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RESEARCH ARTICLES

Assessment of COVID-19 linked fear perception in the community of Pakistan, 1 June to 31 July 2020

Wajiha Waqar Ali[1], Amber Malik[2], Rabia Basray[1], Wajiha Haq[3], Muhammad Wasif Malik[1], Muazam Abbas Ranjha[1], Ambreen Chaudhry[4], Nosheen Ashraf[1], Hussain Ali[1], Mumtaz Ali Khan[1], Jamil A. Ansari[1] & Aamer Ikram[1]

[1] National Institute of Health, Islamabad, Pakistan

[2] COMSATS University, Islamabad, Pakistan

[3] National University of Science & Technology, Pakistan

[4] Field Epidemiology & Laboratory Training Program, Pakistan

Abstract

Introduction: Fear is the normal response to any perceived threat, especially when it comes to contracting a new disease, resulting in stress and anxiety. This study was conducted during the peak epidemic phase of COVID-19 in Pakistan to assess fear level among the Pakistani population regarding COVID-19.

Method: A cross-sectional study was conducted during June-July 2020 in Pakistan. A pre-designed questionnaire based on "Fear of COVID-19 Scale" was distributed through email and social media platforms using voluntary response sampling. Descriptive analysis was conducted and frequencies were calculated. Each response was scored as 1 (strongly disagree) to 5 (strongly agree). The fear level was categorized as high (>20 score), Moderate (14-20 score) and low (<14 score). Inferential analysis was carried out using multiple logistic regression, at 95% confidence interval and $P<0.05$.

Results: A total of 489 individuals were contacted and 404 individuals participated in this study (Response Rate: 83%). Mean age was 29 years (SD: ±14.5), 54.5% were males, literacy rate was 90.1%, employment rate was 89.1%, 49.5% were previously infected with COVID-19, and 58.4% were unmarried. Out of total, 45% of the population showed a moderate level of fear. Chi-square analysis revealed that factors including gender, education, marital status, occupation and province of residence were associated with different levels of fear. Multiple logistic regression analysis showed that individuals previously infected with COVID-19 (OR: 2.18, 95% CI: 1.65-3.71, $P=0.004$), and males(OR: 2.09, 95% CI: 1.82-3.70, $P=0.01$) were significantly more likely to have a high level of fear. Higher education level had a protective association against "Moderate (OR: 0.38, 95% CI: 0.18–0.811, $P=0.01$)" and "High (OR: 0.33, 95% CI: 0.17–0.66, $P=0.002$)" fear levels. Similarly, married persons had lower odds of having high fear (OR: 0.55 95% CI: 0.21–0.69, $P=0.001$)

Conclusion and Recommendations: It is evident that a COVID-19 linked fear exists in different groups of the Pakistani community, especially among males and previously infected cases. Therefore, there is a need to conduct health awareness and education campaigns for high risk groups focusing on psycho-social issues. It is also recommended to design, develop and implement different public health interventions for mitigation of COVID-19 linked fear in the society.

Key words: Fear, COVID-19, FCV-19S, Epidemic, Pakistan, Contracting

Introduction

The novel coronavirus, now known as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), emerged from Wuhan, China in December 2019, and has been expanded from an epidemic to pandemic with continuously rising cases and deaths worldwide.[1][2] With a high transmission rate and moderately high mortality rate worldwide, people started fearing COVID-19. It has been documented that most people are afraid of coming in contact with the persons who are infected by SARS CoV-2, which leads to stigmatization. One peculiar contrasting feature of infectious diseases, as compared to other ailments is "fear", which is connected

to disease transmission rate as well as with increased risk of death and disabilities.[3] The current mitigation strategy of COVID-19 worldwide is centered on disease control, successful immunization, and clinical management modalities. The psychosocial aspect still has not drawn much attention[4][5]. Thus, countries must take considerable steps to promote psychological wellbeing and alleviate the individual fear to achieve a society free of COVID-19 disease and minimize its post-recovery psychological effects.[6] Different studies had been conducted in Iran[6] and Eastern Europe[7] on fear perception in the context of COVID-19. In Pakistan, a study was conducted using the Fear of COVID-19 Scale to assess the fear among nurses[8] along with another study using the URDU translated version of the same scale in general population of KPK province.[9] Keeping psychosocial impacts of disease in consideration, we conducted a cross-sectional study using the pre-design "Fear of COVID-19 Scale" (FCV-19S) with the objective to evaluate the level of fear and its factors among the Pakistani population.

Methods

Study design

This was a cross-sectional study using voluntary response sampling technique to recruit respondents.

