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THE IMPACT OF COVID ANXIETY ON MENTAL HEALTH: MODERATING ROLE OF SOCIAL SUPPORT

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Abstract: COVID-19 is a global pandemic that has affected the mental health of people world-wide. With a decrepit health care system in developing countries, it is very difficult to handle the outburst of the virus. This study was conducted with a purpose to examine the impact of COVID-19 anxiety on mental health and exploring the moderating role of social support and gender difference among medical students. A cross-sectional survey was designed and a purposive sampling was used to collect data from 340 participants (157 i.e., 46.2% males and 183 i.e., 53.8% females). The study was conducted online through google form and consisted of three questionnaires; covid anxiety scale by Lee (2020), patient health questionnaire by Kroenke (2010) and social support scale by Cohen (1983), to measure the variables of interest. Data were analyzed through SPSS version 23. The findings revealed that covid anxiety significantly impacts an individual's mental health and social support significantly moderates the association between covid anxiety and mental health. Females experience greater covid anxiety and depressive symptoms whereas males have more social support as compared to females. The study may provide an insight to health regulatory agencies to initiate some mental health programs that can contribute to the betterment of the society.

**INTRODUCTION**

The first case of novel corona virus (SARS-CoV-2) was reported in Wuhan, China 2019 and it affected millions of people across the world. Within a couple of months, it was spread into more than 200 countries and caused deaths of 300,000 people simultaneously. Due to its drastic onset, the World Health Organization (WHO) declared it a global pandemic in 2020. It is a highly infectious disease that causes mild to severe respiratory infection, fever, cough, dyspnea, kidney failure, and in some cases death as well. In Pakistan, at the time of reporting this study, the total number of COVID-19 cases were 969,476 among which there have been 22,520 deaths and 911,383 recoveries. According to WHO (2020), the fatality rate around the world is 6.9% and 2% in Pakistan.

With the substantial increase in confirmed cases and deaths, COVID-19 not only affects the physical health but also deteriorates the mental health of the individuals, among which stress, anxiety and depression are the most rampant ones (Guo et al., 2020). Thus, it creates an interest in research and practice as the negative outcomes of COVID-19 could obstruct the prevention and control of epidemic and resulted in major mental health problems.

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LITERATURE REVIEW

According to cognitive appraisal theory, when individuals encounter a threat (COVID-19), they evaluate the characteristics of the threat in two stages (Folkman et al., 1986). At first, they anticipate consequences about the threat and try to evaluate their severity and in second step after considering the severity of the negative events, they try to overcome it. Basically, a person assesses the perceived uncontrollability and controllability of the negative event. A strong evidence in literature related to negative outcomes of the COVID-19 has been found. However a few researches have examined the relationship between perceives risk and mental health. Some studies have reported a positive correlation with risk perception and mental health (Liu et al., 2021) while other reported negative correlation (Takebayashi et al., 2017). Studies have shown that people who are more exposed to infectious disease are more prone to severe psychological problems (Magnavita, Tripepi & Di Prinzio, 2020) and the negative effects persist even after the removal of the event. In the context of pandemic health care workers, adolescents and older adults are more vulnerable to traumatic events and experience more mental health problems such as depression, anxiety, post-traumatic stress and panic attacks (Ghafari, Mirghafourvand & Rouhi, 2021; Wu et al., 2020). Mental health problems are more prevalent in females as compared to males (Batra et al., 2020). Social support is the most important factor in the literature of trauma as it has the potential to moderate the relation between risk perception and mental health problems. It can be divided into four categories i.e., emotional, appraisal, informational and instrumental (Cobb, 1976). In the light of stress buffering model, social support reduces the negative outcomes of the adverse events and protect the mental health of the individuals (Cohen & Wills, 1985). Whereas other studies contradict with the concept of positive correlation between the two variables as the increased social support can be pernicious to mental health because individuals having more external support lose their ability to control and become permissive. They try to find people who support them and help them to readjust (Yeh et al., 2008). It has been suggested that social support and the resources of social support are distinct phenomena as it was shown in the previous studies that perceived social support is strongly correlated with mental health problems. In another study, it was shown that peer social support is more effective then family social support as it has a strong protective effect against mental health problems (Mustanski, Newcomb & Garofalo, 2011). Thus, how social support moderates the association between covid anxiety and mental health remained unclear. The present study attempts to explore the moderating effect of social support along with the impact of covid anxiety on mental health in medical students. With an already fragile health care system in Pakistan, there exists a strong desire in masses to maintain a constant stream of social support and positive regard for the health care workers who are fighting on the frontier and especially for the medical students who are more vulnerable to the adverse effects of COVID-19. The pandemic has affected millions of people all over the world, however, this study focuses on the mental health of medical students as there exists a need to highlight this phenomena especially in Pakistan as this pandemic evoked more health related issues like depression, anxiety and Post traumatic stress disorder in students (Ghafari, Mirghafourvand & Rouhi, 2021; Wu et al., 2020). There are various factors that contribute to the negative outcomes of COVID-19. Mostly importantly, one of them is the collapse of health care system to handle the pandemic and the other one is an inadequate supply of resources. Social isolation is another major contributor in this regard as it has the potential to increase psychological disorders (Mustanski, Newcomb & Garofalo, 2011).

