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THE IMPACT OF COVID-19 ON MENTAL HEALTH WITH MEDIATING ROLE OF PERCEIVED STRESS AND MODERATING ROLE OF PSYCHOLOGICAL CAPITAL

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Abstract

On January 30, 2020, the World Health Organization considered the coronavirus pandemic as the 6th international health emergency. This study aims to investigate the effect of COVID-19 on the mental health of the general population with the mediating role of perceived stress and the moderating role of psychological capital (PsyCap). The Coronavirus Disease 2019 (COVID-19) pandemic has posed significant mental health risks all over the world as a major virus outbreak in the twenty-first century. A cross-sectional study was conducted in the general population involving 250 participants. 60% of Covid positive and 40% of covid negative individuals were part of this study. Results revealed that Covid-19 has a significantly negative effect on the mental health of the general population. The perceived stress showed a strong link between COVID-19 and mental health relationship. On the other hand, this study revealed that the larger the psychological capital (PsyCap); the weakened will be the relationship between perceived stress and mental health. This study suggests that public health workers, policymakers, and practitioners should emphasize more on the mental health of people. The HERO construct should be instilled in the public through mind-boosting activities, seminars, and awareness programs to help people improve their mental health issues in difficult circumstances, like covid-19 pandemic. Mental health professionals should not wait to be asked, they should be prepared to work on the social anxieties of the public.

Keywords: *Covid-19, Efficacy, HERO (Hope, Resilience, and Optimism), Mental Health, Perceived Stress, Psychological Capital (Psy Cap)*

INTRODUCTION

In the month of December 2019, the COVID-19 outburst started spreading firstly from China, being its main source of spread. It has been an unending pandemic that has caused the health of the population a serious threat around the world (1).

The outbreak of coronavirus was considered pneumonia when the pandemic hit because Covid-19 was a new virus, no one in the world has developed antibodies to it. As a result, anybody has a possibility of contracting this infection. It is consequently critical that the general public, and especially healthcare professionals, be attentive and always prepared to combat the pandemic for an extended length of time. It is difficult to say whether COVID-19's potency will be reduced in the summer, but the virus's full potential has been realized in winter. As fourth wave of covid-19 pandemic has shown its peak in winter. The CDC (Centre for Disease Control) of the People's Republic of China studied the samples taken from the throat and

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respiratory system and determined that the cause of pneumonia and flu-like symptoms was by a new strain of corona virus, termed Novel Corona Virus Pneumonia (2). The infection that mainly attack or infect the upper respiratory system of human beings is one of the most common viruses, the corona virus (3). The virus was given the name 2019-nCoV by Chinese researchers. The International Committee on Virus Taxonomy, the new century's coronavirus infection was later named SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2). Later the pneumonia-causing disease was renamed to COVID-19 (coronavirus disease-19) by the World Health Organization (WHO) on the same day, February 11, 2020. This was not the first time the coronavirus has spread. The Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) epidemic and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) outbreak are two prior corona virus outbreaks. The discovery of the latest Covid-19 viral disease has later labeled as a pandemic that is upsetting more than 200 countries and territories around the world and has provoked anxiety and sorrow among the general population and medical care providers (4, 5). The corona virus has a wide-ranging impact on civilization, including physical and mental health. In recent research claimed that Covid-19 disease was initially misdiagnosed as a typical cold or influenza flu, but just in few months, it had infected a huge quantity of population and killed most of them (6). The WHO and the CDC have recommended preventive measures for the general public based on previous viral epidemics, like putting on a mask and cleaning or washing hands more often, in addition to it more general recommendations and advice for a hale and hearty lifestyle (e.g., exercise, nutrition and sleep) has been given. These recommendations were dedicated to the actual spread of COVID-19 outrage worldwide (7). The Ministry of National Health Services, Regulation and Coordination of Pakistan issued a plan titled "National Action Plan for Preparedness and Response to Covid-19 Pakistan" on February 12th. The aim was to prevent the virus from spreading and to improve country and community emergency preparedness in order to respond quickly, efficiently, and effectively to any potential Covid-19-related occurrences. Too far, the Pakistani government has come up too many of preventive measures to combat the Covid-19 outbreak, including the establishment of specialized healthcare units, quarantine and isolation centers, viral testing facilities, therapies, public awareness messages and programs, and involvement of local community feedback against prevention of spread. The virus's propagation has created global economic and social disruptions, as well as a massive overburdening of the healthcare and educational systems (World Health Organization, 2020) (8, 9). History reveals that any infectious disease epidemic or pandemic is followed by a substantial mental health setback. Even after a year was passed but the Ebola response showed signs of PTSD (Post Traumatic Stress Disorder) including fretfulness and despair as more prevalent in the 2014 Ebola eruption (10). After a cognitive assessment, perceived stress is the psychological reaction to hazardous stimulus in the environment, and it can manifest as physical and mental worry and nervousness, as well as a lack of control. Due to Covid-19 pandemic millions of lives of the individuals have been affected around the world, and those who have never had a mental illness before are now more likely to get affected by mental health difficulties, as well as aggravate the condition of those who already have a mental health disease. A sense of loss and damage can arise from the loss of personal and social relationships, as well as the demise and loss of loved ones, job and financial support, educational agreements, amusement, liberties, and assistance in society. Evidence suggests that some pandemic-control efforts may have disproportionately negative consequences for the most vulnerable group. The key mental health concerns that have been linked to the COVID-19 pandemic over the world are perceived stress, anxiousness, depressive symptoms, insomnia, denial or rejection, rage or fear, and terror (11). Perceived stress, anxiety, and depression are mental health concerns that are all linked to the Covid-19 virulent disease. According to global studies mental health illnesses are becoming more prevalent between miscellaneous population groups (12). From past experiences there is a long history that pandemics have been associated with serious psychological consequences. Covid-19 has been associated to a higher risk of suicide (13). This is the moment to bring the relevance of mental health in our daily lives to the attention of the general public. As mental health is the most important parameter in general well-being of individuals. When the aging is lonely and isolated, they may experience emotional state of rejection, and inattention. For the elderly, especially those who

