

ANXIETY, DEPRESSION AND FEAR OF COVID 19 IN ADOLESCENTS DURING THE PANDEMIC

PANDEMİ DÖNEMİNDE ADÖLESANLARDA ANKSİYETE, DEPRESYON VE COVID-19 KORKUSU

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ABSTRACT

Objectives: To define the factors affecting the anxiety and depression levels in adolescents during the epidemic period.

Materials and Methods: The Covid-19 Fear Scale, Covid-19 Anxiety Scale, and Beck Depression Scale, along with the main demographic characteristics, were applied to 639 participants aged 13-17. The Kolmogorov-Smirnov test evaluated the conformity of continuous variables to normal distribution. Mann-Whitney U-test was used to compare paired groups, and the Kruskal-Wallis test was used to compare more than two variables. The spearman correlation test was used to examine the relationship between continuous variables. Linear Regression analysis was applied to determine the predictors of fear, anxiety, and depression scale. The statistical significance level in the analysis was accepted as $p < 0.05$.

Results: The anxiety, depression, and fear scores of those who had COVID-19 and those whose relatives had COVID-19 were significantly lower. The anxiety, depression, and fear scales of girls and those whose relatives died from COVID-19 infection were significantly higher. There was a positive correlation between fear scores and anxiety and depression scores.

Conclusion: The most important result of the study is the significantly lower anxiety, depression, and COVID-19 fear scores of adolescents who were infected by COVID-19 and whose relatives were infected by COVID-19. Because the event that definitively ends the uncertainty about the disease for the individual in the short term is to be infected with the virus. The end of this uncertainty reduced anxiety and depressive symptoms in the individual. In addition, international organizations, governments and WHO should definitely cooperate in order to spread accurate information to the world from the beginning of the epidemic.

Keywords: Adolescent, Anxiety, COVID-19, COVID-19 Fear, Depression.

ÖZET

Amaç: Salgın döneminde ergenlerde anksiyete ve depresyon düzeylerini etkileyen faktörleri tanımlayabilmektir.

Materyal-Metot: Çalışmaya katılan 13-17 yaş arasındaki 639 katılımcıya başlıca demografik özelliklerle birlikte COVID-19 Korku Ölçeği, COVID-19 Anksiyete Ölçeği ve Beck Depresyon Ölçeği uygulandı. Sürekli değişkenlerin normal dağılıma uygunluğu Kolmogorov-Smirnov testi ile değerlendirilmiştir. İkili grupların karşılaştırılmasında Mann Whitney U-testi, ikiden fazla değişkenlerin karşılaştırılmasında ise Kruskal Wallis testi yapılmıştır. Sürekli değişkenlerin birbiriyle ilişkisinin incelenmesinde Spearman korelasyon testinden yararlanılmıştır. Korku, anksiyete ve depresyon ölçeğinin yordayıcılarının tespit edilmesi için Lineer Regresyon analizi uygulanmıştır. Model oluşturulurken Enter metodu kullanılmış olup korelasyon testinde anlamlı ilişki görülenler modele dahil edilmiştir. Analizlerde istatistiksel anlamlılık düzeyi $p < 0,05$ olarak kabul edilmiştir.

Bulgular: COVID-19 geçirmiş olanlar ve yakınları COVID-19 geçirmiş olanların anksiyete, depresyon ve korku puanları anlamlı bir şekilde düşük bulunmuştur. Kız çocuklarının, yakını COVID-19 enfeksiyonundan ölmüş olanların anksiyete, depresyon ve korku ölçekleri anlamlı bir şekilde yüksek bulunmuştur. Korku puanları ile anksiyete ve depresyon puanları arasında pozitif korelasyon görülmüştür.

Sonuç: Ergenlerden COVID-19 geçirmiş olanların ve yakınları COVID-19 geçirmiş olanların anksiyete, depresyon ve COVID-19 korku puanlarının anlamlı bir şekilde daha düşük bulunması kanaatimizce çalışmanın en çarpıcı sonucudur. Çünkü hastalıkla ilgili belirsizliği birey için kısa vadede kesin olarak bitiren hastalığın geçirilmesi veya yakınlarının geçirmesidir. Bu belirsizliğin bitmesi bireyde anksiyete ve depresif belirtileri geriletmiştir. Bunun yanında salgının başlangıcından itibaren dünyaya doğru bilgilerin aktarılması için uluslararası örgütler, hükümetler ve DSÖ kesin olarak iş birliği yapmalıdır.

