

Review article

A cross-sectional study about coronavirus fear of Chinese college students in school lockdowns during the COVID-19 pandemic

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ABSTRACT

Objective: To remove the phobic psychological situation of Chinese college students who were in school lockdowns during the COVID-19 outbreak, and to provide a theoretical basis for college student psychological intervention.**Methods:** Online survey conducted from December 9, 2021, to December 11, 2021. The seven-item Fcv-19s was employed to assess fear of COVID-19 on a Likert five-point scale. Categorical data were reported as number and percentage, whereas continuous data were reported as mean \pm standard deviation. Multivariate logistic regression models were used to assess the association between different factors and anxiety symptoms.**Results:** The study population consisted of 26.02% (268) male and 73.98% (762) female, of whom approximately 84% were undergraduates. The overall mean score of the questionnaire was 16.04 ± 5.28 . Significantly more study populations reported high levels of fear (54.8%), while age, cost of life, professional category, education background ($P < 0.05$) revealed significant differences based on fear levels.**Conclusions:** More than half of the Chinese college students developed fear symptoms during the COVID-19 epidemic. Appropriate psychological interventions for college students should be implemented promptly to reduce the psychological harm induced by the COVID-19 epidemic.

1. Introduction

The coronavirus disease 2019 (COVID-19) widely and rapidly spread across the world, escalating into a global health disaster [1, 2]. COVID-19 was declared to be a Public Health Emergency of International Concern (World Health Organisation) on 30 January 2020 [3]. By January 6, 2022, the cumulative number of infected cases in the world has reached 298,502,490 with over 5,484,467 deaths (Worldometers. COVID-19 CORONAVIRUS PANDEMIC. January 6, 2022. <https://www.worldometers.info/coronavirus/> (accessed January 6, 2022)), which has become a major public health event in history.

In December 2019, the first known case of a highly contagious severe acute respiratory syndrome caused by the Novel Coronavirus (SARS-COV-2) was reported in Wuhan. The lockdown was declared on 23rd January 2020 and lifted at midnight on 8th April 2020, which has fully proved that closed management is the most effective and quickest non-

therapeutic measure to control the epidemic [4, 5]. In India, a populous country, the growth curve has been flattened by emergency closure [6]. Sweden [7], by contrast, saw a surge in infections from March 2020 to June 2020, as did the United States, which lost an estimated 36,000 lives due to delays in containment measures [8]. Fortunately, most other countries affected by the epidemic, such as Britain, France, and Portugal, have significantly reduced the number of new people per day compared with those before the closure [9, 10, 11, 12, 13]. As one of the countries that have achieved success in epidemic prevention and control in Europe, Greece mentioned that "extensive lockdowns" is the most effective measure to alleviate the economic crisis and public health events [14].

During the period of closed school management, the great changes in teaching methods and the reduction of opportunities for social interaction led to increasing anxiety among college students. The literature shows that the emergence of COVID-19 has a significant impact on college students' psychological and mental health [9, 10, 11, 12, 13]. A large amount

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of evidence shows that there are significant associations between the COVID-19 outbreak and adverse mental health problems such as stress or burnout, depression, and anxiety [15, 16]. Experts speculate that the impact of the crisis on people's mental health will last several years [17].

1.1. Psychological fear among college students during COVID-19

College students are considered as a vulnerable group for mental health problems due to the psychological challenges associated with the transition to adulthood and susceptibility to economic and material difficulties [10, 11, 12, 17]. During the COVID-19, the sudden global disaster has caused major changes in university students' learning and lifestyle, which may exacerbate the emergence of psychological problems.

The severity, mortality, and susceptibility of diseases may aggravate the fear of college students who are under lockdowns and may affect their mental health and learning efficiency during the epidemic of infectious diseases [18, 19]. Especially in the context of the global epidemic of the new variant "Omicron", the new round of epidemic broke out, and the school has to implement closed management. During this period, college students were contacting through network, mostly, which was filled with a large number of information mixed with personal subjectivity and deviating from the facts. This left college students feeling overwhelmed and in a state of deep fear [20, 21]. Therefore, we must take measures to deal with the fear psychology of college students immediately during the COVID-19 pandemic.