Study population

People living in Pakistan are included in the study population which is estimated to be 220,892,331 at mid-year of 2020, with 51.96% males and 60.83% between the ages of 15 and 64 years.[1]

Inclusion criteria

Individuals having social media access and the capacity to comprehend and read English were included in the study. Participation was voluntary and filling of the questionnaire signifies informed consent.

Study duration

This study was conducted from 1 June 2020 to 31 July 2020.

Study tool

The questionnaire, based on "Fear of COVID-19 Scale" developed by Ahorsu et al[6], was made available online for the participants. The FCV-19S comprises of seven questions that were designed to assess fear of COVID-19 infection. A 5-point Likert scale was used for scoring questions ranging from 1 (strongly disagree) to 5 (strongly agree). The total score of the scale ranged from 7 to 35, hence quantifying the level of fear.

Sampling technique

Voluntary response sampling has been used; online questionnaire was sent to a total of 489 individuals out of whom 404 responded.

Data collection

The link to the online questionnaire was disseminated through social media platforms including WhatsApp, Facebook, and Twitter. The data was collected regarding basic demographics and fear perceptions and factors. The data was compiled and managed in MS Excel for analysis.

Data analysis

Descriptive statistics were conducted for demographic variables. The mean score was calculated for the responses against the seven FCV-19S items. A score <14 was graded as low level fear, a score ranging between 14 and 20 was moderate level, and a score >20 was high level fear. Statistical Package for Social Sciences (SPSS) software was used for carrying out descriptive analysis. Odds Ratio (OR) had been calculated and multivariate analysis was carried out using multiple logistic regression, at 95% confidence interval and $P<0.05$, to analyze the significant association between the demographic variables and level of fear. STATA software was used for carrying out multiple logistic regression.

Results

The online questionnaire was shared with a total of 489 individuals, of which 404 responded voluntarily (Response Rate: 83%). Participants have been categorized in four groups on the basis of age in years as 1-20, 21-40, 41-60 and > 60 years with the mean age as 29 years ±14.5 SD. Two hundred and twenty (220,54.5%) were males (Figure-1) and the majority of the participants (236, 58.4%) were unmarried. A total of 316 participants (78.2%) had a high level of education (graduates and postgraduates), whereas 48 respondents (11.9%) had education up to secondary and higher secondary level. A total of 89.2% were employed, and majority of respondents (33.6%) were healthcare workers, followed by government employees (20.8%). The majority (192, 47.5%) of participants were from Sindh province followed by Punjab (20.8%). Of the total participants, 200 (49.5%) were infected with COVID-19 previously. Socio-demographic variables of the study participants are presented in Table-1.

The scale depicted a great Cronbach's Alpha proportion of interior consistency or reliability (0.900).The total score of the scale ranged from 7 to 35. The mean score calculated for the seven FCV-19S items was 17 (± 3.03). In the full sample, 45% of the population showed a moderate level of fear. Table-2 describes the frequency analysis of responses towards the seven item COVID-19 fear scale.

[1] (United Nations Population Division. World Population Prospects: 2019 Revision) https://population.un.org/wpp/

Different factors affecting fear levels of respondants were studied. Chi square test showed that factors including gender, education, marital status, occupation and province of residence were associated with the different level of fears. The results are tabulated in Table-3. Multiple regression analysis was employed to control for confounding and to observe association of different factors with fear levels. This analysis revealed that high level of fear was significantly associated with being male (OR: 2.09, 95% CI: 1.82-3.70, *P*=0.01) and a history of COVID-19 infection (OR: 2.18, 95% CI: 1.65-3.71, *P*=0.004), while higher education was observed to have a protective association against moderate (OR: 0.38, 95% CI: 0.18–0.811, *P*=0.01) and high (OR: 0.33, 95% CI: 0.17–0.66, *P*=0.002) fear levels as compared to other education group. Married persons had lower odds of having high fear (OR: 0.55 95% CI: 0.21–0.69, *P*=0.001). Results of multiple logistic regression are presented in Table-4.