Anahtar Kelimeler: COVID-19, Adölesan, Anksiyete, Depresyon, Covid-19 Korkusu.

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INTRODUCTION

The COVID-19 virus caused the World Health Organization to declare a pandemic in March 2020. After the first case in Turkey was reported in March 2020, the Ministry of Health announced that the virus had spread to the whole country in April. After this date, the epidemic started to affect society from a family, business life, and economic perspective, and its physical effects in Turkey and worldwide. These reasons have led to an increase in the frequency of depression and anxiety (Kujawa et al., 2020). In addition to the lockdowns during the epidemic, the uncertainty in the course of the disease, the change in social relations, and the concerns about the effectiveness of the vaccine treatment adversely affected mental health (Didin et al., 2022). Adolescents are going through a sensitive period in terms of psychology due to the physiological changes in their bodies. For this reason, adolescents who could not complete their psychosocial development were the most affected group during the epidemic (Cao et al., 2022). In studies conducted in the United States and China in 2020-21, it has been reported that mental health problems such as anxiety, depression, and post-traumatic stress disorder are more common in adolescents (Cao et al., 2022).

During the pandemic, formal education was suspended, and distance education continued. Technology has replaced the school; not all students can meet the necessary computer, tablet, and internet connection needs. Since the system is just being tested, connection problems and changing exam dates and format made it difficult for adolescents to get used to this new reality. Along with these, such as the restriction of their freedom and social life due to closures and the fear of themselves and their relatives getting sick with the virus have affected adolescents' mental health, causing anxiety and depression (Didin et al., 2022).

The possibility of natural or manufactured epidemics turning into pandemics in the developing world is increasing due to the continuous progress of transportation routes. In particular, in epidemics that will develop with factors that have not caused an epidemic, it will take time to have information about the disease's contagiousness, clinical course, and lethality. Even though these processes are shortened with the developing technology, not all of society will be able to reach the new vaccines and treatments developed against the new variant. In the people who can reach it, an influential group will approach these vaccines and treatments with suspicion, as in the COVID-19 epidemic. For these reasons, studies covering the period of the COVID-19 epidemic should also be evaluated according to their potential to determine the approach to other possible epidemics. In the present study, we tried to determine the level of anxiety and depression in adolescents who or their relatives had COVID-19, as well as the relationship between anxiety, COVID-19 fear, and depression in adolescents.

MATERIALS AND METHODS

The study was planned as a cross-sectional study. High school students between 13 and 17 participated in the study with a face-to-face survey. Beck Depression Scale was applied to the participants to determine depression. Beck depression scale consists of 21 questions under four headings in order to diagnose depression both physically and emotionally. A score between 0 and 63 is formed according to the answers given. The Turkish validity and reliability study of the Beck depression scale was performed by Aktürk et al. in 2005. The Turkish version of the scale was used in the study.

The COVID-19 Anxiety Scale was applied to the participants to measure their level of anxiety during the pandemic process. Lee SA created the survey in 2020. The Turkish validity study of the scale was performed by Evren et al. in 2020. The Turkish version of the scale was used in the study. According to the answers given in the study, a score between 0-20 was formed.

COVID-19 fear scale was applied to the participants. The scale was developed by Ahorsu et al., and it was developed by. The Turkish version of the scale was published in 2020 by Haktanır et al. by. Scoring on the scale consisting of seven questions varies between 7-35.

Ethics committee approval was obtained for the study from the Non-Invasive Clinical Studies Ethics Committee of Adiyaman University with the decision dated 26.10.2021 and numbered 2021/08-08. A questionnaire was applied to 639 participants between 01.11.2021 and 01.03.2022. Written permission was obtained from the relevant Local Education Directorate for the questionnaire application. During the study, the principles of the Declaration of Helsinki were followed.

