



RESEARCH PAPER

Impact of Fear of Covid-19 and Familial Infection on the Mental Health of Medical Professionals

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ABSTRACT

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The present study examined the impact of fear of COVID-19 and familial infection on the mental health of medical professionals. The study was based on cross-sectional survey design. Participants comprised of medical professionals ($N = 300$) working in different hospitals. Both males ($n = 217, 72.3\%$) and females ($n = 83, 27.7\%$) participated in the study. Data were collected using a convenient sampling technique. Fear of COVID-19 Scale (Ahorsu et al., 2020), Fear of COVID-19 Familial Infection Scale (Mayer et al., 2020), and Positive Mental Health Scale (Lukat et al., 2016) were used for data collection. Results revealed that familial infection is the moderator between fear of covid-19 and mental health. The study is an important addition to the existing body of knowledge that fear of familial infection also plays a moderating role between fear of covid-19 and mental health and also affects the mental health of medical professionals.

Introduction

The Fear is a useful sensation that mobilizes potential as a reaction to a potential threat. Besides this, fear cannot be adaptive if adequately is not matching with the real danger. However, two of them on an individual level (e.g., Phobia and social anxiety are included in some of the mental health problems) and on one of society level (example included are panic xenophobia and panic buying) the extreme fear would have negative consequences. On the other hand, if there isn't already enough fear, it may be damaging to both society and individuals (e.g., People seem to ignore government steps to reduce the progression of the pandemic, or reckless strategies are ignoring the hazard). Moreover, threat causes people to behave in a safe manner (such as washing of hands). This helps alleviate some dangers (contamination); however, they can intensify dread. For example, concerns about contamination and anxiety about health (Deacon & Maack, 2008; Engelhard et al., 2015; Olatunji et al., 2011). Similarly, precautionary social strategies (such as lockdowns) are taken to avoid the spread of diseases. Nevertheless, if these precautions are taken for an excessive amount of time or are excessively rigorous, they might have detrimental repercussions.

Stressors can be described as states of threat, provocation, demands, and structural restrictions that, by their very fact of their incident or presence, put the operational integrity of the organism into question (Wheaton & Montazer, 2010) and may cause psychological discomfort in individuals. This description applies to a pandemic as either a devastating experience for individuals individually impacted by illness or as a more widespread hazard. A pandemic is also a stressor that happens on a macro-level of social reality. Unlike micro- or meso-level stressors (e.g., divorce) or neighbourhood crime (e.g., neighbourhood crime), macro-level stressors each member of the unit is exposed at some degree, but the extent of exposure may vary by time and place (Wheaton et al., 2013)

According to the stress process model, contextual variables (such as social conditions or life experiences) determine whether or whether the presence of a stressor causes physical or psychological changes in an individual (Pearlin & Bierman, 2013; Wheaton & Montazer, 2010). Because fear is a response to a perceived threat, the level of fear and concern regarding COVID-19 might indicate the virus's perceived threat (Malik et al., 2018; Nellis, 2009; Richman et al., 2008). In other words, existence of increased COVID-19 anxiety suggests virus-related stress. As a result of this stress, mental health may suffer (Pearlin & Bierman, 2013). Furthermore, differences in this fear experience may correspond to differences in the psychological consequences of COVID-19's perceived stress.

Literature Review

People's mental health care at many levels, including promotion, prevention, and clinical care, is critical in these troubled times. This is the moment to bring the relevance of mental health in our daily lives to the attention of the general public. In the face of excessive (unpredictable and unknown) stress, healthcare workers and professionals' emotional and behavioural reactions are naturally adaptive, and counselling and psychotherapy based on the stress-adaptation paradigm might function as an early and rapid solution. As a result, addressing mental health concerns among medical professionals is critical for improved pandemic prevention and management (Banerjee, 2020). Medical professionals are often cycled across the provinces of the state to treat for confirmed or suspected cases, enhance logistic support, and relieve strain on health-care employees. In this scenario, broadcasting medical information on how to avoid the danger of transmission between patients and medical professionals in a medical environment via internet and electronic media might alleviate the stress on medical professionals.