Discussion

People having infectious diseases are more prone to fear due to its virulence, high transmissibility and unexpected deaths which reduces rational thinking leading to stigmatization and social isolation.[10] Its consequent complications and deaths increase negative feelings and thoughts[11][12][13] and these apprehensions can lead to sleep deprivation, outrage, irritability, posttraumatic stress disorder, anxiety and depression.[14][15] There are several socio-demographic and psychosocial factors associated with mental health problems in the COVID-19 pandemic like age, gender, marital status, education, and economic challenges, including unemployment, loss of income, or reduction in economic opportunities due to lockdown or other social measures.[16][17][18][19]

Schools and universities have remained closed, while working hours in private workplaces, public institutions, restaurants, and entertainment places are restricted so that the infection can be contained. When the psychological aftermath of home isolation during the pandemic is explored, it is inferred that this practice has protective effect on physical health though has adverse psychological and economic consequences.[20] Studies have shown that staying at home increases depression, health anxiety, financial concern, and loneliness.[21][22] All limitations and practices have further increased the fear and anxiety of individuals for COVID-19.[10] A 39 year old COVID-19 infected man with a complicated psychiatric disorder, diabetes and obesity died alone at home in March 2020 in Italy.[23] Hence, it became utmost important to analyze the effect of fear among population of Pakistan. Our investigation featured the underlying psychological responses to the fear against theCOVID-19 pandemic during the period of highest reported cases in Pakistan i.e. 1 June to 31 July 2020.

Irrespective of norms, our study results revealed males showing higher levels of fear as compared to females. This is interesting as literature has shown that females are more inclined towards stress, depression and anxiety.[24][25] Likewise, a study conducted in India showed females had 1.29 times essentially higher chances to fear COVID-19 in contrast to their male counterparts.[26] The female gender is more prone to suffer from mental health problems in several studies.[27][28][29][30] One possible justification for our study finding could be that males had more outdoor activities[31] and more chances of interaction with others which subsequently made them to be more afraid as they could possibly carry the pathogen to their homes.

Expectedly, fear level among COVID-19 affected individuals came out to be high when compared with uninfected individuals. This study is conducted during the peak epidemic time,[2] hence fear of contracting the disease, and chance of transmitting it to their beloved ones and elements of stigmatization, all lead to excessive perception of fear against COVID-19 which is in accordance with a study conducted in Iraq[32] and India.[33] Empirical studies implied that patients who contracted COVID-19 had experienced adverse mental health consequences.[34][35][36] Moreover, a case from India suggests that COVID-19 may critically impact psychosocial wellbeing and influence suicidal attempts among the infected individuals, which may also aggravate if the patient has other comorbidities.[37]

High levels of fear were observed among highly educated individuals which might be due to the reason that they use social media more frequently as compared to their less educated counterparts[38] hence have the tendency to acquire unnecessary worry about the unusual consequences of COVID-19 disease.[39] Several studies have depicted that exposure to COVID-19 related social media contents or mass media news have adverse effects on mental health amid COVID-19.[35][40] Lei and colleagues reported that low education was associated with poor mental health outcomes.[41] In contrast, Zhou and colleagues found that students in senior high school and having higher grades had a greater prevalence of depressive and anxiety symptoms.[27] Similarly, Wang and colleagues reported that those with a bachelor's degree group had a depression risk of 0.39 times compared to those with a master's degree or above.[37] This evidence highlights that education may have some protective roles as seen in the study by Lei or Liang and colleagues, but later studies emphasized that the added academic stress may affect mental health during this pandemic.

[2] JHU CSSE COVID-19 Data

Figure-1. Age and gender-wise distribution of study participants (n=404) from community of Pakistan from 1 June to 31 July 2020.