Statistical Analysis

Analyses were evaluated in 22 package programs of SPSS (Statistical Package for Social Sciences; SPSS Inc., Chicago, IL). In the study, descriptive data are shown as n and % values in categorical data and mean±standard deviation (Mean±SD) values in continuous data. Chi-square analysis (Pearson Chi-square) was used to compare categorical variables between groups. The Kolmogorov-Smirnov test evaluated the conformity of continuous variables to normal distribution. Mann-Whitney U-test was used to compare paired groups, and the Kruskal-Wallis test was used to compare more than two variables. The Spearman correlation test was used to examine the relationship between continuous variables. Linear Regression analysis was applied to determine the predictors of fear, anxiety, and depression scale. While creating the model, the Enter method was used, and those with a significant relationship in the correlation test were included in the model. The statistical significance level in the analysis was accepted as $p < 0.05$.

FINDINGS

The study included six hundred sixteen adolescents with a mean age of 15.6 ± 1.2 (min=13-max=18). 38.3% of the participants are boys, and 61.7% are girls. When the economic situation is examined, 36% is low, 47.6% is medium, and 16.4% is high. 30% of the students was infected with the COVID-19 virus, and 51.6% have someone in their family who was infected with COVID-19 virus. A family member or relative of 7.5% of the students died due to COVID-19. 37.8% of students follow COVID news. The mean score of the students on the COVID-19 fear scale was found to be 18.8 ± 8.1 , the mean score of the COVID-19 anxiety scale was found to be 13.2 ± 4.1 , and the mean score of the Beck Depression Scale (BDS) was found to be 16.0 ± 13.6 , and 33% of the students .3 of them had depressive symptoms (Table 1).

Table 1. All characteristics of adolescents

	Number	%
Age, Mean±SD		15.6±1.2
Gender	Male	236
	Female	380
Economical situation	Low	222
	Middle	293
	High	101
COVID-19 positive in the past	Yes	185
	No	431
Family history of COVID-19	Yes	318
	No	298
A relative who died due to COVID-19	Yes	46
	No	570
Status of following COVID-19 news	Yes	233
	No	383
COVID-19 fear scale, Mean±SD		18.8±8.1
COVID-19 anxiety scale, Mean±SD		13.2±4.1
BDS, Mean±SD		16.0±13.6
BDS category	have depressive symptoms	205
	no depressive symptoms	411

The girls' fear scores ($p=0.015$) and anxiety scores ($p=0.004$) were significantly higher than the boys' scores. The fear score ($p < 0.001$) and anxiety score ($p < 0.001$) of the students who were infected with the virus were found to be significantly lower than the scores of those who did not. The fear score ($p=0.027$) and anxiety score ($p=0.006$) of the students who had a family history of COVID-19 were found to be significantly lower than the scores of those who did not have a family history of COVID-19. The fear score ($p < 0.001$) and anxiety score ($p < 0.001$) of the students who had a relative who died due to COVID-19 were found to be significantly higher than the scores of those who did not have a relative who died due to COVID-19. The fear score ($p=0.036$) and anxiety score ($p=0.017$) of the students who followed the COVID-19 news were significantly higher than those who did not follow the

COVID-19 news. The fear score ($p < 0.001$) and anxiety score ($p < 0.001$) of the students with depressive symptoms were found to be significantly higher than the scores of those without depressive symptoms (Table 2).

Table 2. Comparison of COVID-19 fear and anxiety scale scores according to various variables

		COVID-19 Fear Scale		COVID-19 Anxiety Scale	
		Ort±SS	p	Ort±SS	p
Gender	Male	17.6±7.5	0.015*	12.5±4.2	0.004*
	Female	19.5±8.4		13.7±4.0	
Economical situation	Low	19.4±7.9	0.107**	13.6±4.1	0.078**
	Middle	18.2±8.0		12.8±4.0	
	High	19.1±8.7		13.4±4.2	
COVID-19 positive in the past	Yes	16.6±7.5	<0.001*	12.3±4.2	<0.001*
	No	19.7±8.2		13.6±4.0	
Family history of COVID-19	Yes	17.9±7.4	0.027*	12.8±4.2	0.006*
	No	19.7±8.7		13.7±3.9	
A relative who died due to COVID-19	Yes	34.9±3	<0.001*	18.2±2.7	<0.001*
	No	17.5±6.9		12.8±3.9	
Status of following COVID-19 news	Yes	19.7±8.6	0.036*	13.8±4.3	0.017*
	No	18.2±7.7		12.9±3.9	
BDS category	have depressive symptoms	25.1±8.2	<0.001*	15.7±3.4	<0.001*
	no depressive symptoms	15.6±5.9		12.0±3.8	

*Mann Whitney U test, **Kruskal Wallis analysis was applied.

