

Factors Contributing to Psychological Impact on Frontline Healthcare Workers during COVID-19

Rehmana Khalil and Ruhi Khalid

Beaconhouse National University

Since the emergence of Corona virus outbreak, it has become a global health threat and till July 22, 2020. More than 15 million cases of COVID-19 have been documented worldwide and healthcare workers could account for 10–20% of all diagnoses which has aroused fear among them ([Johns Hopkins Coronavirus Resource Center, 2020](#)). The purpose of the present study was to investigate the psychological impact of the COVID-19 among frontline healthcare workers and factors that contribute to it. The sample consisted of 80 healthcare workers divided into two groups; Group-I comprised of 40 healthcare workers working in corona ward, and Group-II consisted of 40 healthcare workers working in the orthopedic or maternity ward. The sample was taken from government hospitals of Lahore through purposive sampling. They were administered fear of COVID-19 scale ([Ahorsu et al., 2022](#)), Generalized Anxiety Scale ([Spitzer et al., 2006](#)) and Perceived Stress Scale ([Cohen et al., 1983](#)). A mixed research design was used and the results revealed that psychological impact (fear of corona, stress and anxiety symptoms) among the healthcare workers working in corona ward was more as compared to those working in orthopedic or maternity ward. The findings of qualitative phase showed that factors of increased working hour's fear of transmitting the virus to family members, nature of the virus and insufficient personal safety equipment contributed to the psychological impact (fear of corona, stress and anxiety symptoms) in healthcare workers. The study has implications for health and well-being of health care professionals.

Keywords. Psychological impact, COVID-19, healthcare workers

COVID-19 is an infectious disease which is caused by the recently discovered corona virus. Most people who get infected by

Rehmana Khalil and Ruhi Khaild, Institute of Psychology, Beaconhouse National University, Lahore, Pakistan.

Correspondence concerning this article should be addressed to Rehmana Khalil, Institute of Psychology, Beaconhouse National University, Lahore, Pakistan. Email: rehmanakhalil@gmail.com

this virus experience mild to moderate symptoms of respiratory illness and these people recover without requiring special clinical treatment but people who have underlying medical problems such as respiratory disease, diabetes, cardiovascular problems or cancer are more likely to develop a serious form of this illness. The most common symptoms of this illness are fever, dry cough and tiredness. The less common symptoms are diarrhea, sore throat, aches, loss of taste or smell, headaches, as rash on skin and conjunctivitis. The symptoms that require immediate medical attention also known as ‘serious symptoms’ are difficulty breathing, shortness of breath and loss of speech and movement ([World Health Organization, 2020](#)).

This virus emerged in December 2019, in the city of Wuhan, China. Health officials started tracing the source of the spread of this virus. The early hypothesis was that the virus emerged from the seafood market in Wuhan city. According to this hypothesis, people who went to the market developed a viral pneumonia. However, a study published on 25 January, 2020, stated that the individual who reported the first case had no link to the Wuhan seafood market. The origin of the virus is still being investigated ([Ng, 2020](#)).

The symptoms in the individual showed up within 14 days of exposure to the illness. The diagnosis of the virus is difficult as only physical examination is possible after the symptoms appear and a laboratory test is required to confirm the diagnosis. The global cases of the corona virus until 13th December 2020 were reported to be 71,708,243 and the global deaths were 1,605,141. The highest number of deaths were recorded in the United States (297, 837) followed by Brazil (181,183). India scored third place for the highest number deaths (143,019) ([Johns Hopkins Coronavirus Resource Center, 2020](#)).

The confirmed cases of COVID reported in Pakistan are 585,435. The number of deaths reported is (13,076). The highest number of cases was reported in the province of Sindh, where the count has reached, 258,904. Punjab secures the second position in the highest number of cases reported among the provinces with a count of 174,191. Baluchistan and Khyber Pakhtun Khawa recorded 19,084 and 73,007 cases respectively ([Salman et al., 2020](#)).

In addition to the physical and social impact, COVID-19 has also had a significant psychological impact. Some groups are more vulnerable to experience the psychosocial stressors of the pandemic, such as healthcare workers given that they have a high risk of exposure to the virus ([Rodríguez & Sánchez, 2020](#)). They compared to the general population are at a higher risk to experience a negative

psychological impact after an emergency or disaster as at the time of respiratory syndrome (SARS) epidemic in 2014, Ebola virus disease and Middle East respiratory syndrome (MERS) outbreak in 2015 extreme emotional distress was observed in healthcare workers. Hence, it is important to measure the psychological impact of COVID-19 on healthcare workers (Lancee et al., 2018; Lee et al., 2018).

