Turkish Journal of Health Science and Life

The effect of coronavirus fear on cyberchondria level in students studying in the field of health

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ARTICLE INFO

RESEARCH ARTICLE

Article history:

Received: 27 June 2022

Accepted: 31 July 2022

Available : 30 August 2022

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Turkish Journal of Health Science and Life

2022, Vol.5, No.2, 142-151.

DOI: https://doi.org/10.56150/tjhsl.1141931

ABSTRACT

Objectives: This research was conducted to determine the effect of coronavirus fear on cyberchondria levels in students studying in the health field.

Materials and method: The sample of the descriptive, correlational, and cross-sectional research conducted with students at Vocational School of Health Services between March 2022 and June 2022 is 304. "Personal Information Form," "Coronavirus (Covid-19) Fear Scale," and "Cyberchondria Severity Scale Short-Form" were applied to students who accepted to participate in the study.

Results: The mean age of the students was 20.02 ± 1.15 (min: 18; max: 25); 73.0% were female. The average score of the Coronavirus (Covid-19) Fear Scale of the students participating in the study was 20.55 ± 4.47 (min: 7; max: 32), and the average score of the Cyberchondria Severity Scale was 35.93 ± 5.35 (min: 16; max: 46). It was determined that there was a statistically significant and positive relationship between the Coronavirus (Covid-19) Fear Scale and the Cyberchondria Severity Scale ($r=0.579$, $p<0.05$). Students' coronavirus fears are a major determinant of cyberchondria severity. Fear of coronavirus accounts for 33.3% of the variance in cyberchondria severity ($\beta = 0.579$, $F = 152.474$, $p < 0.001$). Accordingly, the one-unit increase in students' Coronavirus fears causes an increase of 0.579 ($\beta=0.579$) in the severity of cyberchondria.

Conclusion: As a result of the research, it was revealed that the fear of Coronavirus in students studying in the field of health affected cyberchondria. It remains unclear when the current coronavirus pandemic will end. It is recommended to conduct large-population studies to identify the psychological problems caused by the pandemic and to determine strategies to minimize these negative consequences.

Key Words: COVID 19, cyberchondria, fear of Coronavirus, health undergraduates

1. INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the seventh human Coronavirus, has posed a serious threat worldwide. The Coronavirus (Covid-19), which first appeared in Wuhan, China, in December 2019, has spread rapidly worldwide. The World Health Organization (WHO) declared the Covid-19 pandemic on March 11, 2020 (1). As of June 10, 2022, 532,201,219 confirmed cases and 6,305,358 deaths have been reported worldwide (2). In order to prevent the spread of the epidemic, countries have resorted to various preventive measures, from closing their borders to stopping international flights, from domestic transportation restrictions to curfews (3). Within the scope of preventive measures, daily life habits and social and cultural activities were suspended at once (4).

Uncertainty remains about whether Covid-19 can be controlled, how long preventive measures will be implemented, and the long-term effectiveness of effective treatment protocols (5). Like other past pandemics, Covid-19 causes fear in individuals (6). However, this fear is not limited to contracting the disease and death. It also covers economic and

future concerns, fear of transmitting the disease to someone else, and anxiety about not getting adequate and efficient health care (7).

In general, fear is the unpleasant emotion created by the perception of a threat. Covid-19 fear is expressed as the level of helplessness, anxiety, and fear felt associated with the virus. In order to better understand the development process of Covid-19 fear, Arora et al. (2020) developed the coronavirus model. According to this model, coronaphobia occurs due to psychosocial processes and external risk factors (Figure 1) (8).