The BDS score of the girls ($p < 0.001$), those who did not infected with COVID-19 ($p = 0.003$), those who did not have a relative with COVID-19 ($p = 0.001$), those who had a relative who died due to COVID-19 ($p < 0.001$) and those who followed the news of COVID-19 ($p = 0.014$) were significantly high. The rate of depressive symptoms in girls (36.6%) was found to be significantly higher than the rate in boys (28%) ($p = 0.027$). The rate of depressive symptoms in those who had COVID-19 was found to be significantly lower (25.9%) than in those who did not (36.4%) ($p = 0.011$). The rate of depressive symptoms in those who had a relative with COVID-19 (29.6%) was found to be significantly lower than the rate (37.2%) without ($p = 0.043$). The rate of having depressive symptoms (97.8%) in those who had a relative who died due to COVID-19 was found to be significantly higher than the rate (27.9%) without ($p < 0.001$). The rate of depressive symptoms (38.2%) in those who followed the COVID-19 news was found to be significantly higher than the rate (30.3%) of those who did not ($p = 0.027$) (Table 3).

Table 3. Comparison of BDS scores according to various variables

		BDS		Have depressive symptoms	
		Mean±SD	p	Sayı (%)	p
Gender	Male	14.1±13.0	<0.001*	66 (28.0)	0.027***
	Female	17.2±13.9		139 (36.6)	
Economical situation	Low	16.6±13.5	0.480**	82 (36.9)	0.245***
	Middle	15.1±12.9		88 (30.0)	
	High	17.3±15.8		35 (34.7)	
COVID-19 optimistic in the past	Yes	13.2±11.2	0.003*	48 (25.9)	0.011***
	No	17.2±14.4		157 (36.4)	
Family history of COVID-19	Yes	13.9±11.6	0.001*	94 (29.6)	0.043***
	No	18.2±15.2		111 (37.2)	
A relative who died due to COVID-19	Yes	41.1±13.1	<0.001*	45 (97.8)	<0.001***
	No	14.0±11.5		159 (27.9)	
Status of following COVID-19 news	Yes	17.7±14.6	0.014*	89 (38.2)	0.027***
	No	15.0±12.9		116 (30.3)	

*Mann Whitney U test, **Kruskal Wallis analysis was applied.

There was a positive and significant correlation between the fear scale, anxiety scale, and BDS score. A positive and significant correlation was observed between the anxiety scale and the BDS score (Table 4).

Table 4. Correlation of scale scores with each other and with age

		COVID-19 Fear Scale	COVID-19 Anxiety Scale	BDS
COVID-19 Anxiety Scale	r	.448		
	p	.000		
BDS	r	.505	.400	
	p	.000	.000	
Age	r	-.004	-.042	.015
	p	.926	.295	.707

Spearman correlation analysis was applied.

According to the multiple linear regression analysis, The COVID-19 Fear Scale score was predicted by the COVID-19 Anxiety Scale ($\beta=.192$, $p=0.007$) and BDI ($\beta=.331$, $p<0.001$). The COVID-19 anxiety Scale score was predicted by the COVID-19 Fear Scale ($\beta=.062$, $p=0.007$) and BDI ($\beta=.108$, $p<0.001$). The BDI score was predicted by the COVID-19 Fear Scale ($\beta=.862$, $p<0.001$) and the COVID-19 Anxiety Scale ($\beta=.869$, $p<0.001$) (Table 5).