It is a palpable notion that COVID-19 had an adverse psychological impact on the frontline healthcare workers. Studies show mild to moderate depressive and anxiety symptoms among healthcare workers and high perceived stress (Dubey, 2020). Other studies show symptoms of acute stress disorder and insomnia among healthcare workers (Imran et al., 2020).

Psychological impact is defined as the effect of environment and biological factors on individual's psychological aspects. Several psychological disorders have a psychological impact such as obsessive compulsive disorder, depression etc. Other than that, terminal illnesses, such as cancer affect psychological health too. Traumatic events, such as disasters, exposure to terrorism and urban violence also affect psychological well-being (Vizzotto et al., 2020).

The psychological problems that emerged as a result of COVID-19 include stress, frustration anxiety and uncertainty due to the virus. The quarantine was imposed to attenuate the spread of the virus and it triggered several psychological reactions such as generalized fear and community anxiety and both are typically associated with an escalation in the number of cases. Studies show that people who have been quarantined show higher prevalence of psychological symptoms such as emotional disturbance, stress, irritability, insomnia and anger as compared to those who haven't been quarantined (Salman et al., 2020).

The research aimed to find the psychological impact which comprised of stress, anxiety symptoms and fear of corona. Fear of corona is the worry caused by COVID-19 (Ahorsu et al., 2022). The stress in this study is defined as the perception of an individual about the extent to which their demands exceed their ability to cope (Cohen et al., 1983). Anxiety symptoms refer to apprehensive uneasiness of mind over an anticipated ill (Merriam-Webster, 2012).

The emergence of the virus has caused not only extraordinary public health concerns but is also likely to place the healthcare workers under extreme distress. The prevalence of anxiety, stress and depression was 13.9 and 8.6% and 13.6% respectively in a study conducted on the healthcare workers in China. It was concluded

COVID-19 contributed to adverse psychological impact among the frontline healthcare workers (Si et al., 2020).

Research establishes the fact that exponential increase in the number of patients of COVID-19 and increasingly urgent need for intensive care unit surge capacity for the management of critically ill patients posed an extraordinary strain on the healthcare systems. This had also lead to distress among the frontline healthcare workers as they are dealing a virus relatively new and of unpredictable nature (Lazzerini & Putoto, 2020). Moreover, healthcare professionals working in close contact with COVID-19 patients are made vulnerable to adverse mental health consequences. Research conducted during past epidemics concludes that the psychological implications of pandemics vary from increased anxiety symptoms, depressive symptoms to increased risk of acquiring stress related disorders. The most significant mental challenge was fear of getting infected by the virus (Cabarkapa et al., 2020).

It is a well-established fact in literature that COVID-19 impacts the mental health of frontline healthcare workers. Xing et al. (2020) found that anxiety and depression was prevalent among the frontline healthcare workers in China. Similarly, Xiao et al. (2020) claim through a cross-sectional study that stress and anxiety were high among the healthcare workers performing duties on corona ward. The percentage of anxiety and stress was 54.2% and 62% respectively. Several other studies yield similar results (Alzaid et al., 2020; Rodríguez-Rey et al., 2020; Yang et al., 2020).

The compounding stressors faced by healthcare workers that act as the factors contributing the psychological impact include high risk of infection, inadequate or insufficient personal protective equipment, exhaustion, extra working hours, dealing with patients that are negative and news on media about HCW's getting ill due to the virus (Imran et al., 2020). Other than the above mentioned factors the quarantine also further contributes to the stress of healthcare workers (Rodríguez & Sánchez, 2020). Ramaci et al. (2020) noted that stigmatization of healthcare workers was also as a contributing factor to the stress.

Rodríguez-Rey et al. (2020) published a paper in which they stated the factors that impart to the psychological impact. Fear of contacting the virus and then transmitting to family members, increased workload, escalation in the number of patients of COVID-19 and insufficient personal protective equipment served as significant contributors to the psychological impact. Wang et al. (2020) also documented fear of transferring the virus to the family members and

insufficient personal safety equipment as major concerns shared by healthcare workers.