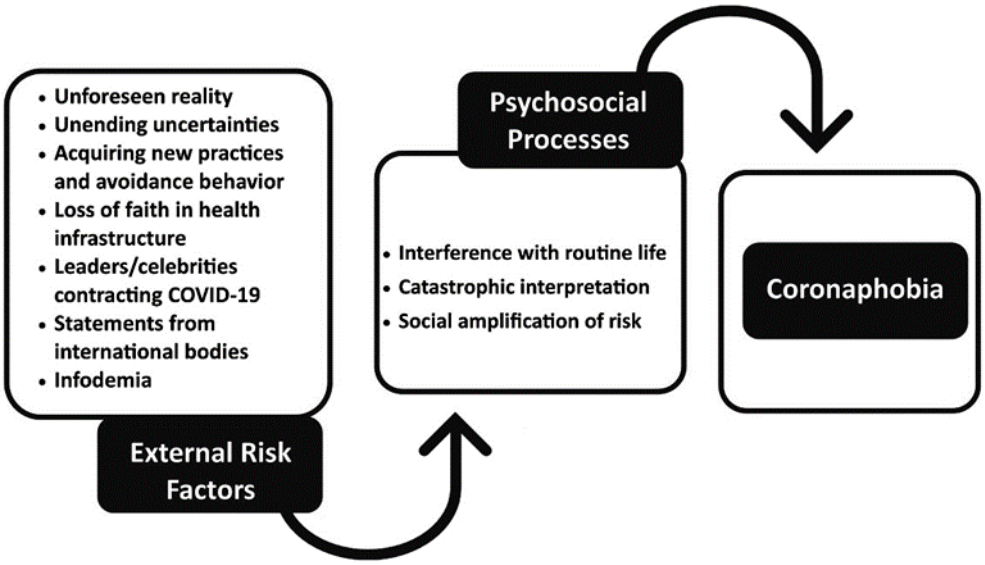

Figure 1. Conceptual model of coronaphobiac

The intensity of the health anxiety experienced by individuals is a variable structure. A low level of health anxiety is the form that is suitable for the individual to exhibit health-protective behaviours and take precautions. However, a high level of anxiety causes the individual to perceive the situation worse (9). This perception can be explained by the Cognitive-Behavioral Model of Health Anxiety developed by Salkovskis and Warwick. There are four dysfunctional beliefs in this approach that influence the intensity of health anxiety. These are; 1) the possibility of contracting the disease, 2) the scariness of the disease, 3) difficulty in coping with the disease, and 4) the inadequacy of medical services in the treatment of the disease. These dysfunctional beliefs cause physical, emotional, and behavioural reactions in individuals. For example, individuals with mild bodily symptoms may perceive this condition as related to a severe illness. As a result, when individuals experience anxiety and fear about their health, they engage in the behaviour of seeking health information (10,11).

Health information search behaviour is a concept that includes all behaviours related to protecting the health of the individual and regaining his health (5,12). The excessive and repetitive use of the internet to search for health information is described as "cyberchondria." The main difference between online health information search and cyberchondria is the causes and consequences of behaviour. Cyberchondria is not only limited to searching for health information online, and it is a condition that causes distress and anxiety in the individual. Starcevi and Berle (2013) explained the results of searching for online health information for individuals with high health concerns with the model in Figure 2 (13).