1.2. Research status of fear psychology of college students

In the early days of the epidemic, numerous studies were conducted and published on the impact of the outbreak on the mental health of college students. However, although there are more and more research on this topic. However, there is a lack of researches are lacking concerning the fear psychology of college students at present [17]. As college students are in the education and learning stage, it is difficult to identify the rich but complex information related to COVID-19, which inevitably generates fear. Without intervention and attention, it may leave a long-term impact on the following learning and psychological shaping and worsly, even impact on social stability. College students are important talents that cannot be missing in the future society. During the pandemic, their degrees of fear varies based on culture, educational background, and social system, defensive measures etc. For example, in a meta-analysis focused on college students' anxiety in the context of COVID-19, the prevalence of anxiety among non-Chinese college students was significantly higher than that of Chinese college students [22].

1.3. The present study

In the past month of the epidemic (November to December, 2021), we conducted a cross-sectional survey on college students in a "regional" lockdowns management using the Novel Coronavirus Fear Scale. By analyzing and comparing the high-risk factors for the psychological appearance of COVID-19 fear, it is helpful to quickly locate the group of students who may show high fear. And as soon as possible to carry out psychological intervention and prevention, to achieve the ultimate goal of avoiding the occurrence of adverse events. Meanwhile, the findings of this study will provide school policymakers and management departments with the information on how to protect students' mental health and maintain learning efficiency.

2. Materials and method

2.1. Research design and participant

This study aims to understand the fear level of college students in the COVID-19 area after a month of the outbreak. Therefore, a quick survey of 1000 respondents was planned to be completed within one week

(December 9–11, 2021). The target respondents are college students from the Chengdu University of traditional Chinese medicine. This cross-sectional online survey adopts a convenient snowball sampling technology. The questionnaire link (questionnaire star) is sent to each class. A total of 1032 students agreed to participate in the research and filled in the online questionnaire. After reviewing the content, 1030 copies were finally determined to be effectively recovered. The detailed process is shown in Figure 1.

2.2. Instruments and questionnaire

The tool applied in this questionnaire is *the Questionnaire Star* (<https://www.wjx.cn/>), which is the most commonly used online questionnaire filling tool in China. The two reviewers (KZ, STW) used Epidate to enter data, to avoided data errors caused by personal reasons. The questionnaire consists of two parts: 1. Demographic data of participants, including gender, age, education, cost of living, family, professional category, and achievement levels; 2. Covid-19 fear seven-item scale (FCV-19S) [23], developed by Ahorsu et al., was used to evaluate the fear of Covid-19, which has been tested for reliability and validity in China [24] (Supplementary Material 1).

2.3. Data processing and analysis

SPSS 26.0 software was used for data analyses. Continuous variables with normal distribution were presented as mean \pm standard deviation (SD); Non-normal variables were reported as median (interquartile range). Using the T-test of two variables and the ANOVA (analysis of variance) for three or more variables based on demographic variables. The differences in score distribution were compared by calculating the average score of individual questions and the overall average score of each group.

2.4. Ethical review and approval

This study was approved by the Ethics Committee of Hospital of Chengdu University of Traditional Chinese Medicine (Number: 2021KL-015).

3. Results

3.1. Respondent's characteristics

A total of 1032 complete responses were received, but only 1030 were used in the final analysis because two were invalid. The study population was made up of 26.02 percent (268) males and 73.98 percent (762) females, with roughly 70.49 percent falling into the 17–20 years age bracket. Only a small minority of the participants in the study have an incomplete family (10.49 percent). Graduates (15.63 percent) and undergraduates (84.37 percent) made up the majority of the study's participants. The majority of the people polled (77.77 percent) worked in medicine, and 17.38 percent students are medical-related, only a few (4.85 percent) are not-medicine. In more detail, the respondent's demographic information is presented in Table 1. And the item-wise distribution of questionnaire responses is shown in Table 2.