Table 5. Linear regression analysis of factors associated with COVID-19 fear scale, COVID-19 anxiety scale, and BDS

	β	SE	Standard β	t	p
COVID-19 Fear Scale ($R^2=0.368$; $F=178.403$; $p<0.001$)					
COVID-19 Anxiety Scale	.192	.070	.097	2.717	0.007
BDS	.331	.021	.558	15.656	<0.001
COVID-19 Anxiety Scale ($R^2=0.198$; $F=75.874$; $p<0.001$)					
COVID-19 Fear Scale	.062	.023	.123	2.717	0.007
BDS	.108	.014	.361	7.979	<0.001
BDS ($R^2=0.420$; $F=222.396$; $p<0.001$)					
COVID-19 Fear Scale	.862	.055	.512	15.656	<0.001
COVID-19 Anxiety Scale	.869	.109	.261	7.979	<0.001

DISCUSSION

In the present study, anxiety, depression, and COVID-19 fear scores of middle school and high school students were measured. The relationships of these scores with each other and with the cases of passing COVID-19 were questioned. In a study conducted with university students in the United States, anxiety and depression levels were higher in those who were infected with the COVID-19 and whose relatives were infected (Oh et al., 2021). In a study conducted with middle school and high school students in the south blind, no relationship was found between COVID-19 infection status and symptoms of depression and anxiety (Kim et al., 2022). Contrary to the general literature, in the present study, anxiety and depression levels were significantly lower in adolescents whose relatives and themselves had experienced COVID-19. Although it was thought that they would remain immune for a while after the disease, it was known from the beginning of the epidemic that the COVID-19 virus was an RNA virus, so it would not leave permanent immunity. It is considered that this situation is because a new variant causes the epidemic, and it is not known how much damage the disease will cause in which patient. At the beginning of the epidemic, the images of people served from China, the point of origin, who died of seizures or for no apparent reason, were not seen in our country during the epidemic that affected around 20 million Turkish citizens. This and similar reasons cause people not to know how to get over the disease, which increases their fear, anxiety, and depression scores. In addition, such false and distorted information-document-images spread faster than accurate information, and the damage they cause reaches irreparable magnitude. Efforts have been made to persuade our citizens to be vaccinated for the COVID-19 vaccines coming to our country. Public officials who do not want to be vaccinated must have a negative swab sample within a certain period. For effective measures to be taken during possible future epidemic periods, misinformation should be followed sensitively; WHO, international broadcasting organizations, and governments should take the necessary measures.

In a study conducted in the USA, depression scores of those who lost their relatives due to COVID-19 were significantly higher, but no difference was observed in anxiety levels (Oh et al., 2021). The COVID-19 fear levels, anxiety, and depression scores of the adolescents who lost their relatives

due to COVID-19 were significantly higher. It can be thought that this situation was caused by the fact that they had a closer process with their family members during the lockdowns. The epidemic also affected their lives in the acute period with permanent loss.

In studies conducted in South Korea, China, the USA, and Bangladesh, the anxiety and depression scores of girls were found to be higher than boys (Cao et al., 2022; Oh et al., 2021; Kim et al., 2022; Safa et al., 2021). In the present study, in line with the literature, girls' anxiety, depression, and COVID-19 fear scores were significantly higher than boys. It can be thought that the fact that girls stay at home and help more with their responsibilities at home during closures may be effective in this situation.

A study conducted with adolescents in South Korea showed that the level of fear of COVID-19 was positively correlated with anxiety and depression (Kim et al., 2022). Similar results were obtained in the present study. In addition, a positive correlation was observed between the COVID-19 fear level, depression, and anxiety scores of those who closely followed the news about COVID-19. Considering that the whole society is affected more or less during the epidemic period, it is inevitable that the COVID-19 fear score is an essential factor affecting anxiety and depression scores and symptoms.

CONCLUSION

The COVID-19 epidemic will not be the first or the last epidemic humanity has experienced. In our opinion, the most striking result of the study is that the anxiety, depression, and COVID-19 fear scores of adolescents who were infected with COVID-19 and whose relatives were infected with COVID-19 are significantly lower because it is having the disease or having it by relatives that definitively end the uncertainty about the illness for the individual in the short term. The end of this uncertainty reduced anxiety and depressive symptoms in the individual. In addition, international organizations, governments, and WHO should cooperate to spread accurate information to the world from the beginning of the epidemic.

Author Contributions

Plan, design: OK, EÖ, FK, MEP, DE; **Material, methods and data collection:** OK, MEP, FK, DE; **Data analysis and comments:** OK, EÖ, FK, MEP, DE; **Writing and corrections:** OK, MEP, EÖ, DE, FK.

Conflict of interest

The authors declare that they have no conflicts of interest.

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