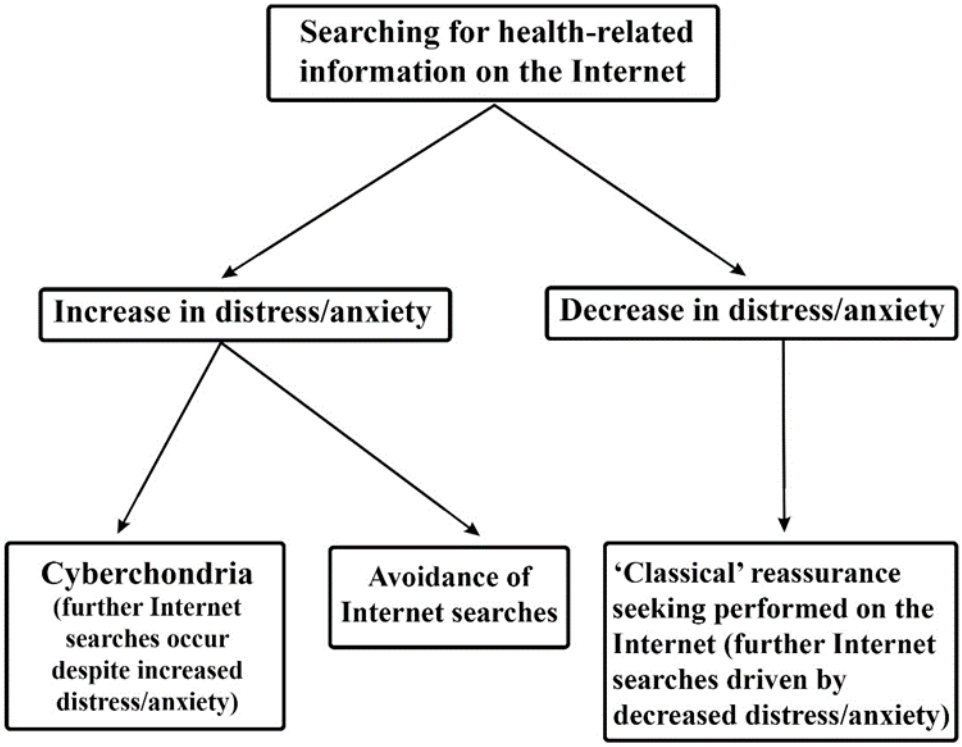

Figure 2. Results of online health information search behaviour

According to Starcevi and Berle's model, While online health information search behaviour is not a problem alone, the fact that this behaviour is long-lasting and that anxiety increases after the search behaviour are referred to as "cyberchondria." The fact that the information is not clear or insufficient allows the cyberchondria to be maintained. Often, the information that causes cyberchondria is misleading, incomplete, or inaccurate (13,14).

In order to control the spread of Covid-19, educational institutions have suspended face-to-face education activities and tried to conduct classes in online classes (15). Although educational institutions have policies about conducting online courses, students have experienced uncertainty in online courses. One of the areas whose academic programs have been most affected during the pandemic period is the health-related departments. The practical courses of the students in this program were conducted online. Failure to process applied for courses effectively in students, network problems, the uncertainty of the future, risk of being infected, and peer and parent pressure have increased anxiety levels in students (16). Students studying health may experience more health concerns due to their high self-awareness (17). A study conducted at Changzhi Medical School in China determined that 25% of students experienced health anxiety (18). In the study conducted by Kartal and Kaya (2021) with midwifery students, the cyberchondria severity scale scores were 77.44±23.01 (19). In another study examining the effect of Covid-19 on the health anxiety of nursing students, a statistically significant difference was found between the health anxiety levels of the students and their distressed, sad, overwhelmed, nervous, nervous-angry-angry, fear of virus transmission, fear of death, worried about the future ($p<0.05$) (20). While intensive work is being done to investigate the pathophysiology, clinical outcomes, and treatment of COVID-19, the psychological effects of this pandemic on future career candidates and students in central roles in health cannot be ignored, and this is an essential gap for research. For this reason, it is thought that the current study may be a source of determining the effect of coronavirus fear on cyberchondria level in students studying health and solutions in future outbreaks. Based on

this information, the current research was conducted to determine the effect of coronavirus fear on cyberchondria levels in students studying health.

2. MATERIALS AND METHODS

2.1. Type of Research

This research is a descriptive, correlational, and cross-sectional study conducted with students studying at the Vocational School of Health Services between March 2022 and June 2022.

2.2. Sample of the Research

The universe of the study consisted of 975 students studying at the Vocational School of Health Services of a state university in the spring semester of the 2021-2022 academic year. In the calculation of the sample of the study, the sample width formula, known to the universe, was used. As a result of the calculation, the sample should be at least 276 students. The research was completed with 304 students selected by a simple random sampling method.

2.3. Data Collection Forms

This study used three data collection forms: Personal Information Form, Coronavirus Fear Scale, and Cyberchondria Severity Scale Short-Form (CSS-12).

Personal Information Form

In the personal information form created by the researcher in line with the literature, four questions question the department in which the students are studying, age, gender, and chronic disease status (9, 19-21).

Coronavirus (Covid-19) Fear Scale

It was developed by Ahorsu et al. to measure individuals' fears of Coronavirus (22). The Turkish reliability and validity study of the scale was conducted by Ladikli et al. In the reliability examination of the scale, Cronbach Alpha's internal consistency coefficient was found to be 0.86 (20). The scale consists of one dimension and seven items. A high score on the scale means a high level of fear of Coronavirus (22). The scale's Cronbach Alpha, the internal consistency coefficient in this study, was 0.74.

Cyberchondria Severity Scale Short-Form (CSS-12)

This scale was developed by McElroy et al. in 2019 to measure an individual's concerns and behaviours related to searching for health information over the internet (23). The Turkish reliability and validity study of the scale was conducted by Çavmak et al. in 2021 (21). The 5-point Likert-type scale consists of 12 items. The scale consists of 4 subscales. Items 1, 3, 6 constitute the Excessiveness subscale, items 4, 8, 9 constitute the Distress subscale, 5., 11., 12 constitute the Reassurance subscale, and 2., 7., 10. constitute the Compulsion subscale. There are no propositions that should be scored inversely on the scale. The evaluation can be carried out by the same method based on factors, considering the number of propositions that make up each factor. In the scale reliability review, Cronbach Alpha's internal consistency coefficient was 0.86 (21). In this study, the Cronbach Alpha internal consistency coefficient of the scale was found to be 0.71.