Indigenous research on psychological impact of COVID-19 on healthcare workers yields results in approbation of previous literature. The percentage of stress, anxiety and depression among healthcare workers of three metropolitan cities of Pakistan was found to be high (Arshad et al., 2020). In another study conducted by Sandesh et al., (2020) on healthcare workers in Karachi, Pakistan moderate to severe levels stress, anxiety and depression were found.

It is evident from the literature that factors such as age, gender, and working hours affect the fear of Covid-19; information about these factors was collected through demographic form. Xing et al. (2020) found that longevity of working hours and increased age had an impact on the fear of the virus. Living with family members with underlying chronic diseases, increased the risk of presence of anxiety (Yang et al., 2020). The workers who over worked during COVID-19 reported greater psychological impact (Rodríguez-Rey et al., 2020). The women healthcare workers showed greater anxiety (Alzaid et al., 2020).

Although interest in studying the psychological impact of COVID-19 has been evident in the literature however there have been a few studies that explore the factors that contribute to psychological impact in depth therefore it is highly imperative to systematically study the impact of the virus alongside the factors that impart the impact. This study will help to find the psychological impact of COVID-19 on healthcare workers which in return will help to devise intervention to mitigate mental health risks in them and identification of factors contributing to it will help the hospital administration and government to address those factors and take respective measures to reduce the stress of the healthcare workers.

1. Healthcare workers serving in corona ward experience more anxiety symptoms as compared to those working in orthopedic or maternity ward.
2. Healthcare workers serving in corona ward experience more fear of COVID-19 as compared to those working in orthopedic or maternity ward.
3. Healthcare workers serving in corona ward score higher on perceived stress as compared to those working in orthopedic or maternity ward.

Research Question

1. What are the factors that contribute to the psychological impact (stress symptoms, anxiety symptoms and fear of corona) of COVID-19 on frontline healthcare workers?

Method

Participants

A purposive sample of 80 healthcare workers was recruited from government hospitals of Lahore. The sample was divided into two comparison groups. One consisted of 40 healthcare workers serving in corona ward and the second group consisted of 40 healthcare workers serving in orthopedic or maternity ward. The sample was divided into two groups to compare the psychological impact of those working in corona ward with the healthcare workers working in orthopedic or maternity group. Both male ($n = 37$) and female ($n = 43$) MBBS or FCPS doctors were approached. The age range of the participants was from 25 to 35 years ($M = 28$, $SD = 4.82$). The participants were approached from government hospitals of Lahore.

Table 1

Demographic Characteristics of Participants (N = 80)

Variables	<i>f</i> (%)	<i>M</i> (<i>SD</i>)
Age		28(4.82)
Gender		
Men	37 (46.3%)	
Women	43 (53.8%)	
Education		
MBBS	63(78.8%)	
FCPS	17(21.3%)	
Ward		
Corona	40(50%)	
Orthopedic or maternity	40(50%)	
Marital status		
Unmarried	54(67.5%)	
Married	24 (30%)	
Divorced	2 (2.5%)	
No. Of children		
None	64(80%)	
1	7(8.8%)	
2	3(3.8%)	
3 or more	6(7.5%)	

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Variables	<i>f</i> (%)	<i>M</i> (<i>SD</i>)
Family structure		
Nuclear family	50(62.5%)	
Joint family	30 (37.5%)	
Months of working		
One month	4(5%)	
Two months	14(17.5%)	
Three or more months	62(77.5%)	
Working hours		
Six hours	37(46.3%)	
Eight hours	21(26.3%)	
More than eight hours	22(27.5%)	
Tested positive for COVID-19		
No	62(77.5%)	
Yes	18(22.5%)	
Space at home to self-isolate		
Yes	58 (93.5%)	
No	4 (6.4%)	

Note. *f*(%) = Frequency and percentage, *M* = Mean, *SD* = Standard Deviation.

Measures

Perceived Stress Scale. This 14 item questionnaire was administered to measure the perceived stress of the healthcare workers. It was developed by Cohen et al. (1983). It was a standardized test that consisted of questions and answers were required on a 5 point Likert scale ranging from *never* to *fairly often*. The scale was designed to measure the degree to which the events in an individual's life are stressful. Cohen et al. (1983) have shown that the scale is reliable as its reliability is measured to be between 0.84-.86. High scores on the perceived stress scale indicate high level of stress and vice versa.