Fear of infection, concern of not being able to offer sufficient treatment for sufferers due to minimal facilities, worry of infecting friends and family and worry of bringing the virus home and , worry of stigmatisation, or much other factors are all acceptable grounds for developing fear in this epidemic. Worry is not unique to the COVID-19 pandemic; subsequent infectious disease outbreaks, such as HIV and SARS, have been extensively documented. Fear was prevalent among HCW during SARS, according to Ho et al. More than half of HCWs believed they had little control over being infected whether they followed or maintained infection prevention procedures. During the SARS outbreak, high stress, excessive workload, and abrupt changes occur in regular medical course of action made it difficult for many HCWs

to completely execute preventative practises, despite understanding their reason and the possible harm of not doing so (Ho et al., 2005).

This is estimated because the risks of becoming infected are substantially higher when there is a possibility of exposure, which raises a concern of transmission to family members and children. Burnout and physical and emotional symptoms are also caused by the tension between professionalism and personal worry for one's own safety (Goyal et al., 2020). The study aims to explore the impact of fear of COVID-19 and familial infection on the mental health of medical professionals. The research has another purpose that fear of corona and familial infection predict mental health and we have a moderator variable that is familial infection. That have a moderating role between mental health and fear of COVID-19. There are not many types of research conducted on this topic so that's why we have to conduct research on this topic to give a fresh topic for research to study to a different dimension. After the research, we can get to know that the outcomes can be generalized to the population or not of the present investigation.

The available literature on these variables suggests that not much study the mental health of medical professionals related to fear of COVID-19 and familial infection. Through previous researches, we get to know that these variables are studies with different variables not with study variables and they find the relationship of mental health with other variables. We also study the impact of demographics on study variables. Covid-19 would be positively predicted familial infection among medical professionals. In the study, variable Covid-19 would be negatively predicted mental health among medical professionals. Familial infection would be negatively predicted mental health among medical professionals. The study aim is to determine the impact of fear of corona pandemic and familial infection on the mental health of medical practitioners and familial infection would be the moderator between the fear of COVID-19 and the mental health of medical professionals. And also determine the gender and type of profession difference on the study variables.

Hypotheses

- H1. The fear of COVID-19 would have a significant positive relationship with familial infection of medical professionals.
- H2. The fear of COVID-19 would have a significant negative relationship with the mental health of medical professionals
- H3. The fear of familial infection would have a significant negative relationship with the mental health of medical professionals.
- H4. The fear of COVID-19 would be positively predict fear of familial infection of medical professionals.
- H5. The fear of COVID-19 would be negatively predict the mental health of medical professionals.

H6. The fear of familial infection would be negatively predict the mental health of medical professionals.

H7. Fear of familial infection would be the moderator between the fear of COVID-19 and the mental health of medical professionals.

Material and Methods

The purpose of this investigation is to determine the impact of COVID-19 and familial infection on mental health of medical professionals. This chapter describes research design, sample, instruments and descriptions of the sample and procedure of the study.

Research Design

In order to explore the impact of COVID-19 and familial infection on mental health of medical professionals assign cross sectional research design. Questionnaire booklet were distributed in medical professionals by researcher as the underlying survey method employed for data collection was personal interview.

Sample

In the present study, a sample of health professionals ($N = 300$) including males ($n = 217, 72.3\%$) and females ($n = 83, 27.7\%$) ($M = 1.28, SD = .45$) was collected from different medical professionals ($M = 1.50, SD = .50$) that were equally divided into subgroups doctors ($n = 150, 50\%$) and nurses / paramedics ($n = 150, 50\%$) providing services in different government and private hospitals. The sample size was considered adequate for the generalization of results. The sample was collected from the province Punjab and also from different hospitals of Sargodha. The data was collected by applying a convenient sampling technique. It is the techniques that involve the selection of easily assessable subjects, for conducting the research. This technique demands less time and money for the researcher. The medical professionals who are providing their services to the corona patients are ensured as inclusion criteria. It is ensured that they are providing their services in the isolation centers of the hospitals. The medical professionals who have not direct exposure to corona patients and don't provide their service directly to corona patients are ensured as exclusion criteria.