2.4. Statistical Analysis

SPSS 25.0 statistical package program was used to analyze the findings obtained in the study (24). Whether the research data fit the normal distribution or not was evaluated by calculating the Kurtosis and Skewness values. The kurtosis and skewness values of the scales were between +2 and -2 (25). Descriptive data analysis gave percentage, standard deviation, frequency, and mean minimum-maximum values. Coronavirus fear and Cyberchondria scales were examined with subscales, and whether they were related to each other was examined by correlation analysis. We performed a simple linear regression analysis to determine students' covid 19 fear level effect on their cyberchondria and subscales. The level of acceptable significance was set at $p<0.05$.

2.5. Ethical Issues in Research

The research was carried out within the scope of ethical principles by considering all relevant articles of the Good Clinical Practices and Helsinki

Declaration. Ethics committee permission (Meeting No: 2022/03 Decision No: GO 2022/544) and E-76153374-302.08.01-110123 were obtained for the research. The permission of the scales used in the study was obtained. A written voluntary consent form was obtained from the study's students. The survey did not record the identity of the participants.

3. RESULT

The mean age of the students was 20.02 ± 1.15 (min: 18; max: 25), 73.0% were female, 27.0% were male, 25.7% were studying in a physiotherapy program, and 7.0% had a chronic disease (Table 1).

The mean score of the students participating in the study on the Fear of Coronavirus (Covid-19) Scale was 20.55 ± 4.47 (min: 7; max: 32), and the mean score on the Cyberchondria Severity Scale was 35.93 ± 5.35 (min: 16; max: 46), the Cyberchondria Severity Scale Excessiveness subscale mean score 9.75 ± 1.92 (min:5; max:15), Cyberchondria Severity Scale Distress subscale mean score 9.07 ± 2.08 (min:3; max:15), Cyberchondria Severity Scale Reassurance subscale mean score 8.65 ± 1.91 (min :3; max:14) and Cyberchondria Severity Scale Compulsion subscale score average is 8.45 ± 2.61 (min:3; max:13) (Table 2).

Correlation analysis was applied to test the relationship between the scales used in the study. As a result, it is seen that there is a statistically

Table 1. Distribution of the students participating in the research according to their demographic characteristics

Variables		***Min-Max***	$\bar{X}$ ***±SS***
Age		18-25	20.02±1.15
		n	***%***
Gender	Female	222	73.0
	Male	82	27.0
In which department are you studying?	First and Emergency Aid Program	68	22.4
	Anesthesia Program	66	21.7
	Operating Room Services Program	50	16.4
	Physiotherapy Program	78	25.7
	Oral and Dental Health Program	42	13.8
Do you have a Chronic Disease?	Yes	7	2.3
	No	297	97.7
Total		**304**	**100.0**

Table 2. Coronavirus (Covid-19) Fear Scale, Cyberchondria Severity Scale Subscale, and Total Scale Scores of the students participating in the study (n=304)

	$\bar{X}$	***SS***	***Median***	***Min***	***Max***
Coronavirus (Covid-19) Fear Scale	20.55	4.47	21.00	7.00	32.00
Cyberchondria Severity Scale	35.93	5.35	37.00	16.00	46.00
Excessiveness subscale	9.75	1.92	10.00	5.00	15.00
Distress subscale	9.07	2.08	9.00	3.00	15.00
Reassurance subscale	8.65	1.91	9.00	3.00	14.00
Compulsion subscale	8.45	2.61	9.00	3.00	13.00

Table 3. Relationship between the scales used in the study (n=304)

	1	**2**	**3**	**4**	**5**	**6**
1- Coronavirus (Covid-19) Fear Scale	1.000	0.579	0.091	0.370	0.413	0.521
p	-	**0.001***	0.114	**0.001***	**0.001***	**0.001***
2- Cyberchondria Severity Scale		1.000	0.477	0.597	0.670	0.730
p		-	**0.001***	**0.001***	**0.001***	**0.001***
3- Excessiveness subscale			1.000	0.146	0.087	0.058
p			-	**0.011***	0.130	0.310
4- Distress subscale				1.000	0.189	0.177
p				-	**0.001***	**0.002***
5- Reassurance subscale					1.000	0.425
p					-	**0.001***
6- Compulsion subscale						1.000
p						-

*$p<0.05$

significant and positive relationship between the Coronavirus (Covid-19) Fear Scale and the Cyberchondria Severity Scale (r=0.579, p<0.05), between the Distress Subscale (r=0.370, p<0.05), between the Reassurance Subscale (r=0.413, p<0.05) and the Compulsion Subscale (r=0.521, p<0.05).