Hypotheses of the Study

- H1: There is a positive correlation between covid anxiety and depressive symptoms.
- H2: There is a negative correlation between covid anxiety and social support.
- H3: There is a negative correlation between social support and depressive symptoms.
- H4: There is a positive impact of covid anxiety on depressive symptoms.
- H5: Social support is significantly moderate the association between covid anxiety and depressive symptoms.
- H6: Females have greater covid anxiety as compared to males.
- H7: Females have greater depressive symptoms as compared to males.
- H8: Females have greater social support as compared to males.

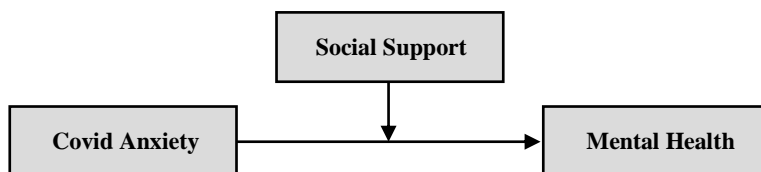


Figure 1: Conceptual Framework

METHODOLOGY

Participants

A total of 340 medical students belonging to different family backgrounds with an age range of (19-29) years participated in the study through google form. A cross-sectional survey was designed and convenience sampling technique was used to collect data from the respondents.

Instrument and Procedure

The sample size was calculated by G-power with the confidence interval of 95% and margin error of 5%. The form consisted of three well developed questionnaire along with an informed consent. Participants were asked to complete an online survey with the authenticity of their responses.

Corona Virus Anxiety Scale (CAS)

The scale was developed by Lee (2020) consisted of five items. Each item is rated on a 5-point scale, ranging from 0 (not at all), 1 (rarely less than a day or two), 2 (several days), 3 (more than 7 days) and 4 (nearly every day over the last 2 weeks). The total score > 9 indicates severe anxiety.

Patient Health Questionnaire (PHQ-9)

The scale was developed by Kroenke et al. (2010), consisted of nine items. It measures depressive symptoms. Each item rated on a 4-point scale from 0 (not at all), 1 (several days), 2 (more than half the days) and 3 (nearly every day). Depression severity ranged between 0-4 (none), 5-9 (mild), 10-14 (moderate), 15-19 (moderately) and 20-27 (severe).

Social Support Scale (SSS)

The scale was developed by Cohen & Hoberman (1983), consisted of 12 items. Each item rated on a 4-point scale from 1 (definitely false), 2 (probably false), 3 (probably true) and 4 (definitely true). Items 1, 2, 7, 8, 11, 12 are reverse scored. Items 2, 4, 6, 11 make up the Appraisal Support sub-scale. Items 1, 5, 7, 9 make up the Belonging Support sub-scale and items, 3, 8, 10, 12 make up the Tangible Support sub-scale.

RESULTS

The study was conducted to identify the effects of covid anxiety on mental health with the possible moderating role of social support along with the gender difference in study variables. The data were analyzed through SPSS version 23 and PROCESS macro v3.5. The statistical analysis included: (1) descriptive analysis on research variables; (2) reliability analysis to access the internal consistency of the scales; (3) bivariate correlation analysis to explore the relationship between variables; (4) simple linear regression to investigate the impact of covid anxiety on mental health; (5) moderation analysis to determine if social support moderate the association between covid anxiety and mental health; (6) independent sample t- test to investigate the gender differences among all variables (covid anxiety, mental health and social support).