Table 1
Demographic Characteristics of Medical Professionals

Characteristics	<i>n</i>	%
Gender		
Male	217	72.3
Female	83	27.7
Type of Profession		
Doctors	150	50
Nurses / Paramedics	150	50

Table 1 shows the frequency and percentage of medical professionals with respect to gender and their profession. Greater number of males ($n = 217, 72.3\%$) as compared to females ($n = 83, 27.7\%$) participated in the study. Equal number of doctors ($n = 150, 50\%$) and nurses / paramedics ($n = 150, 50\%$) participated in the study.

Instruments

Fear of COVID-19 Scale. The scale was developed by Ahorsu et al. (2020). The scale was developed and is used to assess the fear of getting coronavirus. The target population for developing the scale was the Iranian population aged 18 years or older and understood and spoke Persian and Farsi. The scale is comprised of seven items referring to the fear responses about the coronavirus. The statements of the scale are based on descriptive statements that show fear of coronavirus such as "I am most afraid of Corona" and "I am afraid of losing my life because of Corona". The scale is based on 5-point Likert-type scale with response categories including *Strongly Disagree* = 1, *Disagree* = 2, *Neutral* = 3, *Agree* = 4, *Strongly Agree* = 5. The minimum possible score for each item is 1, and the maximum score is 5. The minimum-maximum score on the overall scale is 7 to 35 with higher scores indicating a higher level of fear of coronavirus. The reliability values such as internal consistency ($\alpha = .82$) and test-retest ($\alpha = .72$) were acceptable and show that it is a reliable and valid instrument for assessing fear of COVID-19. The scale was used in the present study on the basis of a written permission from the author of the scale through email.

Fear of COVID-19 Familial Infection Scale. The scale was developed by Mayer et al. (2020). The scale is used to assess the fear of COVID-19 in the health care workers to measure the difference between the health care workers those who exposed to COVID-19 patient and those who were not exposed to COVID-19 patient with clinical experience of at least 15 years and the age ranged from adolescent to late adulthood. The scale consists of seven items that relate to fear reactions to the pandemic. The scale is based on descriptive statements that show their fear of COVID and familial infection such as "I am afraid to infect my children with the coronavirus-19" and "I am afraid to infect my extended family members with the coronavirus-19". The scale is based on 5-point Likert-type scale with response categories including *Strongly Disagree* = 1, *Disagree* = 2, *Neither agree nor disagree* = 3, *Agree* = 4, *Strongly Agree* = 5. Minimum-maximum scores on the overall scale are 7 to 35 with a higher sum score indicating higher fear of COVID-19. The instrument showed proper internal validity (Cronbach alpha of 0.82) and showed good internal consistency, with an alpha Cronbach of 0.84. The scale was used in the present study on the basis of a written permission from the author of the scale through email.

Positive Mental Health Scale (PMH-scale). The scale was developed by Lukat et al. (2016). The scale was developed and is used to assess the inner (emotional and psychological) aspects of good mental health as compared to the external variables (e.g. social support, partnership). The scale is used to assess positive mental health on different samples of students' mentally ill patients and mentally healthy individuals. The scale is comprised of nine items that show positive statements for positive mental health. The scale is based on positive descriptive statements that show the items are worded positive such as "I enjoy my life" and "I feel that I am actually well equipped to deal with life and its difficulties". The scale is based on a 4-point

Likert-type scale with response categories including *Not True* = 1, *Usually not True* = 2, *Occasionally True* = 3, *True* = 4. Minimum-maximum scores on the overall scale are 9 to 36 with a higher sum of scores indicating a higher positive mental health. The results show that scale shows .93 high internal consistency and good test-retest reliability. The scale was used in the present study on the basis of a written permission from the author of the scale through email.