3.2. Factors influencing items-wise responses

In Table 3, among age groups, the scores of each question for 17-20-year-olds were higher than those for other age groups. The degree of family integrity had no effect on the score of each question; The group whose cost of living is greater than 2000 RMB (Renminbi) has the lowest average score for each question; Medicine-related scored higher than medicine and not medicine majors. It is noteworthy that undergraduate students and students in the bottom 60% scored higher on each question than students in other categories in their group.

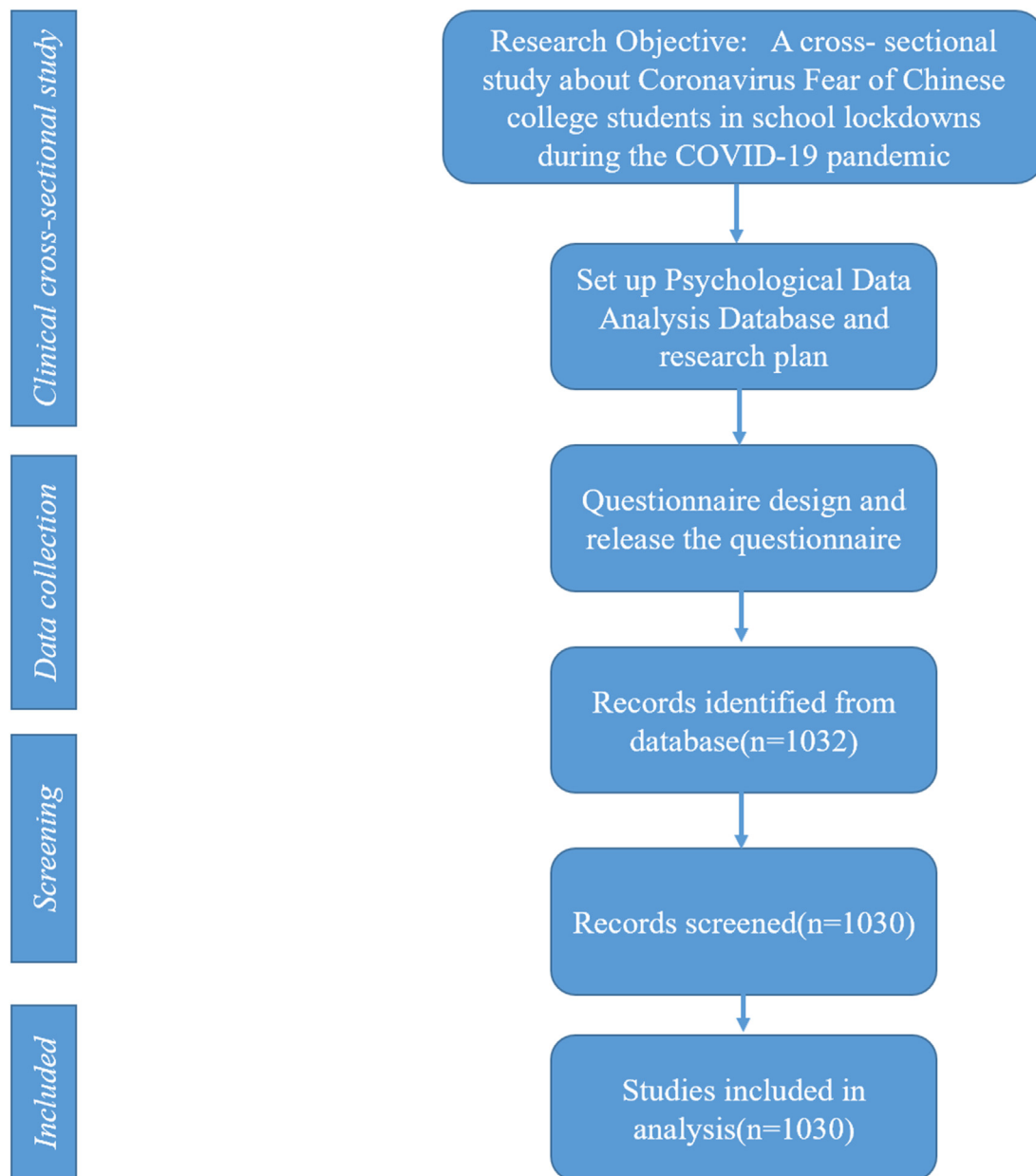


Figure 1. The flow chart of the investigation.