Measure	Items	α	Covid Anxiety	Depressive Symptoms	Social Support	Mean	S.D
Covid Anxiety	5	0.75	-	0.363**	-0.516**	1.15	1.22
Depressive Symptoms	9	0.85	-	-	-0.428**	4.70	3.96
Social Support	12	0.63	-	-	-	30.5	8.87

Table 1: Cronbach Alpha and Pearson's r correlation between variables (N=340)

Note: Inter-correlations for young adults (n = 340) are presented in the diagonal. Means and standard deviation of the participants is presented in the horizontal rows. $P < 0.05^*$, $p < 0.01^{**}$ and α = Cronbach's alpha.

The table shows that alpha reliabilities of all scales were good ($\alpha > 0.6$), showing satisfactory internal consistencies of scale items. The descriptive shows that covid anxiety has a ($M = 1.15$, $SD = 1.22$), depression has a ($M = 4.70$, $SD = 3.96$) and social support has a ($M = 30.5$, $SD = 8.87$).

Results of correlation analysis shows that covid anxiety and depressive symptoms positively correlate as ($r = 0.36$, $p < 0.01$) and social support negatively correlate with covid anxiety ($r = - 0.516$, $p < 0.01$) and depressive symptoms ($r = - 0.428$, $p < 0.01$).

Paths	Beta	S.D	t-Value	P -Value	R-Square
Covid Anxiety→ Depressive Symptoms	1.17	0.16	7.15	0.000***	0.131

Table 2: Simple Linear Regression Analysis between Covid Anxiety and Depressive Symptoms

Note. *p < 0.05, **P < 0 .01, *** P < 0.001

Simple linear regression analysis shows that covid anxiety significantly impact mental health of the individuals ($\beta = 1.17$, *** p < 0.05, r = 0.131).

Variables	Beta	95% CI	
		LL	UL
Constant	4.174***	3.776	4.572
Covid Anxiety (CA)	-0.54	-1.180	0.085
Social Support (SS)	-0.189***	-0.243	-0.136
CA × SS	-0.096**	-0.161	-0.031
R ²	0.281		
ΔR^2	0.070		
F	8.360		

Table 3: Moderation by Social Support for Covid Anxiety and Depressive Symptoms (N=340)

Note. UL = Upper Limit, LL = Lower Limit. *** p <.001

The table shows that social support significantly moderate the association of covid anxiety and depressive symptoms ($\Delta R^2 = 0.070$, ** p < 0.01).

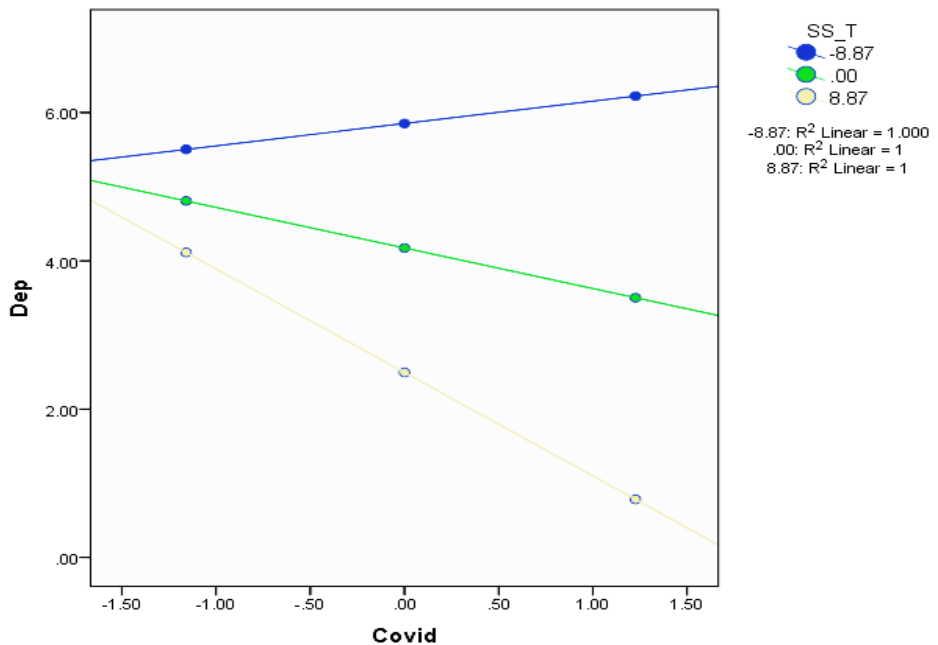


Figure 2: Moderation by Social Support between Covid Anxiety and Depressive Symptoms

The above figure (graph) shows that at the high level of moderator (social support), the association of covid anxiety and depressive symptoms decreases.