Procedure

First of all, the topic selected through mutual discussion with the supervisor and approved by the department, and approved by the board of study. The psychology department provided a letter confirming the researcher's affiliation with the institution as well as details saying that the researcher is working on a study project as part of partial fulfillment of his advanced diploma in clinical psychology. The targeted organizations list includes private and government hospitals was organized. Concerned authorities from the selected government and private hospitals were approached, and written approval for data collection from their facility was acquired on a permission letter. For data gathering, the researcher directly approaches medical experts. Every participant's data was obtained separately. The study's nature, goal, and objectives were discussed with the participants with the purpose of establishing a good reputation. Participants who match the research's inclusion criteria are enrolled in the study and asked to participate. With a smile, excuses for not wanting to participate were accepted. Only the consenting participants were informed of the study's goals. It was made clear that the information gathered would only be used for research reasons and would be kept private. They were also informed that they had the right to withdraw their information at any time prior to, during, or after the scale's completion. The study participants were required to complete an informed consent form. The participants are given systematic instructions on how to complete the scale, the nature of the questions, and the rating scale. Participants' questions were answered before, during, and after the scale was completed. Participants take 10 to 15 minutes for the completion of the scale. The responses of the participants were encouraging and their responses showed their interest in the study. After the completion of the scale, the researcher checks the responses of the participants to identify the incomplete and double rated questions and requested the participants to answer the left questions and clear about the double rating. The researcher expressed thanks to the participant for donating his or her time and willingly taking part in the study without receiving any compensation. The researcher calculated the response rate which was 100% as 300 valid forms were returned out of 300 forms distributed for data collection.

Results and Discussion

The present study aimed to examine the impact of fear of covid-19 and familial infection on the mental health of medical professionals. Data analysis was carried out using SPSS-25. Initially, the demographic characteristics were identified through frequencies and percentages. Descriptive statistics and alpha reliability coefficients were computed. Pearson correlation was computed to examine the relationships between variables. Linear regression analysis was applied to examine the effect of covid-19 and familial infection on mental health of medical professionals. Moderation

analysis was conducted the moderating role of fear of familial infection between fear of COVID-19 and its outcomes mental health of medical professional.

Table 2
Psychometric Properties and Pearson Correlation among Scales

Scales	M	SD	Range	Cronbach's α	1	2	3
1. Fear of Covid -19	19.89	9.95	7-35	.97	-	.92***	-.38***
2. Familial infection	17.33	8.30	6-30	.95		-	-.36***
3. Mental health	17.55	8.19	9-40	.96			-

*** $p < .001$.

Table 2 shows the psychometric properties for the scales used in the present study. The Cronbach's α value for Covid-19, Familial and mental health were .97, .95 and .96 ($> .90$) which indicated good reliability for all scales administered on medical professionals. Results shows that covid-19 has positive correlation with familial infection ($r = .92, p < .001$) but negative correlation with mental health ($r = -.38, p < .001$). Familial infection has negative correlation with mental health ($r = -.36, p < .001$).

Table 3
Moderation of Fear of Familial Infection between Fear of COVID-19 and Mental Health in Medical Professionals

Predictors	B	SE	95% CI		p
			LL	UL	
Constant	25.94	2.41	21.20	30.68	.000
Fear of COVID-19	-0.46	0.19	-0.84	-0.08	.018
Fear of familial infection	-0.15	0.21	-0.56	-0.27	.004
Fear of COVID-19 x fear of familial infection	-0.12	0.02	-0.02	-0.02	.049

Table 3 shows moderation of fear of familial infection between fear of COVID-19 and mental health in professionals. The R^2 value of .15 explained 15% variance in outcome with $F(3, 296) = 17.92, p < .001$. Finding revealed that fear of COVID-19 ($B = -.46, p < .001$), fear of familial infection ($B = -.15, p < .001$) and fear of COVID-19 x fear of familial infection ($B = -.12, p < .001$) negatively predicted mental health. The finding revealed that fear of familial infection moderated between fear of COVID-19 and mental health in medical professionals.

