity.

Key Words: Adolescent, Anxiety, COVID-19

ÖZ

Amaç: COVİD-19'lu adolesanlar genellikle asemptomatiktir ya da hafif belirtiler gösterirler ancak hastalığın adolesanlar üzerindeki psikolojik etkileri bilinmemektedir. Bildiğimiz kadarıyla şu ana kadar COVİD-19'lu adolesanların kaygı düzeyleri değerlendirilmemiştir. Bu çalışmada COVİD-19'lu adolesanların kaygı durumlarının değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntemler: COVİD-19 nedeniyle orta düzeyde semptom gösteren ve hastaneye yatan 18 adolesan, hafif semptom gösteren hastaneye yatmayan 17 adolesan ve 29 sağlıklı adolesan çalışmaya dahil edildi. Durumluluk sürekli kaygı ölçeği (STAI) anketi tüm gruplara uygulandı ve kaygı skorları karşılaştırıldı.

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Bulgular: COVİD-19'lu adolesanların durumluluk kaygı ölçeği (SAI) (p:0.019) ve sürekli kaygı ölçeği (TAI) (p:0.048) skorları sağlıklı adolesanlara göre anlamlı yüksek saptandı. Hafif ve orta semptomlu adolesanların SAI (p:1.0) ve TAI (p:0.98) skorları karşılaştırmasında anlamlı fark saptanmadı.

Sonuç: COVİD-19'un adolesanlar üzerinde hastalık şiddetinden bağımsız olarak kaygı arttıran psikolojik bir etkisi vardır.

Anahtar Sözcükler: Adolesan, Kaygı, COVİD-19

INTRODUCTION

In December 2019, an outbreak of a new novel coronavirus occurred, later named SARS-Cov-2 infection, which was classified as a pandemic in March by the World Health Organization (WHO). Identification of SARS-CoV-2 is through laboratory tests by clinical findings. Children are usually asymptomatic or have mild acute respiratory infection symptoms, fever, cough, sore throat, sneezing, and myalgia and fatigue can be seen. Chinese data showed that more than 90% of the 2143 children diagnosed COVID-19 had asymptomatic, mild or moderate disease (1).

Although the direct impact of COVID-19 on adolescents seems to be less, indirect psychological consequences may have a lasting effect. Data on how COVID-19 affects adolescents are scant. The pandemic brought psychological pressure to children and adolescents. There have been reports on the psychological impact of the pandemic on the general public, adolescents, and older adults (2-4). However, no detailed study on the anxiety status of adolescents with COVID-19 has been conducted to date. We aimed to investigate the anxiety status of adolescents with mild and moderate symptoms with COVID-19 using the STAI scale.

MATERIAL and METHOD

This is a case control study and the sample size was calculated with the G*Power Version 3.1.6 program. Adolescents who were admitted to Health Sciences University, Haseki Training and Research Hospital in Istanbul between May 15th, 2020, and July 30th, 2020 aged 13-18 years were included in the study. On admission, nasopharyngeal and oropharyngeal swabs were obtained for SARS-CoV-2 and analyzed using real-time, reverse transcriptase-polymerase chain reaction (RT-PCR) assays. Patients with laboratory verified by positive test results for SARS-CoV-2 in RT-PCR assay or diagnosed by typical chest computed tomography feature of COVID-19 pneumonia by presence of ground glass opacity were enrolled in the study. Adolescents with mild and moderate symptoms included to the study and were grouped according to disease severity. Adolescents with some of the symptoms of fever, fatigue, cough, sore throat, headache, muscle pain, nausea, vomiting, diarrhea, loss of taste and smell without dyspnea, or abnormal chest imaging were enrolled in the study as mild disease group. Adolescents who has pneumonia with abnormal chest imaging and who have an oxygen saturation (SpO2) ≥94% without

oxygen support enrolled in the study as moderate disease group. Eighteen adolescents hospitalized with moderate symptoms of COVID-19 and seventeen adolescents non hospitalized with mild symptoms of COVID-19 were enrolled in the study. Adolescents with severe pneumonia and dyspne that SpO2 <94% without oxygen support, respiration rate>30/minute and dyspne were not enrolled in the study. Also those with comorbidities like diabetes mellitus, cardiac, respiratory, immunological diseases or psychiatric disorders were excluded from the study. Adolescents with the history of decease of family member with COVID-19 excluded from the study. During the clinical history collection, participants were asked about if they know about COVID-19 and if yes how they get information about the disease. All the participants had supportive treatment, patients who had antiviral therapies excluded from the study.

