

# Assessment of corona-phobia in university students with the COVID-19 Phobia Scale (C19P-S): A cross-sectional analysis

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## ABSTRACT

**Introduction.** Disease phobia may impose distressing manifestations along with compromised quality of life, particularly in young age. COVID-19 caused substantial psychological concerns in general population which required the attention of health authorities to address the issue as soon as possible. **Objective.** This study was aimed to determine COVID-19 phobia in Pakistani youth during the current pandemic. **Method.** A cross-sectional study was conducted to ascertain the extent of fear of COVID-19 among university students in Lahore, Pakistan using the COVID-19 Phobia Scale (C19P-S). Psychological, somatic, social, and economic factors were ascertained among students. The relationship of demographics with the phobia score was determined through appropriate statistical tests. **Result.** This study included 374 students with a male preponderance (64.7%). The mean C19P-S score was  $59.08 \pm 14.44$  (IQR: 50 - 70), with no significant difference among demographics except gender (male  $57.65 \pm 14.77$  vs female  $61.70 \pm 13.47$ ;  $p = .009$ ). The mean psychological, psycho-somatic, economic, and social subscale scores were  $19.59 \pm 5.00$  (25<sup>th</sup> percentile = 16 and 75<sup>th</sup> percentile = 24),  $12.29 \pm 4.56$  (25<sup>th</sup> percentile = 10 and 75<sup>th</sup> percentile = 15),  $11.22 \pm 3.67$  (25<sup>th</sup> percentile = 8 and 75<sup>th</sup> percentile = 14) and  $15.97 \pm 4.04$  (25<sup>th</sup> percentile = 13.75 and 75<sup>th</sup> percentile = 19), respectively. Male students had a significantly lower score on social and psychological subscales than females ( $p < .05$ ). **Discussion and conclusion.** One fourth of the students achieved a fear score  $> 70$  on C19P-S. These results indicate the need of dire maneuvers for reducing corona-phobia among university students.

**Keywords:** COVID-19, fear, phobia, Pakistan, coronavirus, students, youth, phobia scale.

## RESUMEN

**Introducción.** La fobia a las enfermedades puede imponer malestar psicológico y comprometer la calidad de vida, particularmente en edades tempranas. El COVID-19 causó serias preocupaciones psicológicas en la población en general y éstas requieren la atención de las autoridades de salud para abordar el problema cuanto antes. **Objetivo.** Este estudio buscó determinar la fobia al COVID-19 en jóvenes paquistaníes durante la pandemia actual. **Método.** Se realizó un estudio transversal basado en la web para evaluar el miedo al COVID-19 entre los estudiantes universitarios en Lahore; para esto se utilizó la Escala de Fobia COVID-19 (C19P-S). Se evaluaron factores psicológicos, somáticos, sociales y económicos entre los estudiantes. La relación de la demografía con la puntuación de fobia se determinó mediante pruebas estadísticas apropiadas. **Resultados.** Este estudio incluyó a 374 estudiantes con preponderancia masculina (64.7%). La puntuación media de C19P-S fue  $59.08 \pm 14.44$  (IQR: 50 - 70), sin diferencias significativas entre los datos demográficos, excepto el género (hombres  $57.65 \pm 14.77$  versus mujeres  $61.70 \pm 13.47$ ;  $p = .009$ ). Las puntuaciones medias de las subescalas psicológicas, psicósomáticas, económicas y sociales fueron  $19.59 \pm 5.00$  (percentil 25 = 16 y percentil 75 = 24),  $12.29 \pm 4.56$  (percentil 25 = 10 y percentil 75 = 15),  $11.22 \pm 3.67$  (percentil 25 = percentil 8 y 75 = 14) y  $15.97 \pm 4.04$  (percentil 25 = 13.75 y percentil 75 = 19), respectivamente. Los estudiantes varones obtuvieron una puntuación significativamente menor en las subescalas sociales y psicológicas que las mujeres ( $p < .05$ ). **Discusión y conclusión.** Una cuarta parte de los estudiantes obtuvo una puntuación de miedo  $> 70$  en la C19P-S. Estos resultados indican la necesidad de aplicar medidas extremas para reducir la fobia al Coronavirus entre los estudiantes universitarios.