Linear regression analysis was performed to investigate the effect of students' coronavirus fears on cyberchondria severity and subscales. According to the results of the regression analysis, when the significance levels corresponding to F values are examined, it is seen that the model is statistically significant for the Cyberchondria Severity Scale, Cyberchondria Severity Scale Distress, Reassurance, and Compulsion subscales (Table 4). Fear of coronavirus accounts for 33.3% of the variance in cyberchondria severity (β = 0.579, F = 152.474, p<0.001). The one-unit increase in coronavirus fear causes an increase in cyberchondria severity of 0.579 (β=0.579). Fear of coronavirus accounts for 13.4% of the variance in the Cyberchondria Severity Scale Distress subdimension (β = 0.173, F = 47.954, p <0.001), 16.8% of the variance in the Reassurance subdimension (β = 0.177, F = 62.273, p < 0.001) and 2.69% of the variance in the Compulsion subscale (β = 0.304, F = 112.629, p < 0.001) (Table 4).

4. DISCUSSION

In this section, the findings on the subscales of Coronavirus fear, Cyberchondria Severity, and

Table 4. The effect of students' Coronavirus fears on cyberchondria severity and subscales (n=304)

Independent Variable	***Cyberchondria Severity Scale***	***Excessiveness subscale***	***Distress subscale***	***Reassurance subscale***	***Compulsion subscale***
β	0.579*	0.039	0.173*	0.177*	0.304*
R	0.579	0.091	0.370	0.413	0.521
R^2	0.335	0.008	0.137	0.171	0.272
Adjusted R^2	0.333	0.005	0.134	0.168	0.269
F	152.474	2.515	47.954	62.273	112.629
p	<0.001	0.114	<0.001	<0.001	<0.001
Durbin-Watson	1.556	1.937	1.800	1.745	1.655

Abbreviations: ***β***, standardized regression coefficient.
*Significance level was accepted as p < 0.05

Cyberchondria Severity obtained from the research are discussed in the light of the relevant literature.

When the distribution of the Coronavirus fear scale score averages of the students participating in the research are examined, It is seen that the average score of the students on the scale is 20.55±4.47. Considering that the maximum score obtained from the scale is 35, It can be said that students' Coronavirus fears are at a moderate level. Çalışkan et al. (2021) In the study in which he examined the relationship between covid-19 fear and attitude towards the nursing profession in nursing students, the average score of the Coronavirus fear scale was determined as 15.99±5.17 (26). In another study conducted with university students, the average score of the Coronavirus fears scale of the students was found to be 16.87±6.69 (27). When the literature is examined, it is possible to find studies that have obtained similar results (28-30). Situations such as increased death rates related to Coronavirus, isolation measures, the spread of the disease, and uncertainties about the future have caused various psychological problems in university students (5,6). The fear factor is also expected to emerge in the current pandemic.

When the distributions of the students' Cyberchondria Severity scale score averages were examined, It was seen that the average score of the students on the scale was 35.93±5.35. The average score of the Students' Cyberchondria Severity Scale Excessiveness subscale was 9.75 ± 1.92, the average score of the Distress subscale was 9.07 ± 2.08, the average score of the Reassurance subscale was 8.65 ± 1.91, and the mean score of the Compulsion subscale was 8.45 ± 2.61. Jungman and Witthöft (2020) in their study; The total score of the Cyberchondria Severity Scale was 22.93±7.28; the Cyberchondria Severity Scale Excessiveness subscale score average was 2.11 ± 0.90, Distress subscale score average was 1.90 ± 0.85, Reassurance subscale score average was 1.63 ± 0.78, and Compulsion subscale score average was 1.85 ± 0.95 (31). In another study titled Using fear and anxiety related to covid-19 in the cyberchondria prediction, the total score of the Cyberchondria Severity Scale was found to be 4.93 ± 15.21 (32). The average score of the participants in the current study is higher than the overall literature average. From this point of view, a remarkable difference can be seen. Given their sampling characteristics, students studying in the health field may experience more health concerns due to their self-awareness (17). The fact that the students' average scores in the current research are higher than the studies in the literature may be due to this situation.