3.3. Factors influencing the phobic psychological situation

According to the average fear level (considered as a dividing point), the score is divided into a low fear level and high fear level. The comparison of low and high fear levels and the multiple logistic regression analysis of the fear level and demographic variables were statistically significant ($P < 0.05$).

In Table 4, the results of the ANOVA reported that age groups, cost of living, professional category, and education background had a significant effect on the levels of fear. High fear was reported by a higher percentage of the study participants (53.11 percent). In all groups, only Age ($P = 0.001^*$) and Educational background ($P = 0.001^*$) showed significant differences in the distribution of fear level. The proportion of people younger than 20 with high fear was 39.71%, and the proportion of undergraduates was 46.70%. The other groups showed not significant difference in population distribution.

The questionnaire's overall mean score (MS) was 16.04 ± 5.282 . The age group of 17–20 years ($MS = 15.90 \pm 5.38$, $P = 0.014^*$) have

significantly higher mean scores than those who are higher than 20 years; Undergraduate students ($MS = 16.21 \pm 5.25$, $P = 0.014^*$) have higher scores than the comparison group. In addition, it was revealed that those who consume in the range of 1600–2000 RMB ($MS = 16.39 \pm 5.67$, $P = 0.015^*$) have significantly higher mean scores than those who consume greater than 2000 RMB or less than 1600 RMB. Medical-related personnel ($MS = 16.96 \pm 5.40$, $P = 0.038^*$) has a higher mean score than other groups. Students who study achievement $>60\%$ ($MS = 16.86 \pm 5.57$, $P = 0.119$) have significantly higher mean scores than study achievement $\leq 60\%$.

Logistic multiple regression analysis was used to compare the ratio of fear risk among groups. The team found that male and female gender, as well as family circumstances, did not influence fear incidence rates ($OR_{Female} = 1.114$, $P = 0.449$; $OR_{Incomplete} = 1.267$, $P = 0.251$); Increasing age reduces the risk of developing high fear, and this risk continuously decreases with increasing age ($OR_{21-23} = 0.710$, $P = 0.031$; $OR_{>23} = 0.525$, $P = 0.001^*$). The increased cost of life may reduce the risk of developing high fear ($OR_{>2000} = 0.501$, $P = 0.031^*$);

Table 1. Demographic distribution of the study population.

Demographic variable	Respondents	N (%)
Gender		
Male	268	26.02%
Female	762	73.98%
Age groups		
17–20	726	70.49%
21–23	205	19.90%
> 23	99	9.61%
Family situation		
Complete	922	89.51%
Incomplete	108	10.49%
Cost of living		
≤1000	287	27.86%
1000–1500	483	46.89%
1600–2000	211	20.49%
> 2000	49	4.76%
Professional category		
Medicine	801	77.77%
Medical-related	179	17.38%
Not medicine	50	4.85%
Grade		
Undergraduate	869	84.37%
Graduate	161	15.63%
Achievement level		
< 20%	251	24.37%
20%–40%	344	33.40%
40%–60%	263	25.53%
> 60%	172	16.70%
Total	1030	100.00%

Medical related students had higher fear risk ratios than medical students ($OR_{\text{Medical-related}} = 1.505$, $P = 0.016^*$); Undergraduate classmates were at a significantly higher risk of developing high fear compared with postgraduate classmates ($OR_{\text{Undergraduate}} = 1.784$, $P = 0.001^*$). Among the subgroups ranked by grade, classmates with scores ranked >60% had a higher proportion of high fear of risk ($OR_{>60\%} = 1.58$, $P = 0.023^*$) (Table 5).

4. Discussion

Low pathogenicity and high transmissibility are the salient features of COVID-19 at present [1, 2, 3]. Since the outbreak in Wuhan, China, in 2019, all provinces in China have been under lockdowns to control the spread of the virus in the shortest possible time. Within two years, almost every country in the world has experienced COVID-19, and the public

health strategy of closed-door management is currently considered the most effective way to contain local outbreaks [25, 26]. In November 2021, Chengdu experienced the latest round of COVID-19. On the one hand, fear monitoring during the blockade can help locate high-risk groups among students and carry out an early intervention. On the other hand, appropriate fear can help implement prevention and control management measures. Of course, this does not mean that the public government needs to spread panic-causing remarks.