**Palabras clave:** COVID-19, miedo, fobia, Pakistan, coronavirus, estudiantes, juventud, escala de fobia.

## INTRODUCTION

Fear is a powerful primitive emotion that stems from perceived danger or threat of harm, whether physical or emotional, real or imagined. Like all human emotions, it can be mild to severe depending upon situations and individuals. If it is not well-calibrated to the actual danger (intense fear or insufficient fear), it can be counterproductive (Mertens, Gerritsen, Duijndam, Salemin, & Engelhard, 2020). Inadequate fear results in harm to self and/or others (e.g., anti-maskers, anti-vaxxer, people ignoring social distancing, or reckless government policies ignoring risks). At the same time, overwhelming fear can result in several mental health problems: e.g., phobias, hysteria, anxiety, depression, and suicides, all of which have been evident during the ongoing COVID-19 global pandemic (Mamun & Griffiths, 2020; Mamun & Ullah, 2020; Bhuiyan, Sakib, Pakpour, Griffiths, & Mamun, 2020; Dsouza, Quadros, Hyderabadwala, & Mamun, 2020). It also has damaging impact on society as a whole (e.g., stigmatization, discrimination, xenophobia, and hate crimes; [Abuhammad, Alzoubi, & Khabour, 2021; Villa et al., 2020; Choi, 2021; Viladrich, 2021]).

Being the youngest country in the region, almost 30% of the population in Pakistan ranges from 15 to 29 years. A recent meta-analysis pooled the prevalence of depression at 42.66% from 26 studies conducted among Pakistani students before the pandemic (Khan, Akhtar, Ijaz, & Waqas, 2021b). Another pre-pandemic study reported 31.4% suicidal ideation among students in Pakistan (Khokher & Khan, 2005). In turn, Bibi, Blackwell, and Margraf (2021) conducted a study on the psychological health of university students before the COVID-19 pandemic and indicated that 40% of university students had a lifetime history of suicidal ideation. In addition, 7% of participants reported to have made a suicide attempt. Furthermore, authors also observed the high levels of psychological problems along with lower levels of social support and subjective happiness among Pakistani students when compared to German and Chinese students (Bibi et al., 2021). Similar findings were observed in another study conducted just before the onset of the pandemic (Asif, Mudassar, Shahzad, Raouf, & Pervaiz, 2020). Considering these figures, it is highly plausible that the COVID-19 pandemic deteriorated the mental health of students in the country. In Pakistan, people of all ages and walks of life have been affected badly due to COVID-19 crisis. Data from the general population of Pakistan showed a high prevalence (41.2%) of poor well-being (Khan et al., 2021a). Mamun and Ullah (2020) reported 16 suicide cases (12 completed and 4 attempts) related to COVID-19 issues during the first wave of the disease in Pakistan. A study reported 34% anxiety and 45% depression among university students during the first COVID-19 lockdown in Pakistan (Salman et al., 2020a).

Another study revealed that 21.4% and 21.9% of Pakistani healthcare workers suffered from moderate to severe anxiety and depression during the pandemic (Salman et al., 2022). This indicated a significantly greater psychological impact of COVID-19 pandemic among young people as compared to healthcare workers who are considered one of the most vulnerable populations.

The continuous spread of COVID-19, conspiracy theories and blame-games; sensational media broadcasting; fear of getting infected and transmitting it to loved-ones; strict lockdowns/movement restriction orders; financial loss and economic recession are some of the main factors influencing the mental well-being of people (Salman et al., 2020a). Furthermore, the devastating situation of COVID-19 in the neighboring country (India) and the detection of newer variants (South-African, Brazilian, and Indian) of SARS-CoV-2 in Pakistan has raised fears in people (Mint, 2021; Latif, 2021). Current pandemic and lockdowns have a greater impact on the emotional and social development on youth as compared to older people. Likewise, young people may manifest more symptoms of anxiety and fear of family members being infected than older ones (Singh et al., 2020). Moreover, the impact of pandemic on students cannot be disregarded as they represent a large portion of the country's population and are also considered vulnerable to contagion. Since students can also serve as public educators, their positive behavior is of utmost importance to curb the growing encumbrance of the disease (Fatima et al., 2022). There is a paucity of information related to corona-phobia among Pakistani students (Salman et al., 2020a). Most studies have focused on assessing fear of COVID-19 among health professionals (Amin, 2020; Saleem et al., 2020; Malik et al., 2021; Majeed et al., 2021). In this context, the present study was conducted to ascertain the corona-phobia and its predictors among educated Pakistani youth.