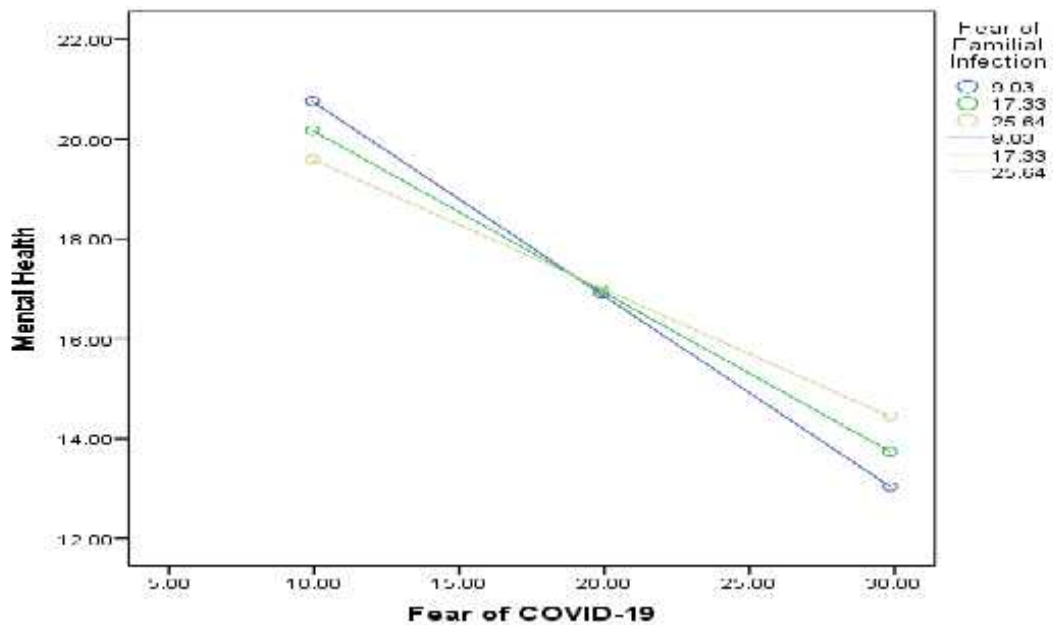
Figure 1*Mod-Graph on the Moderation of Fear of Familial Infection*

Figure 1 shows that high level of fear of familial infection increased the negative effect of fear of COVID-19 on mental health of medical professionals. However, as the level of moderator was decreased to moderate and low level the effect of fear of COVID-19 on mental health of medical professionals was also decreased.

Conclusion

The present study was based on the mental health of medical professionals. The present study aimed to investigate the impact of fear of COVID-19 and familial infection on the mental health of medical professionals. Firstly reliability, normality, and construct validity of the scale were confirmed (Coakes & Steed, 2003). The alpha coefficients for all measures were $\alpha > .90$, which shows that the scales that are used in the study were reliable (Kline, 2005). The skewness and kurtosis values were computed for all scales and their values confirmed that data was normally distributed. Skewness and kurtosis values should be smaller than +1 and -1, respectively. Items or scales that exceed this limit should be removed from the data (Cisar & Cisar, 2010; Field, 2005). The results reveal that for the scales used in this study, the skewness and kurtosis values are less than one. Data doesn't contain the problems with univariate analysis (Cisar & Cisar, 2010; Miles & Shevlin, 2001). Convergent and discriminant are the types of construct validity (Anestessi, 2006). The scale's convergent validity was validated by zero-order correlation in variables in theoretically intended directions. Moreover, the uniformity of the information and also the theoretically in-line correlation coefficients in the variable are three key assumptions to evaluate the hypotheses with further regression analysis. As a result, the key hypotheses were tested once these issues were addressed.

The first hypothesis “The fear of COVID-19 would have a significant positive correlation with fear of familial infection of medical professionals” was confirmed in this study. The findings support a growing body of theoretical and empirical evidence that as medical professionals' anxiety of covid-19 increases, so does their fear of familial transmission. The fear of COVID-19 was identified as one of the primary variables influencing higher levels of stress in the previous researches (Ahorsu et al., 2020), and in particular, the fear of becoming sick or of infecting one's family and friends (Lancet, 2020). Latest literature on medical professionals and their families has emphasized the requiring of considering healthcare workers' social responsibilities as parents, spouses, and children in addition to their duty as frontline responders (Lancet, 2020; Souadka et al., 2020).

The second hypothesis “The fear of COVID-19 would have a significant negative correlation with the mental health of medical professionals” was supported in this present study. The existing theoretical and empirical literature suggested that the mental health of medical professionals decreases with the increase in the fear of covid- 19 because the fear develops emotional disturbance which decreases the mental health of medical professionals. As previously mentioned, fear, involuntary confinement, and the stress that comes with this epidemic affect the entire community, and health workers on the front lines of treatment confront additional challenges. The number of the confirmed cases are increased that are connected with a lack of preventive strategies, prolonged hours of working, separation of Medicare workers from their loved ones and from families, and fear of contagion, would results in increase the rate of suicidal ideation, depression, anxiety, suicide attempts, employment burnout and substance abuse (Lai et al., 2020; Mamun & Griffiths, 2020; Pfefferbaum, 2020).