We should pay more attention to psychological problems in the middle and later stages of COVID-19. We aim to assess the impact of New Coronavirus on China medical students by using the COVID-19 fear scale (FCV-19S).

4.1. Traumatic psychological problems in the aftermath of the pandemic

After a major disaster, it is often difficult for people to get out of this tragedy, and the COVID-19 is a global disaster in which countless people have died due to infection in the past 2 years [1, 2, 27]. Larger epidemics have now passed. However, sporadic outbreaks have repeatedly stimulated recollection of this painful experience, causing traumatic stress psychological disorder [28, 29].

A range of psychological surveys has been conducted in different countries for different populations during the pandemic. In surveys of university students in Greece and the United States [30, 31], both reported that college students had increased levels of depressive thoughts and even more pronounced suicidal tendencies during the COVID-19 pandemic. A Swiss study [32] focused on psychological contrasts among college students before and after the blockade suggested that students were more depressed, anxious, nervous, solitary during the blockade. Similarly, in a large French nationwide study, the prevalence of distress, depression, anxiety, and stress was high among students who were isolated compared with pre-pandemic, and even a large proportion had suicidal tendencies. Pre epidemic anxiety disorder prevalence was 9.8%, while in a survey on isolation times 27.5% of students reported high levels of anxiety on questioning and 22.4% reported severe distress [33, 34]. Chinese people are more valuable the notion of life and death due to socio-cultural differences, most of whom are not ready to face a loved one's sudden death and worry about their lives [35, 36, 37], which leads to a near step aggravation of anxiety into a fear of the COVID-19, which is the manifestation of anxiety being sudden from unconscious layer to conscious layer [38, 39, 40].

4.2. The high-risk group with a phobic psyche

In our study of phobic psychology, we found that 53.11% of the college student group presented high fear of the COVID-19. Moreover, students older than 20 years old and living expenses greater than 2000 RMB have a lower risk of fear, and demographic variables such as undergraduate students, students with majors related to medicine, and

Table 2. Item-wise distribution of responses.

Items	N (%)				
	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1. I am very afraid of coronavirus-19	107 (10.4)	270 (26.2)	393 (38.2)	190 (18.4)	70 (6.8)
2. It makes me uncomfortable to think about coronavirus-19.	144 (14.0)	323 (31.4)	316 (30.7)	205 (19.9)	42 (4.1)
3. My hands become clammy when I think about coronavirus-19	396 (38.4)	433 (42.0)	160 (15.5)	30 (2.9)	11 (1.1)
4. I am afraid of dying because of coronavirus-19	201 (19.5)	294 (28.5)	235 (22.8)	251 (24.4)	49 (4.8)
5. When watching news and stories about coronavirus-19 on social media, I become nervous or anxious.	156 (15.1)	358 (34.8)	289 (28.1)	203 (19.7)	24 (2.3)
6. I cannot sleep because I'm worrying about getting coronavirus-19	489 (47.5)	381 (37.0)	130 (12.6)	20 (1.9)	10 (1.0)
7. My heart races or palpitates when I think about getting coronavirus-19	442 (42.9)	395 (38.3)	158 (15.3)	26 (2.5)	9 (0.9)

Table 3. Item wise mean score comparison based on demographic variables.