Generalized Anxiety Scale. The scale was developed by Spitzer and his colleagues (2006). It has 7 items rated on a 4 point Likert scale. The score of 0 indicates *Not at all* and the score of 3 indicates *Nearly every day*. It measures the signs of generalized anxiety such as nervousness, inability to stop worrying, excessive worry, restlessness, difficulty in relaxing, easy irritation and fear of something awful happening. High score on the GAD-7 are indicative of high anxiety and vice versa. The sensitivity and specificity value for the scale is 0.89 and 0.82 respectively (Spitzer et al., 2006).

Fear of COVID-19 Scale. The scale was developed by Ahorsu et al. (2022) to measure the fears and worry among individuals related to COVID-19. The scale has previously been used on Asian population

hence it is suitable to use it in the study. It is a 7 item self-report likert scale. The score of 1 indicates that the participant *strongly disagrees* with the statement and the score of 5 indicates that the participant *strongly agrees* with the statement. The reliability of the test is measured to be .74.

Demographic Questionnaire. It was developed by researchers to obtain information about the demographic variables of the participants such as the gender, age, working hours, working days, marital status, number of children, family system, tested positive for corona or not, space to self-isolate.

Procedure

The study was divided into two phases. In phase 1 quantitative data was gathered and on phase 2 qualitative data was gathered. During phase 1, data was collected from the government hospitals of Lahore within a one month period. The data was collected through online Google form which consisted of three sections: consent form, demographic information form and research questions. Through the online form consent was obtained from the participants. Then important demographic information was obtained through the demographic form in the second section followed by administration of Fear of COVID-19 scale, Generalized Anxiety Scale (GAD-7) and Perceived Stress Scale (PSS) in the respective sequence. The participants were assured about the confidentiality and anonymity of the study prior to the administering tools on them. The estimated time for procedure was 30 minutes. A total of 123 participants were approached but decreased to 80 after screening for inclusion or exclusion criteria. After the collection of quantitative data six healthcare workers were selected in phase 2 of the study. The six healthcare workers were selected from corona ward and scored high on the psychological impact during phase 1 of the study. In phase 2 data was collected over audio call. Semi-structured interview schedule was administered. The participants were assured about the confidentiality and anonymity of the study prior to interview.

Results

In Phase 1 of the study The Statistical Package for Social Sciences Version 20 was used to analyze the results. The quantitative analysis of the study was conducted by applying descriptive and inferential statistical analysis. Reliability analysis was performed to obtain the Cronbach's alpha value of the measures; Pearson's Product

Moment Coefficient of Correlation was computed to determine the relationship between psychological impact (fear of corona, stress and anxiety symptoms) and demographic variables of the participants. In addition, independent samples *t*-test was computed to determine the difference in the psychological impact (fear of corona, stress and anxiety symptoms) of healthcare workers working in corona ward to those working in maternity or orthopedic ward.

Table 2

Descriptive Statistics and Reliability Analysis of Study Measures (N = 80)

Scales	<i>k</i>	<i>M</i>	<i>SD</i>	Range	Cronbach's α
Fear of Covid-19	7	20.4	7.1	7-33	0.92
Perceived Stress	14	27.5	9.5	10-46	0.89
Anxiety	7	7.8	5.3	0-21	0.92

Note. *k* = no. of scale items, *M* = Mean, *SD* = Standard Deviation, α = Cronbach's index of internal consistency.

Table 2 shows Alpha coefficient of fear of COVID-19, stress and anxiety are within the acceptable range .92, .89 and .92 respectively.

Table 3

Pearson Correlation between Demographic Variables and Psychological Impact (Fear of COVID-19, Stress and Anxiety) (N = 80)

Variables	<i>SD</i>	1	2	3	4	5	6	7	8
1. Gender	.50	-	.07	.10	-.03	.13	-.03	.30**	-.23*
2. Ward	.50		-	-.50**	.12	.15	-.85**	-.77**	-.87**
3. Working days	.55			-	-.17	.17	-.45**	-.51**	-.46**
4. Marital Status	.58				-	.54**	-.05	-.07	-.15
5. No. of children	.87					-	-.09	-.19	-.24*
6. Stress	9.50						-	-.35**	-.35**
7. Anxiety	5.39							-	.16
8. Fear of Covid-19	7.16								-

Note. * $p < .05$, ** $p < .01$.