A positive, moderately statistically significant relationship (r=0.579, p=0.001) was found between coronavirus fear and cyberchondria severity. In the study investigating the mediating effect of cyberchondria and anxiety sensitivity on the relationship between problematic internet use, metacognition beliefs, and COVID-19 fear in Iran, it is seen that there is a positive, moderately statistically significant relationship (r=0.540, p<0.001) between coronavirus fear and cyberchondria severity (33). In their study, Jugmann and Witthöft (2020) determined that there is a weak positive relationship (r=0.340, p<0.001) between current virus anxiety and cyberchondria severity (31). A similar result was obtained in the study of Ahorsu et al. (2022) (r=0.533, p<0.001) (22). This finding of the study is consistent in the literature (34). There is uncertainty about the spread of the Coronavirus, mortality rates, and the long-term effects of the treatment process can be said to cause fear. Due to the pandemic conditions, the behaviour of searching for health information on the internet has increased. An increase in the level of cyberchondria is observed due to incorrect interpretation of information (12).

Students' Coronavirus fears are an important determinant of the severity of cyberchondria. Fear of coronavirus accounts for 33.3% of the variance in cyberchondria severity ($\beta = 0.579$, $F = 152.474$, $p < 0.001$). The 1-unit increase in coronavirus fear causes an increase of 0.579 in cyberchondria severity ($\beta=0.579$). According to the results of linear

regression analysis conducted in the study titled anxious temperament and cyberchondria mediated by fear of COVID-19 infection, anxious temperament and fear of COVID-19 self-infection were important determinants of cyberchondria. This combination accounted for 12% of the variance of the degree of cyberchondria (adjusted R2 = 0.12, with an effect size of f2 = 0.14) (35). Durmuş et al. (2022) found that fear of COVID-19 affects cyberchondria (36). A similar result was obtained in the study of university students by Sohail and Zafar (37).

Cyberchondria Severity Scale Excessiveness subscale refers to the increase and repetition of health information search behaviours, the Distress subscale refers to the anxiety felt after the searches, and the Reassurance subscale refers to the application to health professionals after the search. The Compulsion subscale refers to the inability to perform other tasks (23). In the current research, Coronavirus fear accounts for 13.4% of the variance in the Cyberchondria Severity Scale Distress subscale ($\beta = 0.173$, $F = 47.954$, $p < 0.001$), 16.8% of the variance in the Reassurance subdimension ($\beta = 0.177$, $F = 62.273$, $p < 0.001$) and 2.69% of the variance in the Compulsion subdimension ($\beta = 0.304$, $F = 112.629$, $p < 0.001$) (Table 4). Due to the pandemic conditions, there has been an increase in the internet usage rates of individuals (38). There is a lot of misinformation on the internet about COVID-19, a new virus. The spread of this misinformation is referred to as "infodemi." Based on this research finding, it can be concluded that exposure to false and misleading information during Internet searches increases cyberchondria behaviour. There are studies in the literature that support this finding of the research (31,32).

5. CONCLUSION

As a result of the research, it was found that the Coronavirus fears of the students studying in the field of health were at a moderate level (20.55±4.47), and the average score they received from the Cyberchondria Severity scale was higher than the literature (35.93±5.35). In addition, a positive, moderately statistically significant relationship ($r=0.579$, $p=0.001$) was determined between coronavirus fear and cyberchondria severity. Students' Coronavirus fears are an important determinant of the severity of cyberchondria. Fear of coronavirus accounts for 33.3% of the variance in cyberchondria severity ($\beta = 0.579$, $F = 152.474$, $p < 0.001$). Fear of coronavirus accounts for 33.3% of the variance in cyberchondria severity ($\beta = 0.579$, $F = 152.474$, $p < 0.001$). In line with these results, infodemi, which caused fear of Coronavirus and increased cyberchondria behaviour, is a major public health problem. When searching for health information online, it is recommended to focus on educational activities on how to access reliable sources. It remains unclear when the current coronavirus pandemic will end. In addition, considering that there may be different pandemics (such as monkeypox) in the future, large-population studies are needed to determine the psychological problems caused by cyberchondria and strategies to minimize these negative consequences.

Acknowledgements: We would like to thank all the students who contributed to the research.

Financial Support: This research received no grant from any funding agency/sector.

Conflicts of Interest: The authors declared no conflict of interest.

Ethical Statement: The Human Rights Declaration of Helsinki conducted the study process. Ethical approval was obtained for this study from the Non-Interventional Research Ethics Committee (Ethics Approval Number: GO 2022/544, Date: March 2, 2022).

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