## METHOD

### Design of study and participants

This study opted for a web-based cross-sectional design due to closure of educational institutions during the third wave of COVID-19 in Pakistan (World Health Organization, 2020; Government of Pakistan, 2022). The study was conducted from 1 to 31 May, 2021, among students from public and private universities in Lahore, Pakistan. It is the second largest metropolis of Pakistan and it is also home of the highest number of educational institutions receiving numerous students across the country. Only enrolled students willing to participate were included in this study. The study flow diagram is described in Figure 1.

## Sample size

The required sample size for the current study was estimated using the proportional formula on the OpenEpi (version 3.01);  $n = (DEFF * Np[1-p]) / (d^2 / Z^2 * 1 - \alpha / 2 * [N - 1] + p * [1 - p])$ . OpenEpi is easy to use web-based epidemiologic and statistical calculator for training and/or practice in the field of public health and medicine (Sullivan, Dean, & Soe, 2009). As suggested by the developers (<https://www.openepi.com/SampleSize/SSPropor.htm>), the population size was kept at one million and an anticipated frequency of 50% with 95% confidence interval in the formula, yielding a sample size of 381 to assess the prime objectives of this study.

## Measurements

As the primary outcome of the current study was corona-phobia, we used COVID-19 Phobia Scale (C19P-S) to assess fear of COVID-19 among university students. The C19P-S is a valid and reliable self-reported instrument based on DSM-V specific phobia criteria (Arpaci, Karatas, & Baloglu, 2020; Arpaci, Karatas, Baloglu, & Haktanir, 2022). This tool contains 20 items which evaluate several aspects of COVID-19 phobia. The tool is further divided into four sub-scales including Psychological, Psycho-so-

matic, Economic, and Social. All the items were evaluated on a 5-point Likert scale including “strongly disagree (1),” “disagree (2),” “agree (3),” “generally agree (4),” to “strongly agree (5).” The total score is estimated by adding the scores of all the responses. The total score of each participant ranges from 20 to 100, with higher score indicating the greater extent of corona-phobia. Subscale score of C19P-S was calculated as follows; *psychological factors* (items 1, 5, 9, 13, 17, and 20), *Somatic factors* (items 2, 6, 10, 14, and 18), *Social factors* (items 3, 7, 11, 15, and 19) and *Economic factors* (items 4, 8, 12, and 16; Arpaci et al., 2020). Cronbach alpha coefficient of the original C19P-S was .925 and subscale reliabilities ranged from .851 - .903 (Arpaci et al., 2020). Furthermore, C19P-S was found to have good construct (goodness of fit index = .979, adjusted goodness of fit index = .967, normed fit index = .981, incremental fit index = .986, Tucker-Lewis fit index = .981, comparative fit index = .986, and root mean squared error of approximation = .035), convergent (composite reliability > .70 and average variance extracted > .50), and discriminant validity.

## Translation and validation

As the primary language of higher education in the country is English, it was not needed to translate C19P-S into the national language (Urdu) of Pakistan (Salman et al. 2020b; Salman et al. 2020c; Mustafa et al., 2022). For content validation, the study tool was thoroughly evaluated by an expert panel and, after suggested revisions, it was approved for the data collection in the present study. We also tested the questionnaire among thirty students at The University of Lahore. None of the participants reported any difficulty in understanding the questions and their response options. In addition, Cronbach’s alpha value was found out to be .927, indicating good internal consistency of the study instrument. Furthermore, the Cronbach’s alpha value was .916 in the final study sample (N = 374).