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are struggling from depression and other mental health concerns, this can exacerbate an already tough situation (14). Older people, particularly those in separation or isolation and those with intellectual disability or dementia, may become more concerned, angry, stressed, agitated, and distant during the pandemic or while in quarantine. Individuals in this situation require support and encouragement from social ties such as family and friends, as well as healthcare experts. The affected persons should not be referred to as"Covid-19 cases," "victims," "Covid-19 families," or the "diseased," according to the WHO. They are "people who have Covid-19," "people who are being treated for Covid-19," "people who are healing from Covid-19," and "those who will resume their jobs, families, and loved ones after recovering from Covid-19." In instances of isolation, it is critical to maintain social networks, and one should make every effort to maintain personal daily routines. Since the pandemic began, around 33% of people in the United Kingdom have reported that they are experiencing an extreme anxiety issue. In the United States of America, approximately 45 percent of adults have reported that they are feeling nervousness or are stressed out. When people begin to physically eliminate themselves and worry about being ill with Covid-19, these numbers are sure to climb high. Anyone can become scared and anxious as a result of the sudden and continuous influx of spectacular news headlines about corona virus pandemic. People who are under lots of psychological stress are more inclined to interact in negative feelings and feel trapped; as a result, perceived stress may fully mediate the link between the danger of getting infected (stress or fear of infected with disease) and depression, which results in mental state issues. Worries about prevailing terrible circumstances and future harmful outcomes may lead to a lot of psychological stress when humans are subjected to life-altering and fearful events like natural disasters and the Covid-19 pandemic, which then activates an individual's diathesis or vulnerability, reshaping possible future diathesis into a reality of psychopathology (15). The subjective impression of pain and the inability to cope with stress are at the heart of the links between stress, anxiety, and depression. Suicidal thoughts or negative emotions and feelings and mental symptoms can be readily avoided if stress can be successfully eased. In the year 2003, the acute respiratory syndrome outbreak resulted in suicidal outcomes showing that those who were 65 percent and older were connected to a 30 percent increase in suicide and around 50 percent of respondents of cured patients remained fearful; and healthcare workers had likely emotional distress about 29 percent (16). In the general population, the Covid-19 outrage and subsequent lockdown have raised serious health concerns. This study evaluated the mental health and perceived stress during the pandemic with the main objectives of the study included to examine the influence of COVID-19 on mental health, to find out the mediating role of stress between COVID-19 and mental health and to find out the moderating role of Psychological Capital (PsyCap) between stress and mental health relationship.