Variable	I1	I2	I3	I4	I5	I6	I7
Gender							
Male	2.75 ± 1.08	2.65 ± 1.06	1.94 ± 0.90	2.61 ± 1.19	2.49 ± 1.04	1.78 ± 0.83	1.84 ± 0.85
Female	2.89 ± 1.05	2.70 ± 1.07	1.83 ± 0.84	2.68 ± 1.17	2.63 ± 1.04	1.70 ± 0.83	1.79 ± 0.85
p value	0.060	0.540	0.066	0.409	0.048*	0.193	0.436
Age groups							
17–20	2.90 ± 1.07	2.73 ± 1.07	1.89 ± 0.87	2.74 ± 1.19	2.65 ± 1.05	1.72 ± 0.84	1.83 ± 0.87
21–23	2.72 ± 0.99	2.59 ± 1.03	1.82 ± 0.81	2.46 ± 1.06	2.47 ± 0.95	1.75 ± 0.77	1.77 ± 0.78
> 23	2.80 ± 1.09	2.58 ± 1.12	1.74 ± 0.88	2.49 ± 1.24	2.40 ± 1.08	1.67 ± 0.89	1.67 ± 0.87
p value	0.089	0.123	0.186	0.004*	0.012*	0.703	0.178
Family situation							
Complete	2.85 ± 1.05	2.69 ± 1.06	1.86 ± 0.86	2.67 ± 1.18	2.59 ± 1.04	1.72 ± 0.84	1.80 ± 0.86
Incomplete	2.86 ± 1.12	2.65 ± 1.11	1.85 ± 0.81	2.59 ± 1.18	2.62 ± 1.06	1.70 ± 0.74	1.81 ± 0.74
p value	0.912	0.687	0.905	0.511	0.778	0.835	0.947
Cost of living							
≤1000	2.75 ± 1.03	2.63 ± 1.00	1.95 ± 0.83	2.64 ± 1.17	2.57 ± 1.00	1.76 ± 0.82	1.86 ± 0.84
1000–1500	2.90 ± 1.05	2.69 ± 1.08	1.83 ± 0.87	2.69 ± 1.17	2.61 ± 1.03	1.71 ± 0.83	1.78 ± 0.84
1600–2000	2.97 ± 1.06	2.82 ± 1.08	1.89 ± 0.89	2.70 ± 1.20	2.64 ± 1.09	1.76 ± 0.86	1.87 ± 0.92
> 2000	2.43 ± 1.10	2.45 ± 1.24	1.57 ± 0.71	2.43 ± 1.23	2.29 ± 1.06	1.37 ± 0.64	1.41 ± 0.57
p value	0.003*	0.094	0.020*	0.497	0.161	0.016*	0.003*
Professional category							
Medicine	2.82 ± 1.03	2.67 ± 1.06	1.85 ± 0.85	2.61 ± 1.15	2.57 ± 1.01	1.71 ± 0.82	1.78 ± 0.83
Medical related	3.05 ± 1.10	2.75 ± 1.08	1.91 ± 0.86	2.89 ± 1.27	2.70 ± 1.10	1.75 ± 0.82	1.90 ± 0.88
Not medicine	2.62 ± 1.18	2.72 ± 1.21	1.94 ± 0.98	2.62 ± 1.26	2.54 ± 1.23	1.78 ± 1.02	1.78 ± 1.08
p value	0.009*	0.667	0.523	0.016*	0.322	0.692	0.234
Education background							
Undergraduate	2.87 ± 1.05	2.72 ± 1.06	1.88 ± 0.86	2.71 ± 1.17	2.64 ± 1.04	1.73 ± 0.83	1.82 ± 0.85
Graduate	2.72 ± 1.07	2.53 ± 1.11	1.75 ± 0.85	2.41 ± 1.20	2.35 ± 1.02	1.68 ± 0.85	1.72 ± 0.85
p value	0.089	0.047*	0.062	0.003*	0.001*	0.480	0.190
Achievement level							
< 20%	2.71 ± 1.10	2.65 ± 1.13	1.75 ± 0.83	2.64 ± 1.23	2.55 ± 1.04	1.61 ± 0.78	1.73 ± 0.84
20%–40%	2.92 ± 1.06	2.65 ± 1.03	1.84 ± 0.84	2.64 ± 1.16	2.62 ± 1.05	1.72 ± 0.83	1.76 ± 0.81
40%–60%	2.86 ± 0.99	2.70 ± 1.04	1.88 ± 0.83	2.66 ± 1.16	2.51 ± 1.01	1.72 ± 0.82	1.82 ± 0.87
> 60%	2.90 ± 1.07	2.81 ± 1.08	2.05 ± 0.94	2.76 ± 1.16	2.73 ± 1.06	1.88 ± 0.90	1.97 ± 0.89
p value	0.095	0.391	0.003*	0.723	0.136	0.011*	0.024*
Total	2.85 ± 1.06	2.69 ± 1.07	1.86 ± 0.86	2.66 ± 1.18	2.59 ± 1.04	1.72 ± 0.83	1.80 ± 0.85