## Statistical analysis

Responses from the online database (The Google Drive) were initially cleaned through Microsoft spreadsheet. Following the variable coding, all the data were subjected to analysis through SPSS. Continuous data were described as mean  $\pm$  standard deviation (SD) along with 25<sup>th</sup> and 75<sup>th</sup> percentiles, while categorical data were presented with frequencies (N) along with percentages (%). The continuous data having 2 by 2 table was compared by independent student t-test. The continuous data with trichotomous or multinomial variables were subjected to one-way ANOVA. An alpha value of < .05 was considered statistically significant for all inferences.

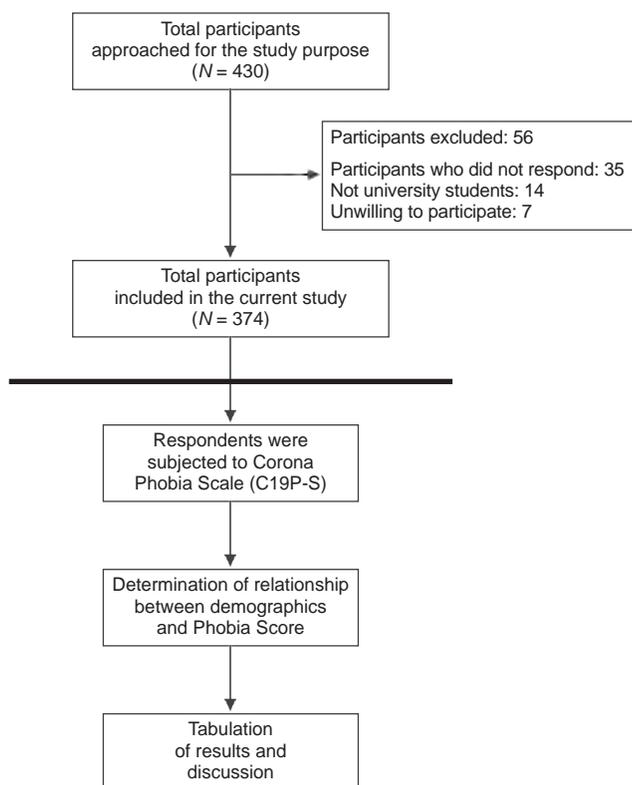


Figure 1. Study flow diagram.

## Ethics considerations

The protocol of this study was approved by the institutional Research Ethics Committee (REC/DPP/FOP/35). An online informed consent was obtained from each study participant. The questionnaire was filled in an anonymous manner and had no identifiable information. Furthermore, respondents were informed about the confidentiality of their responses.

## RESULTS

### Characteristics of the survey respondents

Out of 430 students, a total of 395 responded to the survey. Of whom, 21 were excluded (unwilling to participate = 7; not university students = 14) and the remaining 374 were subjected to analysis. Demographic details of the respondents are shown in Table 1. The majority were between 21 to 25 years of age (65%), males (64.7%), and undergraduate student (82.9%) from medicine and health sciences disciplines (56.7%).

### Fear of COVID-19

The mean score of the C19P-S was  $59.08 \pm 14.44$  (25<sup>th</sup> percentile = 50 and 75<sup>th</sup> percentile = 70). Percentages of

responses from participants to all 20 questions are given in Table 2. We decided to add percentages of respondents from agree to strongly agree options. The highest three were items 7, 9, and 5 with 79.4%, 76.7%, and 76.5%, respectively. Gender was the unique demographic variable that showed a significant difference score (male  $57.65 \pm 14.77$  vs female  $61.70 \pm 13.47$ ;  $p = .009$ ).

The mean psychological, psycho-somatic, economic, and social subscale scores were  $19.59 \pm 5.00$  (25<sup>th</sup> percentile = 16 and 75<sup>th</sup> percentile = 24),  $12.29 \pm 4.56$  (25<sup>th</sup> percentile = 10 and 75<sup>th</sup> percentile = 15),  $11.22 \pm 3.67$  (25<sup>th</sup> percentile = 8 and 75<sup>th</sup> percentile = 14), and  $15.97 \pm 4.04$  (25<sup>th</sup> percentile = 13.75 and 75<sup>th</sup> percentile = 19), respectively. No significant difference ( $p > .05$ ) of any subscale score was seen in the age, type and level of education, university, and province categories. However, male students were found to have significantly lower scores on the psychological ( $18.80 \pm 5.03$  vs  $21.05 \pm 4.64$ ;  $p < .001$ ) and social subscales ( $15.64 \pm 4.14$  vs  $16.58 \pm 3.80$ ;  $p = .031$ ) than females.