Table 3 shows Pearson Correlation Matrix which was generated to assess the relationship between gender, ward, working days, no. of siblings, marital status, no. of children, stress, anxiety and fear of COVID-19. The Table 3 indicates significant negative correlation was observed between fear and ward (COVID-19 Ward = 1, Orthopedic or maternity ward = 2) ($r = .85$, $p < .01$). The results yielded a significant negative correlation between ward (COVID-19 Ward = 1, Orthopedic

or maternity ward = 2) and anxiety ($r = .77, p < .01$). There is also a significant negative correlation between ward (COVID-19 Ward = 1, Orthopedic or maternity ward = 2) and stress ($r = .85, p < .01$). As shown in the table 3 a significant negative correlation between working days (One month = 1, Two months = 2 and More than two months = 3) and fear ($r = .46, p < .01$), stress ($r = .45, p < .01$) and anxiety ($r = .51, p < .01$).

Table 4

Independent Sample t-test comparing Psychological Impact (Fear of COVID-19, Stress and Anxiety) among Healthcare Workers working in Corona Ward to those working in Orthopedic or Maternity ward (N = 80)

Variables	Corona ward		Orthopedic or maternity ward		<i>t</i> (78)	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Fear of Covid-19	26.67	3.2	14.2	3.7	16.0	.00	3.60
Stress	35.65	4.4	19.5	5.4	14.4	.00	3.25
Anxiety	11.95	3.9	3.6	2.8	10.7	.00	2.45

Note. *M* = median, *SD* = standard deviation, *p* = significance.

Independent samples *t*-test was computed to assess psychological impact (fear of corona, stress and anxiety symptoms) across wards among healthcare workers. Table 4 indicates that there is a significant difference in scores of fear of corona, anxiety and stress of healthcare workers working in corona ward and those working in orthopedic or maternity ward. The high mean score shows that fear of COVID-19 in corona ward is higher ($M = 26.6, SD = 3.2$) as compared to those working in orthopedic or maternity ward ($M = 14.2, SD = 3.7$). The stress was also high in healthcare workers working in corona ward ($M = 35.5, SD = 4.4$) as compared to those working in orthopedic or maternity ward ($M = 19.5, SD = 5.4$). The results also revealed that anxiety was also higher in healthcare workers working in corona ward ($M = 11.9, SD = 3.9$) as compared to those working in orthopedic or maternity ward ($M = 3.6, SD = 2.8$). The independent samples *t*-test proves all hypotheses proposed. In H_1 hypothesis, that healthcare workers serving in corona ward experience more anxiety symptoms as compared to those working in orthopedic or maternity ward was proved. Healthcare workers serving in corona ward experience more fear of corona as compared to those working in orthopedic or

maternity ward has been proven according to H₂ and H₃ that healthcare workers serving in corona ward score higher on perceived stress as compared to those working in orthopedic or maternity ward has also been proved.

The analysis of quantitative data was done using Interpretative phenomenological analysis (IPA) for the 6 healthcare workers working in corona ward and who had high scores on psychological impact (fear of corona, stress and anxiety symptoms). The interview responses to the questions were categorized with interpretative phenomenological analysis (IPA) and it was used to extract similar themes from the responses of participants which were grouped together into same category.

Table 5
Subordinate Themes and Superordinate Themes

Subordinate themes	Superordinate (master) themes
Deadly virus Spreads quickly Transmitting to family members Getting Infected Deaths Paranoia	Reasons of Fear of Covid-19
Not being able to meet Family Quarantine Patient Flow Work load Oxygen Saturation Client's Health Increased Working hours No days off Old age parents	Reasons of Stress
Rumination Probability of contacting Covid-19 Impact on work Not bring able to relax Patient's Flashbacks Increase in Patients New researches Isolation	Reasons of Anxiety

Continued...