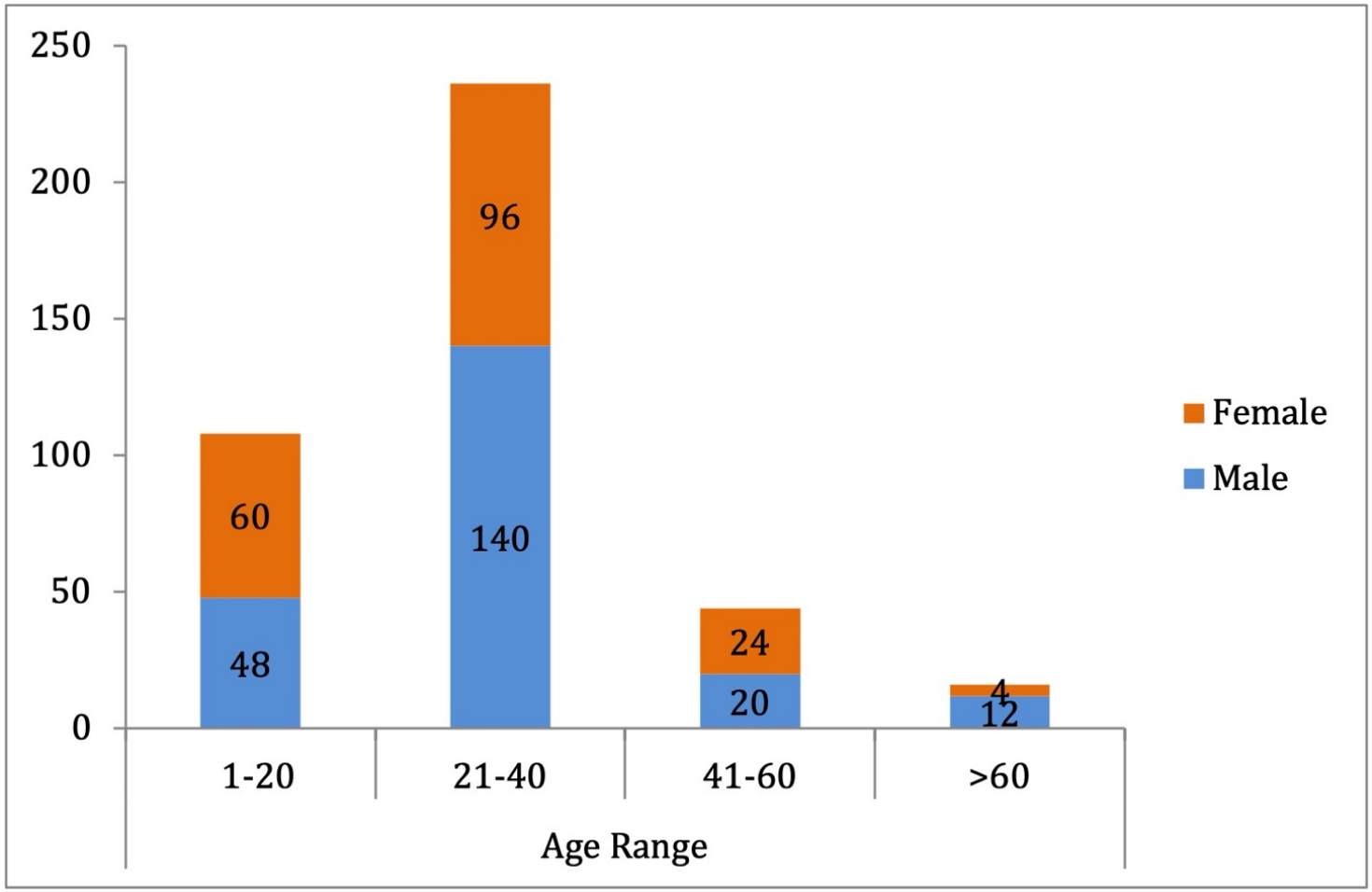

Table-1. Socio-demographic characteristics of study participants (n=404) from community of Pakistan from 1 June to 31 July 2020.

Socio-demographic variables	**Participants n (%)**
Marital status	
Married	168 (41.6)
Unmarried	236 (58.4)
Educational Status	
Secondary + Higher Secondary	48 (11.9)
Graduate + Postgraduate	316 (78.2)
Others	40 (9.9)
Occupation	
Student	64 (15.8)
Government employee	40 (9.9)
Private employee	8(2.0)
Healthcare professionals	136 (33.7)
House wife	12 (3.0)
Unemployed	44(10.1)
Others	100(24.7)
Infected by Covid-19	
Yes	200 (49.5)
No	204 (50.5)
Provincial status	
Sindh	192 (47.5)
Punjab	84 (20.8)
Khyber Pakhtunkhuwa	29 (5.9)
Balochistan	20(5.0)
Islamabad	76 (18.8)
Gilgit Baltistan	4 (1.0)
Azad Kashmir	4 (1.0)
Total	**404(100)**

Table-2. Frequency analysis of responses from community of Pakistan towards COVID-19 fear (n=404) from 1 June to 31 July 2020.

No	Questions	Strongly Agree (5) n(%)	Agree (4)	Neither Agree nor Disagree (3)	Disagree (2)	Strongly Disagree (1)
1	Do you feel fear of Covid-19	48(11.9)	140(34.6)	108(26.7)	64(15.8)	44(10.8)
2	Does it make you restless when you think about Covid-19	48(11.9)	96(23.7)	112(27.7)	72(17.8)	76(18)
3	Do your hands become cold when you think about Covid-19	4(0.9)	16(3.96)	44(10.8)	164(40.5)	176(43.6)
4	Do you feel difficulty in sleeping because you worry lot about Covid-19	8(1.9)	12(2.9)	40(9.9)	144(35.6)	200(49.5)
5	Do you fear of losing your life because of Covid-19	8(1.9)	64(15.8)	112(27.7)	88(21.7)	132(32.6)
6	Do you become anxious while watching news on TV or social media about Covid-19	52 (12.8)	124 (30.6)	120 (29.7)	44 (10.9)	64 (15.8)
7	Do you feel your heart beat getting fast when you think about getting Covid-19	28 (6.9)	56 (13.8)	52 (12.8)	108 (26.7)	160 (39.6)

Table 3. Risk perception analysis of community of Pakistan towards COVID-19 (n=404) from 1 June to 31 July 2020.