Variable	Gender	N	M	SD	t-Value	Df	Sig.
Covid Anxiety	Male	157	1.01	0.59	-2.07	239	0.03*
	Female	183	1.27	1.57			
Depressive Symptoms	Male	157	2.10	1.66	-14.9	251	0.000***
	Female	183	6.94	3.99			
Social Support	Male	157	33.0	3.82	5.14	230	0.000***
	Female	183	28.4	11.1			

Table 4: Independent Sample t test for males and females on score of Covid Anxiety and Depressive Symptoms and Social Support (N = 340)

Note. * $p < 0.05$, ** $P < 0.01$, *** $P < 0.001$

The table shows that males and females differ significantly. Females experience greater covid anxiety $t(239) = -2.07$, ($p < 0.05$) as mean for females is greater than males ($M = 1.27$, $SD = 1.57$), ($M = 1.01$, $SD = 0.59$). Females also experience greater depressive symptoms $t(251) = -14.9$, ($p < 0.001$) as mean for females is greater than males ($M = 6.94$, $SD = 3.99$), ($M = 2.10$, $SD = 1.66$) while males have greater level of social support as compared to females $t(230) = 5.14$, ($p < 0.001$) as mean for males is greater than females ($M = 33.0$, $SD = 3.82$), ($M = 28.4$, $SD = 11.1$)

DISCUSSION

The findings revealed that there is a significant positive relationship between covid anxiety and depressive symptoms as explained by other studies. Risk perception induces greater stress and leads towards mental health problems (Yıldırım, Arslan & Özarslan, 2020). The reason is that with the increasing spread ability and uncontrollability of COVID-19 virus, people become more anxious and they bear more burden towards their health and maintenance which resulted in deterioration of their psychological health. The study indicates that social support negatively correlates with depressive symptoms and covid anxiety. Bostean et al., 2019 suggested that social support from family and friends protects a person from various mental health problems. During covid pandemic people mostly stayed at home and they might have received more support from their families thus social support is the main source of protection against mental health problems. Another explanation for this is during the pandemic, some people got stuck in different countries away from their families and friends, hence experienced loneliness and isolation. The resultant lack of social support is significantly associated with high levels of depression and poor sleep quality (Grey et al., 2020).

This study shows that the covid anxiety significantly affects mental health, which is consistent with other studies (Magnavita, Tripepi & Di Prinzio, 2020; Liu et al., 2021). The reason is that when people are encounter with a stressful situation, they try to evaluate its severity and after that tries to control it but if they fail to do so, there exists a fear and this fear of uncontrollability leads towards various psychological problems.

Social support significantly moderate association of covid anxiety and depressive symptoms. Previous researches are consistent with the findings of this study as social support is a coping mechanism to decrease psychological distress. With the enhancement of social support there is a significant decline in the association of covid anxiety and depressive symptoms. According to Spinale et al. (2008), social support is correlated with spirituality and spirituality is linked with better mental health. People who are presented with proper social support they make positive perceptions about the negative phenomena which will help them to better understand the severity and controllability of the event. Thus, adequate social support is essential to overcome negative effects of the pandemic.

The findings also revealed that females experience greater depressive symptoms and covid related anxiety as compared to males. These results are in congruence with other studies that reported that prevalence of depression and anxiety is 3.2 times greater in females. The reason is that women tend to relay on an emotion focused coping mechanism rather than problem focused and people who follow this speculated coping style becomes more vulnerable to depression (Johnson & Whisman, 2013). Another explanation is the difference in sociability as women are more socialize to be sensitive and nurture. According to Wide et al. (2011), this type of socialization causes

depression. Males have greater social support as compared to females. These findings are in accordance with other studies as males are more social and that they have more friends as compared to females (Soman et al., 2016).

CONCLUSION

Covid anxiety significantly affects mental health causing depressive symptoms. Social support significantly moderates the association between covid anxiety and depressive symptoms. Females experience greater depression and covid related anxiety and males have greater social support as compared to females. The study has some limitations. The data was collected through online google form so the population is limited to only educated people and to those who had access to internet. Secondly, self-report measures were used to obtain responses which have some drawbacks like misunderstanding of the context, questions and reporter's biasness etc. Future studies may use objective measures as well. The sample size was limited to medical students, for an in-depth analysis researchers may include extended groups.

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