The third hypothesis “The fear of familial infection would have a significant negative correlation with the mental health of medical professionals” was supported in the present study. As the literature suggested that the medical professionals have a fear that they can carry the infection to their homes and they may spread the virus to their loved ones. In the situation of COVID-19, the danger may have been perceived as infecting families' homes, generating a sense of a "fear inside" or an impediment to family life (Winnicot, 1960), such as when healthcare professionals who are also parents perceive themselves as a threat to their own children. This might have a significant influence on both the mental health of Medicare workers' families but the mental health of health care professionals themselves, who not only serve on the front lines but also worry about posing a threat to their own families.

The fourth hypothesis “The fear of COVID-19 would be positively predicted fear of familial infection of medical professionals” was supported in the present study. As the literature suggested that the fear of familial infection increases as the Medicare fear of covid-19 increase in medical professionals. When they go home, they quarantined themselves due to fear that they can carry the infectious virus to their homes. The World Health Organization has recorded 5,939,234 cases and 367,255 fatalities worldwide too far. Infection risk is significant not just for Medicare staff are working in a hospital, and also for their family members, especially younger and elder children (Chen et al., 2020; Cai et al., 2020). As from the latest statistics, thousands of health care workers have been contaminated with COVID-19 when dealing with patients, with a high number of the dead or dying (Bahl et al., 2020; Koh

& Goh, 2020). Many health care workers are now unwilling to work as a consequence of the fear, loneliness, and danger of death, and have gone in self-isolation to save themselves or their loved ones.

The fifth hypothesis "The fear of COVID-19 would be negatively predicted mental health of medical professionals" was supported in the study. As the existing literature suggests that the increase in fear will decrease the mental health of a person. Many studies have indicated that the suffering of people during a pandemic increases their fear of COVID-19, that in order raises their anxiety, sadness, and stress symptoms. Anonymous fear causes worry in both healthy people and those who so far have health issues (Shigemura et al., 2020). In Ahorsu's study on Iranians COVID-19 fear were shown to aggravate mental symptoms such as sadness and anxiety (Ahorsu et al., 2020). Because fear is a response to a perceived threat, the level of fear and concern regarding COVID-19 might indicate the virus's perceived threat (Malik et al., 2018; Nellis, 2009; Richman et al., 2008). In other words, existence of the increased COVID-19 anxiety suggests virus-related stress. As a result of this stress, mental health may suffer (Pearlin & Bierman, 2013). Furthermore, differences in this fear experience may correspond to differences in the psychological consequences of COVID-19's perceived stress.

The sixth hypothesis "The fear of familial infection would be negatively predicted mental health of medical professionals" was supported in the present study. The previous empirical literature suggested that fear of familial infection has an impact on the mental health of the healthcare professional. And mental health decreases due to fear of familial infection. In the instance of COVID-19, the danger may have been perceived as infecting families' homes, generating a sense of a "threat inside" or an impediment to family life (Winnicot, 1960), such as when healthcare professionals who are also parents perceive themselves as a threat to their own children. This might be a significant influence on the mental health of Medicare workers' families as well as mental health of health care professionals themselves, who not only serve on the front lines but also worry about posing a threat to their own families.

The seventh hypothesis "Fear of familial infection would be the moderator between the fear of COVID-19 and mental health of medical professionals" was supported in the present study. This distinct fear may be unique to pandemics compared to other crisis circumstances, and it may have a significant influence on the families of healthcare professionals. In other sorts of humanitarian disasters, mental health experts see the family as a "safe haven," a protection against the severity of the situation (Kalush & Cohen, 2019). In the situation of COVID-19, the danger may be perceived as penetrating families' homes, generating a sense of a "threat inside" or an impediment to family life (Winnicot, 1960), such as when healthcare professionals who are also parents perceive themselves as a threat to their own children. This might have a significant impact on the mental health of Medicare workers' families as well as the mental health of health care professionals themselves, who not only serve on the front lines but also worry about posing a threat to their own families.

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