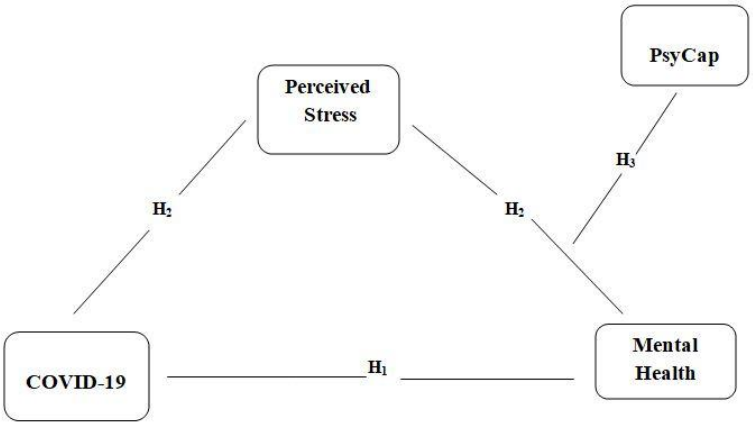


Fig. 1. Hypothesized model of study

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MATERIALS AND METHODS

TYPE OF STUDY

This was a causal investigatory study in which the impact of COVID-19 on mental health with the mediating role of perceived stress and the moderating role of psychological capital has been examined. Data for the study was collected from the general public of Pakistan, covering three provinces. Initially, approximately out of total 310 questionnaires were distributed to collect data; in return, 250 responses were recorded. The analysis procedure provides an appropriate method of data collection. The survey strategy was the adapted investigation framework in this quantitative causal research. A pre-designed questionnaire of four criteria (Covid-19, mental health, stress, and psychological Capital) was distributed among the general population to collect primary quantitative data.

Due to already designed answers of evaluating scale components, this research approach saved time by providing organized important information. The executive summary technique used in this causal quantitative research study was extremely effective and helpful.

STUDY SETTING

This was a survey study because questionnaires were floated among the general public of twin cities and Punjab province of Pakistan while the majority of the population was covered through online responses as it was convenient to collect data online because of the pandemic. The participants of this study were guaranteed that their responses would be reserved private.

STUDY DURATION

Data for this research study were collected over four months, beginning in October 2021 and ending in January 2022, using a convenient sampling technique. Because this research study was time-limited, and because of the COVID-19 lockdown, a convenient sampling technique has been used. The questionnaire was conducted in the general population.

POPULATION

The population is defined as a collection of individuals who have common attributes to have access during a specific period in a particular locality. The data analysis population for this study is indeed the entire Pakistani population (mainly public from Islamabad and Punjab region). As the focus of the study was the general public questionnaires were distributed to the public. Questionnaires were distributed to respondents via Google Forms, and a few of the responders were given hard copies of the questionnaires to complete them in time. Nearly 310 questionnaires were administered, who were asked to fill them out as fully as possible. The questionnaire asked respondents to complete four sections. The first segment was based on demographic characteristics such as gender, age, profession, quarantine, and so on, while the remaining three sections were related to study variables.

SAMPLING TECHNIQUE

A questionnaire designed with four sections is used in this study, which had been created before handing it to the population, was used to collect the quantitative data. This study's centered study variables were as follows: COVID-19, mediating variable perceived stress, moderator variable psychological capital, and dependent variable mental health. The questionnaire was adapted and prepared from past research and then amended according to current concerns. The non-probability convenient sampling technique was used to obtain information regarding our variables as a useful examining method. Moral concerns were considered and thought about while gathering information from people.

INCLUSION & EXCLUSION CRITERIA

Individuals who suffered the effects of Coronavirus, those who were part of quarantine, and individuals 18 years of age and above were included in the study. The individuals with already impaired

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mental health and the individuals with disabilities leading to mental health problems were excluded from the study.

DATA ANALYSIS

Roughly about 110 questionnaires were distributed in printed form for the data collection and the rest of the 200 responses were gathered online making a total of 310 responses but only 250 responses were properly filled and received which were considered for this study. IBM SPSS version 21 was used to examine the data for these responses by the participants. Just that data was used for the evaluation which has undergone filtration for errors or missing values, except data that was wrongfully fulfilled and data with missing values, which were excluded using missing value and outlier analysis from SPSS software. The sample was described using frequency tables. SPSS version 21 was used to conduct exploratory factor analysis on the valid responses received after initial screening. The exploratory factor analysis has been used to validate the several questions in the questionnaire so that the study's constructs may be better understood. The method of list-wise deletion was used to remove data that: (1) had missing data, (2) failed to meet the minimum inclusion criterion, and (3) failed to pass the attention tests that were part of the survey. We arrived at a final sample size of 250 after filtering the data in this way. The demographics had no significant effect on mental health, according to the one-way ANOVA.

RESULTS

The findings of the study on the impact of COVID-19 on mental health with the mediating role of stress and the moderating role of psychological capital (PsyCap) are discussed here. The results are based on information obtained from 250 individuals from different areas of Pakistan, who filled the questionnaire prepared for this research.

FREQUENCY DISTRIBUTION

Demographic information of this research included close-ended questions regarding gender, age, education, and quarantine and contraction with coronavirus infection. Profession was obtained as an open-ended question.