*p < 0.05 statistically significant.

students with grades in the last 60% have a higher risk of greater fear of COVID-19. Therefore, we can roughly infer that students with low grades (relatively young) and students with high ranking grades are more likely to experience a high fear psyche.

4.3. Causes of college students' high fear

This study found that older, higher educated, and top-achieving college students had a lower psychological risk of fear reported that those who knew more about the COVID-19 were less likely to experience anxiety, depression, and psychological abnormalities than those with less knowledge [20, 21, 41, 42]. Older age, higher educational attainment, and high achievement levels may represent a richer accumulation of knowledge and a greater understanding of the novel coronaviruses. “Rumors are a source of fear”, there have been reported substantial media exposure to COVID-19 that may increase the risk of acute stress and anxiety symptoms [4, 21, 43, 44, 45]. Fear will lead to a lack of rational thinking [46, 47], and lack of thinking will make it difficult for us to distinguish between rumors and correct information, thus aggravating fear and forming a vicious circle [48]. This may be because individuals have difficulty obtaining effectively and truly true information from media messages [49].

Senior students with lower grades may have a lower risk of fear because they have stronger rational thinking. Our analysis, in which medical students have a more formal channel of expertise skills reserves, and knowledge sources for better and faster screening of useful information than common college students and non-medical professionals, may also explain why medical students exposed to more relevant messages instead have a lower psychological risk of this phenomenon [50]. In previous studies, female students are more likely to have negative emotions such as anxiety than male students [32, 51, 52] (Greece, Switzerland, France). In this study, there is no difference between men and women, which may be due to the large difference in the proportion of men and women in this study.

4.4. Additional information from the fear of COVID-19 survey

The mean score of this investigation among the population was 16.04 ± 5.28, which suggested that we should take positive measures to help fighting fear and encouraging the exchange with their surrounding classmates to better understand the stress and fear while getting more information sources to improve their ability to fight fear. To our delight, many studies have shown that appropriate negativity can also have positive effects, with students putting in more time to achieve better

Table 4. Levels of fear and mean score comparison based on variables.

Variable	N (%)				p value	Mean - SD	p value
	Low	High					
Gender							
Male	131	12.72%	137	13.30%	0.492	15.90 ± 5.38	0.613
Female	352	34.17%	410	39.81%		16.09 ± 5.25	
Age groups							
17–20	317	30.78%	409	39.71%	0.001*	16.34 ± 5.29	0.014*
21–23	107	10.39%	98	9.51%		15.46 ± 4.97	
> 23	59	5.73%	40	3.88%		15.02 ± 5.67	
Family situation							
Complete	438	42.52%	484	46.99%	0.294	16.08 ± 4.78	0.928
Incomplete	45	4.37%	63	6.12%		16.03 ± 5.34	
Cost of living							
≤1000	133	12.91%	154	14.95%	0.134	16.02 ± 5.23	0.015*
1000–1500	221	21.46%	262	25.44%		16.13 ± 5.10	
1600–2000	98	9.51%	113	10.97%		16.39 ± 5.67	
> 2000	31	3.01%	18	1.75%		13.73 ± 5.26	
Professional category							
Medicine	389	37.77%	412	40.00%	0.064	15.84 ± 5.16	0.038*
Medical related	69	6.70%	110	10.68%		16.96 ± 5.40	
Not medicine	25	2.43%	25	2.43%		16.00 ± 6.42	
Education background							
Undergraduate	388	37.67%	481	46.70%	0.001*	16.21 ± 5.25	0.014*
Graduate	95	9.22%	66	6.41%		15.10 ± 5.40	
Achievement level							
< 20%	126	12.23%	125	12.14%	0.065	15.63 ± 5.12	0.119
20%–40%	163	15.83%	181	17.57%		15.93 ± 5.28	
40%–60%	127	12.33%	136	13.20%		16.05 ± 5.22	
> 60%	67	6.50%	105	10.19%		16.86 ± 5.57	
Total	483	46.89%	547	53.11%		16.04 ± 5.28	

*p < 0.05 statistically significant.