Adolescents aged between 13-18 years were recruited through random sampling to the control group. Control group constituted healthy adolescents with no chronic illness, psychiatric disorders, COVID-19 infection history or exposure.

After the age, sex, grade of school, symptoms, and cigarette smoking history were recorded, the STAI questionnaire was administered. Before starting the study, a physician explained the goals and methods of the study. All participants gave written consent.

The STAI was developed in 1970 by Spielberger et al. and the questionnaire can be applied participants older than 13 years old. Öner and Le Compte performed the validation and reliability of the Turkish version of STAI in Istanbul in 1983 (5).

It contains two separate scales with 20 questions and can be administered to adolescents. The State Anxiety Inventory (SAI) assess the state of anxiety of right now and the Trait Anxiety Inventory (TAI) assess the comparably constant outlook of anxiety tendency asking how participants feel in general (6).

The STAI questionnaire score ranges from 20 to 80 points. Score range of <20 points mean no anxiety, score range of 21-39 points mean mild anxiety, score range of 40-59 points mean moderate anxiety and score ranges of 60-80 points mean severe anxiety.

The study was approved by the Health Sciences University, Haseki Training and Research Hospital, Clinical Research Ethics Committee 2020-067/14.02.2020.

Statistical analysis

The SPSS 15.0 programme was used for the statistical analysis of the study. Descriptive statistics are shown as number and

percentage for categorical variables and mean±standard deviation (SD), minimum, maximum, median for numerical variables. The rates in the groups were compared with the Chi-Square Test.

Comparisons of numerical variables more than two groups were made using the One Way ANOVA test when the normal distribution condition was achieved in the groups and the Kruskal Wallis test was used when the normal distribution condition was not met. In the nonparametric test, subgroup analysis was performed with the Mann Whitney U test and interpreted with Bonferroni correction. Statistical significance was expressed as p<0.05.

RESULTS

There were 8 females and 10 males in the adolescent group with COVİD-19 with mild symptoms, and 12 females and 5 males in the adolescents with moderate symtoms and there were 20 female and 9 male in the healthy control group. There was no significant difference in terms of age (p=0.17) and sex (p=0.92) between the 3 groups (Table I). All participants were middle or high school students and all participants said that they knew about COVID-19 infection from the news or media. All the adolescents with mild and moderate symptoms had COVID-19 patient family history and COVID-19 patient exposure history. There were 2 adolescents with a history of smoking in mild symptoms group and 3 adolescents with a history of smoking in moderate symptoms group and 3 adolescents with a history of smoking in control group. In adolescents with COVID-19 there were no chest computed tomography (CT) findings in mild symptoms group but there were 13 (76%) participants with chest CT findings in moderate symptoms group.

The mean State Anxiety Inventory (SAI) score of the group with moderate symptoms was 40.3±8.1 and the SAI score of the group with mild symptoms was 42.7±10.0. The mean Trait Anxiety Inventory (TAI) score of the group with moderate symptoms was 42.9±8.5 and TAI score of the group with mild symptoms was 42.3±7.3. The healthy adolescents SAI score was 35.3±8.7 and TAI score was 37.8±9.1. The adolescents with COVİD-19 had significantly higher anxiety scores in SAI (p:0.019) and TAI (p:0.048) than healthy adolescents. (Table II).

Comparison of adolescents with mild and moderate symptoms showed no significant difference both in SAI (p:1.0) and TAI (p:0.98) scores. Comparison of adolescents with mild symptoms with healthy adolescents showed higher SAI (p:0.02) and TAI (p:0.03) scores. Comparison of moderate symptoms group with healthy group showed no significant difference both in TAI and SAI scores (p:0.21, p:0.057) (Table III).

DISCUSSION

In this study, we evaluated the anxiety scores of adolescents with COVİD-19 and the relationship between the anxiety levels and the disease severity. We noticed in our literature search that the anxiety status of adults has been investigated while pediatric data and relationship between the anxiety levels and disease severity are insufficient. Comparison of adolescents with mild and moderate symptoms did not differ significantly in our study furthermore adolescents with mild symptoms had higher levels of anxiety than the healthy adolescents.

In China, where the outbreak originated, it is found that about 2% of the confirmed cases of COVID-19 were in children and 7.1% of severe and critical confirmed child cases were adolescents (7). According to the Republic of Turkey Ministry of Health

Table I: Demographical and clinical findings of 3 groups.