Subordinate themes	Superordinate (master) themes
Distance from family	
Insufficient equipment	
Equipment	Working Conditions
Masks	
Sanitizers	
Beds	
Ventilators	
Shortage	
High patient flow	
Less resources	
Meditation	
Praying	Coping Strategies
Spiritual coping	
Belief in Allah	
Precautionary measures	
Hobbies	
Oath	
Passion	Commitment to work
Helping Patients	
Hope	
Faith	

As [Table 5](#) shows the major themes revealed to the question *Why do you fear COVID-19 so much?* include the deadly nature of the virus as it has a high death rate. Healthcare workers were also afraid of contacting the virus themselves and transmitting it to their family members. The most commonly reported fear was of transmitting it to the old-aged parents at home who are more susceptible to the virus. Another fear reported was the uncertain nature of the virus. The themes revealed to the question *What is the cause of high Stress?* include stress due to increased working hours, work load and the increased number patients of corona. *What are the reasons for high Anxiety?* was another question and the significant themes revealed from the responses of the participants included insufficient personal protective equipment. The majority also reported that the working conditions were not good. The healthcare workers also reported that shortage of masks, sanitizers, gloves, beds for patients and ventilators. The healthcare workers also reported that the number of patients was really high as compared to resources available. Shortage of bed, ventilators and oxygen cylinders was also reported.

What are the Working Conditions? was asked and data was analyzed to reveal the themes, most of healthcare workers reported that they didn't receive sufficient personal protective equipment. The majority also reported that the working conditions were not good. The healthcare workers also reported that shortage of masks, sanitizers, gloves, beds for patients and ventilators.

The healthcare workers were also asked the question *How do you Cope with the Stress?* to which the responses of healthcare workers revealed that the majority of the healthcare workers cope with high anxiety, stress and fear of corona through praying, meditation and spiritual coping. Some of the healthcare workers engage themselves with hobbies they have to distract their mind. Consulting the counselor available as a way of coping to the psychological impact of Covid-19 was rare response by the healthcare workers. The last question asked was *How do you remain Committed to your Work under such Fear, Stress and Anxiety?* Majority of the healthcare workers reported that the oath they took at the beginning of the profession was one of major source of their commitment to their profession despite whatever the circumstance were. Some of the healthcare workers reported that they reminded themselves of the passion they had when they entered into medical school. They also reported that the health of their patients was the top most priority for them and helping their patients also served as a source of motivation. On rare occasions the response such as the improvement in the patient's condition served as the factor of commitment.

Discussion

The results of the present study accept the notion that COVID-19 had an adverse psychological impact on the healthcare workers. According to research healthcare workers, especially those taking care of confirmed or suspected COVID-19 cases are vulnerable to both psychological problems and high risk of infection. They may experience fear of contracting the virus and transmitting it to their families, friends or co-workers. Another major concern for the healthcare workers is the shortage of personal safety equipment and also patients who aren't compliant ([Chen et al., 2020](#)).

It was hypothesized that healthcare workers working in corona ward will experience more fear of corona as compared to those working in orthopedic or maternity ward. Our finding supported this hypothesis which is in lines with the previous researches. Studies consistently show high fear of COVID-19 among the healthcare workers. According to a research done on frontline healthcare workers

in Pakistan, nearly 95% of healthcare workers reported high fear of COVID-19 (Saleem et al., 2020).

The hypothesis that healthcare workers working in corona ward will experience more anxiety as compared to those working in orthopedic or maternity ward was accepted through the results of the study. It was consistent with the existing literature as many studies document high anxiety among healthcare workers dealing with COVID-19 positive patients. A descriptive analytical study done on healthcare workers of King Edward College Pakistan found that the prevalence of anxiety was 36.2% (Imran et al., 2020).

The study also examines the stress of the healthcare workers. The results showed high stress among the healthcare workers working in corona ward which lead to the acceptance of the third hypothesis. Previous researches yielded similar results. 62% of the frontline healthcare workers experienced stress according to a study cross-sectional study done on healthcare workers in China (Xiao et al., 2020). Tan et al. (2020) compared the stress and depression among the healthcare workers who attained medical training to those not medically trained. Thirty six healthcare workers screened positive for post-traumatic stress and sixty eight screened positive for depression healthcare workers.

The present study also found a significant negative correlation between age and anxiety. This negative correlation shows that as the age increases the anxiety decreases. Arshad et al. (2020) conducted a research in three metropolitan cities of Pakistan to assess the stress, symptoms of anxiety and depression during COVID-19 on healthcare workers. The results of the study revealed that anxiety was significantly correlated with residence and age.

The factors that contribute to the psychological impact (fear of corona, stress and anxiety symptoms) were explored through a semi-structured interview and later the data was analyzed qualitatively through Interpretative phenomenological analysis.