Table 5. Multiple logistic regression analysis of levels of fear with demographic profile.

Demographic variables	N	Percentage	High fear	N (%)	OR	95% OR		p value
						Lower	Upper	
Gender								
Male	268	26.02%	137	51.12%	Ref			
Female	762	73.98%	410	53.81%	1.114	0.843	1.472	0.449
Age groups								
17–20	726	70.49%	409	56.34%	Ref			
21–23	205	19.90%	98	47.80%	0.710	0.520	0.969	0.031*
> 23	99	9.61%	40	40.40%	0.525	0.343	0.806	0.001*
Family situation								
Incomplete	108	10.49%	63	58.33%	1.267	0.846	1.897	0.251
Complete	922	89.51%	484	52.49%	Ref			
Cost of living								
≤1000	287	27.86%	154	53.66%	Ref			
1000–1500	483	46.89%	262	54.24%	1.024	0.764	1.372	0.875
1600–2000	211	20.49%	113	53.55%	0.996	0.697	1.422	0.982
> 2000	49	4.76%	18	36.73%	0.501	0.268	0.937	0.031*
Professional category								
Medicine	801	77.77%	412	51.44%	Ref			
Medical-related	179	17.38%	110	61.45%	1.505	1.081	2.097	0.016*
Not medicine	50	4.85%	25	50.00%	0.944	0.533	1.672	0.844
Education background								
Undergraduate	869	84.37%	481	55.35%	1.784	1.268	2.510	0.001*
Graduate	161	15.63%	66	40.99%	Ref			

(continued on next page)

Table 5 (continued)

Demographic variables	N	Percentage	High fear	N (%)	OR	95% OR		p value
						Lower	Upper	
Achievement level								
< 20%	251	24.37%	125	49.80%	Ref			
20%–40%	344	33.40%	181	52.62%	1.119	0.808	1.550	0.497
40%–60%	263	25.53%	136	51.71%	1.079	0.828	1.407	0.665
> 60%	172	16.70%	105	61.05%	1.58	1.065	2.342	0.023*

*p < 0.05 statistically significant.

academic performance during lockdown because they are worried about not being able to complete their studies [53, 54]. Therefore, we should add lectures on COVID-19 knowledge, disinfection and prevention, and popular science lectures to help students establish a correct psychological and knowledge system, so as to reduce the risk of high fear among students.

4.5. Limitations and deficiencies

The study has certain limitations: Firstly, this study is limited by its cross-sectional nature and considering the lockdown situation due to the COVID-19 outbreak, we adopted the online convenience sampling strategy that was not based on a random selection of the sample. Therefore, making causal inferences was not possible. And the possibility of sampling bias should be considered, emphasizing the need for prospective longitudinal studies. Finally, this study relied on self-reported answers regarding experience during the school-quarantine stay which may not align with a clinical diagnosis of the mental health professional. In the future, we aim to conduct a large sample multicenter survey to supplement the findings of this study.

5. Conclusion

In conclusion, the fear level of medical students was as high as 53.11%, which was significantly higher than the average level of anxiety during the epidemic. Similarly, among medical students, the study found age group of 17–20 years, medical-related, undergraduate, and study achievement > 60% all had considerably higher probabilities of having a high level of dread. This may be because they are more likely to be induced by false information due to their incomplete understanding of the novel coronavirus. I believe our study makes a significant contribution to the literature because it is the first study to address the phobic psychology of Chinese medical students. Government-related departments and colleges should strengthen the management of fear psychological monitoring among college students, and carry out health education and health promotion activities in a wide depth. Furthermore, our study does not address the exploration of countermeasures.

Declarations

Author contribution statement

All authors listed have significantly contributed to the development and the writing of this article.

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Data availability statement

Data included in article/supp. material/referenced in article.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

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