	Disease severity			
	Mild n (%)	Moderate n (%)	Control n (%)	p
Sex Female Male	 8 (44.4) 10 (55.6)	 12 (70.6) 5 (29.4)	 20 (69.0) 9 (31.0)	0.170
Age Mean±SD (min-max)	 15.2±1.6 (12-17)	 14.9±1.7 (12-17)	 15.0±1.8 (12-19)	0.920
Cigarette	2 (11.1)	3 (17.6)	3 (10.3)	0.790
COV 19+ Patient family history	18 (100)	17 (100)		
COV 19+ Patient exposured history	18 (100)	17 (100)		

Table II: Comparison of SAI and TAI scores between the mild, moderate and control groups.

	Disease severity						
	Mild		Moderate		Control		
	Mean± SD	Min-Max (median)	Mean± SD	Min-Max (median)	Mean±SD	Min-Max (median)	p
SAI	42.7±10.0	28-64 (42)	40.3±8.1	27-57 (40)	35.3±8.7	23-53 (34)	0.019
TAI	42.3±7.3	26-51 (45)	42.9±8.5	27-59 (43)	37.8±9.1	24-59 (38)	0.048

Table III: Comparison of SAI and TAI scores between the mild, moderate and control groups.

	SAI p	TAI p
Disease severity		
Mild vs.		
Moderate	1.000	0.987
Control	0.022	0.030
Moderate vs.		
Control	0.214	0.057

COVID-19 situation report (30.06.2020), the rate of cases in children aged under 15 years was 7.3%, and 10 deaths had occurred in this population so far. Also death rate was 0.2% between the 10-19 years age. (8). Istanbul has seen the most COVID-19 cases among Turkish cities between May 2020-June 2020; approximately 50% of the total number of cases was in Istanbul (9). Our hospital was in the area of COVID-19 where pediatric cases were frequently seen Sultangazi, Istanbul.

There have been studies on the psychological impact of the pandemic on the general public. Studies performed after the 2003 severe acute respiratory syndrome (SARS) and 2014 Ebola outbreaks indicated very high rates of psychological distress among those who had been quarantined. During the quarantine period in the SARS and Ebola outbreaks, people had high rates of psychological distress and some hospitalized patients attempted suicide (9,10). In our study, adolescents with COVID-19 had higher levels of stait and trait anxiety and we think that isolation and being infected with a novel, potentially fatal virus, may cause feelings of loneliness and anxiety during quarantined.

During COVID-19 pandemic some studies investigated anxiety and stress levels in the general public. In the northen Spain, Ozamiz-Etxebarria et al. (11) measured levels of anxiety, stress, and depression in 976 adults and found there were higher mean levels of stress, anxiety, and depression in the 18-25-year age range than the older age ranges and especially higher levels of symptoms detected after curfew order was issued. In China, Liang et all assessed the mental health of the young people aged 14–35 after the COVID-19 pandemic and found that nearly 40.4% of the young people had a tendency to psychological problems and 14.4% of the young people had post-traumatic stress disorder symptoms (12). In another study conducted by Chen et al. (13) found that 18.9% of the adolescents had anxiety during COVID-19. All these studies suggest that more attention should be given for the left-home adolescents and necessary interventions should be made for the mental health.

COVID-19 has a psychological impact on adolescents causing higher anxiety scores independent from the disease severity.

Comparison of adolescents with mild and moderate symptoms showed no significant difference both in TAI and SAI scores. Although severity of disease worser in moderate symptoms group hospitalization of adolescents can cause feeling of safety that leading similar anxiety levels with mild symptoms group.

In COVID-19 treatment, most attention has been focused on respiratory symptoms, but adolescents with COVID-19 may experience psychological problems, including stress and anxiety. Most healthcare workers treating patients with COVID-19 have limited knowledge of mental health. While caring for adolescents with COVID-19, special attention should be paid to adolescents with pre-existing psychiatric disease. Screening for anxiety should be instituted for adolescents with COVID-19. Early detection of anxiety and interventions to prevent further psychological problems by child and adolescent psychiatrists or clinical psychologists should be made. Also, pediatricians treating adolescents during the COVID-19 pandemic should be aware of symptoms of anxiety or distress developing in their patients.

Limitations

The COVID-19 pandemic requires quarantine and isolation. Also in our country, there was a curfew for children aged under 18 years during the study period, which may precipitate new psychiatric symptoms in adolescents or aggravate existing conditions. The participant differences and psychological conditions of the adolescents are limitations of this study.

The known about this topic

Psychological problems are observed frequently in pandemic period. Quarantine and isolation can aggravate anxiety. Psychological effects of COVID-19 on adults are observed in many studies however the anxiety status of adolescents with COVID-19 has not evaluated yet.

Contribution of the study

COVID-19 has a psychological impact on adolescents causing higher anxiety scores. Pediatricians treating adolescents during the COVID-19 pandemic should be aware of symptoms of anxiety.

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