The most widely reported contributor to the fear reported by the participants was the fear of transmitting the virus to family members specially the old-aged parents at home. Other reasons of fear among the healthcare workers working in corona ward were the fear getting infected and the deadly nature of the virus. This outcome is supported by the existing literature, a research conducted to find the predictors of fear in healthcare workers during COVID-19 found the major predictors included not getting a medical treatment (62%), getting infected (84.8%), going into quarantine (69.6%) and the major

contributor was fear of transmitting the virus to family members (94.2%)([Kumar et al., 2020](#)).

Increased working hours, work load and increase in the number of patients were the factors associated with increased stress of the frontline healthcare workers according to the present study. Insufficient personal safety equipment was a major contributor to the stress of the healthcare workers as analyzed by the present study. This factor has been widely reported in the previous researches a contributor to the psychological impact of healthcare workers. [Rodríguez-Rey et al. \(2020\)](#) reported that main reason of this distress among healthcare workers during COVID-19 was the insufficient personal safety. These factors are documented by other researches as well ([Teshome et al., 2021](#); [Wang et al., 2020](#)).

Constantly ruminating about the virus and distancing oneself from family members are the widely reported contributors to the anxiety among healthcare workers. These factors have not been reported widely as contributors of anxiety in the previous literature. Other factors of anxiety among healthcare workers documented in literature include COVID-19 suspected family member, not having access to personal safety equipment and having a chronic illness were significantly associated with anxiety ([Kibret et al., 2020](#)). Fear of getting infected and increased workload have also been reported as a cause of anxiety ([Mattila et al., 2020](#)). All the above mentioned factors are coherent with the findings of the study.

The coping strategies reported by the healthcare workers to cope with stress in the present study included spiritual coping, praying and meditation. However, the literature already present on the coping of healthcare workers report different ways such as ‘thinking positively’ and ‘getting family support’([Htay et al., 2021](#)). This can be justified by the fact that most of the concepts in psychology of stress and coping have emerged from and grown out of research in western societies ([Kavanagh, 1986](#)).

The healthcare workers were also asked about the working conditions and it was reported by majority of the healthcare workers that there was shortage of beds, insufficient personal safety equipment, increase in the number of patients and shortage of other resources such as oxygen cylinders and ventilators. These findings are consistent with the existing literature on the working conditions as a research measuring the limitations and gaps in hospitals of Pakistan during pandemic concluded that there are 0.6 bed for 1000 people and less than 0.75% of GDP as health spending is doubtful to bear the

COVID-19 shock in case of exponential increase in cases (Noreen et al., 2020).

Interesting finding of the study was to identify how the healthcare workers remain committed to their profession despite the harsh circumstances. It was revealed that for most of the healthcare workers the oath they took before stepping into the clinical practice served as a source of motivation for them. They also reported that the health of their patients was their top most priority. The passion with which they joined the medical school was also a major source of their dedication and commitment.

Limitations and suggestions

Although the present research study succeeded in reaching its intended aims and found considerable support for each of its hypotheses, there were some inevitable limitations encountered in conducting the present research study. The size of the sample was small beside that the research was conducted through an online form. One potential disadvantage of online data collection is the lack of control over the setting in which participants provide their responses. In future the research can be carried out on larger sample to increase the generalizability of the research. Longitudinal research design can help deeply research the current topic. It can provide stimulating insight into how the working duration in corona ward affects psychological impact among the healthcare workers.

Conclusion

The results of the study demonstrate that COVID-19 had a psychological impact on the healthcare workers working in corona ward. The healthcare workers experience fear of corona, stress and anxiety symptoms. There are various factors that contribute to the psychological impact of healthcare workers such as fear of getting infected by the virus, transmitting to the other family members, staying in isolation, increased number of patients and insufficient personal safety equipment. This study provides important implications for psychological well-being of healthcare workers. It helps to find the psychological impact of COVID-19 on healthcare workers which in return will help to devise intervention to mitigate mental health risks in them and identification of factors contributing to it will help the hospital administration and government to address those factors and take respective measures to reduce the stress of the healthcare workers.

While preventive measures against COVID-19 are arguably the most powerful tools to curb the pandemic, their effectiveness depends on how much people comply with them. Multiple theories suggest that cognitive and emotional responses determine the behavioral changes produced in response to a health threat. Hence, the primary objective of this study was to analyze the relationship between optimism bias, fear, and compliance with COVID-19 related protective behaviors and examine differences between these variables among healthy and high-risk diabetic young adults.

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