## DISCUSSION AND CONCLUSION

This study underscored a high level of COVID-19-related phobia (C19P-S score:  $59.08 \pm 14.44$ ) among university students, where psychological subscale scored highest ( $19.59 \pm 5.00$ ) followed by social ( $15.97 \pm 4.04$ ), psycho-somatic ( $12.29 \pm 4.56$ ), and economic subscales ( $11.22 \pm 3.67$ ). Most of the respondents reported fear of contracting the infection from family members (item 5), from people who are sneezing (item 7), and from new reports on mortality cases due to COVID-19 (item 9). In addition, students were also concerned with the irresponsible behavior of people towards COVID-19. The responses of the students indicated considerable level of anxiety and panic towards the disease. Similar to the findings of earlier studies (Rodríguez-Hidalgo, Pantaleón, Dios, & Falla, 2020; Rafiq, Rafique, Griffiths, & Pakpour, 2021), we also found out that females had greater corona-phobia than males. The COVID-19-related phobia among students may lead to significant alterations in cognitive, affective, and behavioral responses. A study conducted in India among college students demonstrated the prevalence of corona-phobia in 2.8% of study participants, where disruptions in classroom education were found as a significant predictor of corona-phobia (Uvais, 2021). Another study conducted among Nigerian post-graduate students enrolled in a Malaysian university indicated that a substantial number of students had corona-phobia which was associated with hopelessness, loss of self-control, social stigma, emotional trauma, and extreme concerns over the disruption of students' activities (Bashar, Inda, & Maiwada, 2020). Since corona-phobia may result in despair, suicidal ideation, religious crisis, and alcohol/substance coping, it acts as an impetus

Table 1  
Characteristics of the study participants

Variables	N	%
Age (years)		
≤ 20	82	21.9
21-25	243	65.0
≥ 26	49	13.1
Gender		
Male	242	64.7
Female	132	35.3
Education		
Medicine and health sciences	212	56.7
Natural sciences	60	16.0
Engineering and Technology	20	5.3
Business and Humanities	31	8.3
Social Sciences	7	1.9
Formal Sciences	44	11.8
Level of education		
Undergraduate	310	82.9
Post-graduate	64	17.1
Type of institute		
Public sector	261	69.8
Private sector	113	30.2
Province		
Punjab	290	77.5
Other provinces*	84	22.5

Notes: \* Sindh = 27 (7.2%), Khyber Pakhtunkhwa = 11 (2.9%), Baluchistan = 5 (1.3%), and Gilgit Baltistan = 41 (11%).