	Fear level			
	Low	Moderate	High	*P*-value
Gender				
male	51	96	72	<0.002*
female	72	60	52	
Covid infection				
infected	69	78	52	0.08
uninfected	54	78	72	
Education				
group 1	4	20	4	<0.0001*
group 2	111	124	100	
group 3	8	12	20	
Marital status				
married	56	72	40	<0.03*
unmarried	67	84	84	
Occupation				
student	20	24	20	<0.0001*
govt. employee	19	16	4	
private employee	0	8	0	
Health care professionals	32	52	52	
house wives	8	4	0	
unemployed	20	8	16	
others	24	44	32	
Provinces				
Islamabad	24	28	24	<0.0001*
Sindh	76	64	52	
Punjab	15	40	28	
KPK	8	8	8	
Balochistan	0	12	8	
Gilgit	0	4	0	
AJK	0	0	4	

Table 4. Multivariate analysis of different factors and fear levels (n=404) among community of Pakistan from 1 June to 31 July 2020.

	Levels of fear	
Variables	**Moderate level OR (95% CI) *P*-value**	**High OR (95% CI) *P*-value**
Gender		
Male Base outcome: female	0.99 (0.54–1.78) 0.97	2.09 (1.82 – 3.70) 0.01*
COVID-19 infection		
Yes Base outcome : No	1.47 (0.84-2.58) 0.17	2.18 (1.65–3.71) 0.004*
Education		
Group-2 (graduate and post graduate education)	0.38 (0.18–0.811) 0.01*	0.33 (0.17–0.66) 0.002*
Group-3(other education) Base outcome: Group-1 secondary and higher secondary education	1.34 (0.62–2.91) 0.46	1.08 (0.52–2.29) 0.819
Marriage		
Married Base outcome: unmarried	0.34 (0.19_-1.62) 0.0001	0.55 (0.21–0.69) 0.001*

Married people had more sense of responsibility and they become distressed easily, hence more likely to become anxious and afraid. But surprisingly, an intriguing finding of our study was that the unexpected heightened fear was found among unmarried as compared to married individuals which is contradictory to the findings of a study conducted in Bangladesh.[42] Marital status was associated with mental health status among individuals experiencing mental health problems during COVID-19. In a study, it has been depicted that insomnia was related to marital status among medical staff in Ningbo, China.[30] Another study reported that the severity of psychiatric symptoms in the workforce returning to the workplace was significantly associated with marital status.[27]

Conclusion and Recommendations

As depicted earlier, this study revealed association of COVID-19 fear levels with different factors in Pakistani population. Stigmatization had been created because of the infodemic which had a profound negative effect on the control of the pandemic. In order to deal with this situation, it is recommended that efforts should be made to provide precise and valid information to the public along with the updated guidelines and recommendations about quarantine and isolation protocols. Moreover, risk assessment, risk communication and community engagement (RCCE) regarding psychological effects of COVID-19 among vulnerable population should be the focus of the concerned authorities. There is also a dire need to design, develop and implement different public health interventions for mitigation of COVID-19 linked fear in the society which will eventually help the government to cope with the COVID-19 pandemic crisis.

Limitations

There are certain limitations in our study, such as voluntary response sampling technique, recruitment of people with smart phone, internet accessibility and good comprehension of English. Hence, the results could not be generalized as they depict a large proportion of responses from educated persons. Since the fear level of uneducated person might be different, a need arises to use the translated version of this fear scale.

Implications of the study

Our study suggests that there is a need to conduct a more comprehensive prospective study with a bigger sample size and including all socio-economic segments of the society to probe deeply into the fear levels and other relevant psychological issues among the masses. Though FCV-19S is a simple and convenient tool to evaluate fear level, but it is desirable to formulate more relevant psychological health assessment tools which may be more brief with high accuracy and specificity.

Conflict of interest

Authors declare no conflict of interest

Ethical approval

Ethical approval for this study was obtained from the Institutional Review Board of National Institute of Health.

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