Table 2  
Responses of study participants to the C19P-S questions

Items	Statement	Strongly disagree n (%)	Disagree n (%)	Agree n (%)	Generally agree n (%)	Strongly agree n (%)
1	The fear of coming down with coronavirus makes me very anxious	44 (11.8)	121 (32.4)	49 (13.1)	141 (37.7)	19 (5.1)
2	I experience stomach-aches out of the fear of coronavirus	83 (22.2)	173 (46.3)	28 (7.5)	73 (19.5)	17 (4.5)
3	After the coronavirus pandemic, I feel extremely anxious when I see people coughing	28 (7.5)	70 (18.7)	71 (19.0)	158 (42.2)	47 (12.6)
4	The possibility of food supply shortage due to the coronavirus pandemic causes me anxiety	33 (8.8)	110 (29.4)	56 (15.0)	143 (38.2)	32 (8.6)
5	I am extremely afraid that someone in my family might get infected with coronavirus	26 (7.0)	62 (16.6)	53 (14.2)	158 (42.2)	75 (20.1)
6	I experience chest pain out of the fear of coronavirus	98 (26.2)	168 (44.9)	29 (7.8)	68 (18.2)	11 (2.9)
7	After the coronavirus pandemic, I actively avoid people I see sneezing	23 (6.1)	54 (14.4)	58 (15.5)	185 (49.5)	54 (14.4)
8	The possibility of shortages in cleaning supplies due to the coronavirus pandemic causes me anxiety	54 (14.4)	115 (30.7)	50 (13.4)	136 (36.4)	19 (5.1)
9	News about coronavirus-related deaths causes me great anxiety	21 (5.6)	66 (17.6)	74 (19.8)	148 (39.6)	65 (17.4)
10	I experience tremors due to the fear of coronavirus	93 (24.9)	157 (42.0)	34 (9.1)	77 (20.6)	13 (3.5)
11	Following the coronavirus pandemic, I have noticed that I spend extensive periods of time washing my hands	27 (7.2)	94 (25.1)	57 (15.2)	149 (39.8)	47 (12.6)
12	I stock food with the fear of coronavirus	75 (20.1)	161 (43.0)	37 (9.9)	88 (23.5)	13 (3.5)
13	Uncertainties surrounding coronavirus cause me enormous anxiety	32 (8.6)	104 (27.8)	71 (19.0)	139 (37.2)	28 (7.5)
14	I experience sleep problems out of the fear of coronavirus.	92 (24.6)	173 (46.3)	28 (7.5)	65 (17.4)	16 (4.3)
15	The fear of coming down with coronavirus seriously impedes my social relationships	28 (7.5)	92 (24.6)	53 (14.2)	169 (45.2)	32 (8.6)
16	After the coronavirus pandemic, I do not feel relaxed unless I constantly check on my supplies at home	56 (15.0)	130 (34.8)	36 (9.6)	139 (37.2)	13 (3.5)
17	The pace that coronavirus has spread causes me great panic	27 (7.2)	94 (25.1)	63 (16.8)	149 (39.8)	41 (11.0)
18	Coronavirus makes me so tense that I find myself unable to do the thing I previously had no problem doing	42 (11.2)	118 (31.6)	50 (13.4)	133 (35.6)	31 (8.3)
19	I am unable to curb my anxiety of catching coronavirus from others	70 (18.7)	135 (36.1)	44 (11.8)	110 (29.4)	15 (4.0)
20	I argue passionately (or want to argue) with people I consider to be behaving irresponsibly in the face of coronavirus	24 (6.4)	82 (21.9)	48 (12.8)	158 (42.2)	62 (16.6)

to ascertain the extent of COVID-19 fear among students so timely interventions can be initiated.

Our findings revealed that 25% of university students achieved a score higher than 70 on the COVID-19 phobia scale, which stresses the need to take measures for reducing corona-phobia. A study conducted before the first outbreak of COVID-19 in Pakistan revealed that 72.4% university students were afraid of COVID-19 because they considered it to be a highly contagious disease that had no cure and/or effective prevention methods (Salman et al., 2020b). By contrast, in the present study, around 56% of students reported that the fear of getting infected with coronavirus made them very anxious. This change (72.4% vs 55.9%) could be due to the fact that the former study was conducted before the first outbreak and subsequent lockdown, whereas the current study was performed during the third wave of

COVID-19 in Pakistan. Therefore, students may now have more awareness of COVID-19 precautions and preventive measures. A study during the first COVID-19 lockdown in Pakistan revealed that most (70.9%) university students were concerned about their family members and friends getting infected with COVID-19. Around 41% were afraid that they could contract the disease at any moment and 34.9% reported that sometimes they suspected they had already been infected (Salman et al., 2020a). Similar to these findings, we also found that university students were more afraid that their family members might get infected with the disease than their own health (76.5 vs 44.1%). This could be due to the fact that students were mostly confined at home, taking virtual classes during the COVID-19 lockdown, but their family members were out working to make ends meet and therefore more susceptible to contract the disease.

Regarding the somatic symptoms resulting from COVID-19 fear, it was found that 31.5%, 28.9%, 33.2%, and 29.2% students reported having stomach-aches, chest pain, tremors, and sleep disturbances. Furthermore, around 57% university students stated that the pandemic was making them so tense that they were unable to perform things which they could easily do previously. These findings are consistent with the results of earlier studies as they show a great deal of psychological distress (symptoms of anxiety and depression as well as sleep disturbances) in students due to the COVID-19 pandemic (Salman et al., 2020a; Chang, Ji, Li, Pan, & Su, 2021; Deng et al., 2021). In the present study, around 68% of university students reported panic due to the alarming pace at which SARS-CoV2 was spreading and 76.8% indicated massive anxiety due to the high mortality associated with COVID-19. Similar to this, an earlier study revealed that 78.2% of students reported concerns over high transmission of virus, 78.3% students were afraid of the disease by considering it difficult to be controlled in Pakistan, and 62.3% were afraid that it will stay in the community for a long period of time (Salman et al., 2020a). In addition, approximately 60% of the participants showed mistrust of the authorities for not revealing true and factual information of pandemic; 58.2% were stressed by admitting the facts that health authorities in Pakistan were not committed to conduct a large-scale COVID-19 testing; and 68.1% believed that COVID-19 patients were not receiving the standard treatment in Pakistan.

The negative impact of social and mass media cannot be disregarded as a major barrier in controlling the ongoing pandemic. Numerous conspiracy theories on social media, irresponsible and confusing reporting from health authorities, exaggerated and sensational headlines on news channels, mis- or disinformation on electronic media, and contradictory messages or misleading narratives from other media sources have created a state of panic, confusion, and mistrust among the general population (Khan et al., 2020; Khan, Salman, Butt, & Mallhi, 2022). Controlling this vicious circle of COVID-19 fear is of utmost importance to gain the public support which will enhance the efforts of authorities to curb the pandemic. Since social media can embed misinformation into the public consciousness, fake news need to be exposed promptly. The authorities must be aware that their statements and advice bring about health effects. Their guidance regarding the measures to curb COVID-19 needs to be clear and consistent. The press and media need to avoid inflammatory language that generates hysteria. Since the COVID-19 is also an era of infodemic and the volume of disparate falsehoods is increasing with every passing day, a major responsibility lies for health authorities and media sectors in Pakistan to play a careful, sensible, and professional role during the pandemic (Khan et al., 2020). The scientific community needs to avoid unnecessary jargon but also

resist the temptation of entering into scientific debates that may have only the effect of confusing or undermining health messaging.

Education institutions must work together with authorities to promote measures suggested by the WHO to reduce fear, anxiety, boredom, frustration, and social isolation in the students (Ng & Kemp, 2020). The youth, particularly students, can effectively confront the challenges posed by the pandemic, help build resilience in their communities, and drive social change during the pandemic, provided they are heard, empowered, engaged, and given the chance to lead. However, in order to optimize the youth or student's involvement as stakeholders of pandemic controllers, their mental health and fear towards the disease must be addressed in haste. This study provides insight of such issues among students from private and public universities of Pakistan and alerts health authorities to initiate timely measures.

The results of this study should be interpreted in light of few limitations. The current study was conducted among university students so the findings cannot be generalized to the general population of Pakistan. Moreover, as this was an online survey, the problem of selective participation and coverage error might exist. Lastly, we used a self-completed questionnaire (C19P-S) so shortcomings associated with self-report data could exist as well. Nevertheless, our study provides a valuable understanding about the extent of corona-phobia in Pakistani university students. Therefore, it may be helpful for authorities and academic institutes to take necessary actions to combat the COVID-19 fear.

In conclusion, this study showed that one fourth of the university students achieved a very high score (> 70) on the COVID-19 phobia scale. Moreover, approximately one third of the students reported psychosomatic symptoms due to corona-phobia. These manifestations included stomach-aches, chest pain, tremors, and sleep disturbances. These findings underscore the need for immediate maneuvers to reduce corona-phobia among students and to keep their mental health in check.

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### Conflict of interest

The authors declare they have no conflicts of interest.

### Author contributions

MS, THM, NS, and KH conceived and designed the study. MS, AWJ, ZUM, FM and YHK conducted the literature review. MS, THM and AWJ designed the questionnaire. MS, THM, YHK and ZUM analyzed and interpreted data. MS, NS, and FM drafted the manuscript. TMH and KH critically revised the manuscript. All the authors approved the manuscript for submission.

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