Just because of the differences between males and females in a population sample, gender, being an important demographic factor has been used. The goal of obtaining gender in the demographic section of this study was to see what proportion of male and female participants responded to this study. A balanced mix of 58% males (145) and 42% females (105) made up the sample of this study. The socio-demographic profile of the respondents of the study is shown in Table I.

Age is standard demographic information that the researcher obtains from the respondent, however, some respondents are uncomfortable disclosing their age, so age groupings of 18-30, 31-50, and 51-70 or above were provided for convenience instead of asking for specific age. For respondents' convenience age grouping was set as described in the demographics table.

Education is a crucial part of demographics since it allows us to determine our level of awareness of the parameters we are looking for. Different levels of education were selected and categorized into five groups to better collect data which are Primary, Intermediate, Bachelor, Master, and PhD. The majority of the respondents were bachelors comprising 56.8%. Due to participants' educational backgrounds variety of professions were recorded as there were 56.8% graduates, 28.4% post-graduates, and 14.8% with primary education only.

Only those participants were included in the study who spent time in quarantine or had to quarantine due to contracting coronavirus disease. Therefore 250 individuals who spent time in quarantine only were included in this study and those who did not quarantine or isolated themselves were rejected from the samples obtained. Those who were quarantined during lockdown were also part of this study.

Many different professions were part of this study including engineers, doctors, paramedic staff, army officials, accountants, lawyers, shop keepers as well as business owners, etc. This study covered responses of a variety of professions in this difficult and unstable time of the coronavirus pandemic. As

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profession was an open-ended question therefore different professions were obtained making it difficult to combine them in a tabulated form. But the majority of the population was grouped under students, engineers, accountants, doctors, and paramedic staff.

Table I. The socio-demographic profile of the respondents of the study

Demographics		Frequency	Percentage
Gender	Male	145	58%
	Female	105	42%
Covid-19	Positive	150	60%
	Negative	100	40%
Age	18 – 30	148	59.2%
	31-50	96	38.4%
	51-70	06	2.4%
Education	Matric	12	4.8%
	Intermediate	25	10%
	Bachelors	142	56.8%
	Masters	57	22.8%
	PhD	14	5.6%

ONE WAY ANOVA

Analysis of variance (ANOVA) is a data analysis technique used to determine whether the means of two or more groups differ dramatically from one another. ANOVA compares the means of different samples to measure the influence of one or more variables. ANOVA helps in recognizing covariates in a study that needs to be controlled. To assess the effect of control variables on dependent variables, one-way ANOVA has been used. According to the findings, there was no notable change between both the variables and the demographic trends of the respondents i.e. gender, profession, education quarantine, etc. Hence the findings of one-way ANOVA showed that no variable needed to be controlled as the *p*-value was less than <0.5.

Table II. Table shows no notable changes between variables and demographic trends

Covariate	F Value	Sig.
Gender	3.371	0.68
Age	1.18	0.31
Education	2.15	0.11

Smart PLS has been used for the measurement of the model using confirmatory factor analysis. Thus, the study variables are Covid-19, Mental health (MH), Perceived Stress (PS), and Psychological Capital (PsyCap). Level 1 and level 2 confirmatory factor analyses were used in the study to alter the scale by identifying and eliminating the problematic items. Less than 20% of the items with outer loadings of less than 0.5 were expelled to improve the validity of the measurement model as shown in the figure below.

RELIABILITY AND MEDIATION ANALYSIS

The Cronbach alpha, which evaluates the scale's internal consistency and reliability, is used to guarantee that the results are consistent, and it is tested using reliability analysis. Cronbach alpha is a measurement of a scale's or instrument's reliability. The Cronbach alpha value of a scale must be higher than 0.70 for it to be examined and accepted. The results are considered legitimate and reliable if the Cronbach alpha significance is greater than or equal to 0.7.

Reliability, descriptive statistics, and correlations for all study variables are shown in Table III. We tested the mediation hypothesized model using Hayes' (2013) PROCESS Model 4 with 5000 bootstrapped samples and a 95% confidence interval. Mediation analysis is a statistical technique for determining the causal link in which an antecedent variable produces a mediating variable, which then causes a dependent variable. Here in this model Stress is the mediating variable between Coronavirus diseases (covid-19) and mental health. The results of this analysis are summarized in Table 3. The direct and indirect effects of variables (covid, perceived stress, and mental health) are summarized in Table 4 and Table 5. Results are summarized with 95% confidence interval and 5000 number of bootstrap samples for percentile bootstrap confidence intervals.

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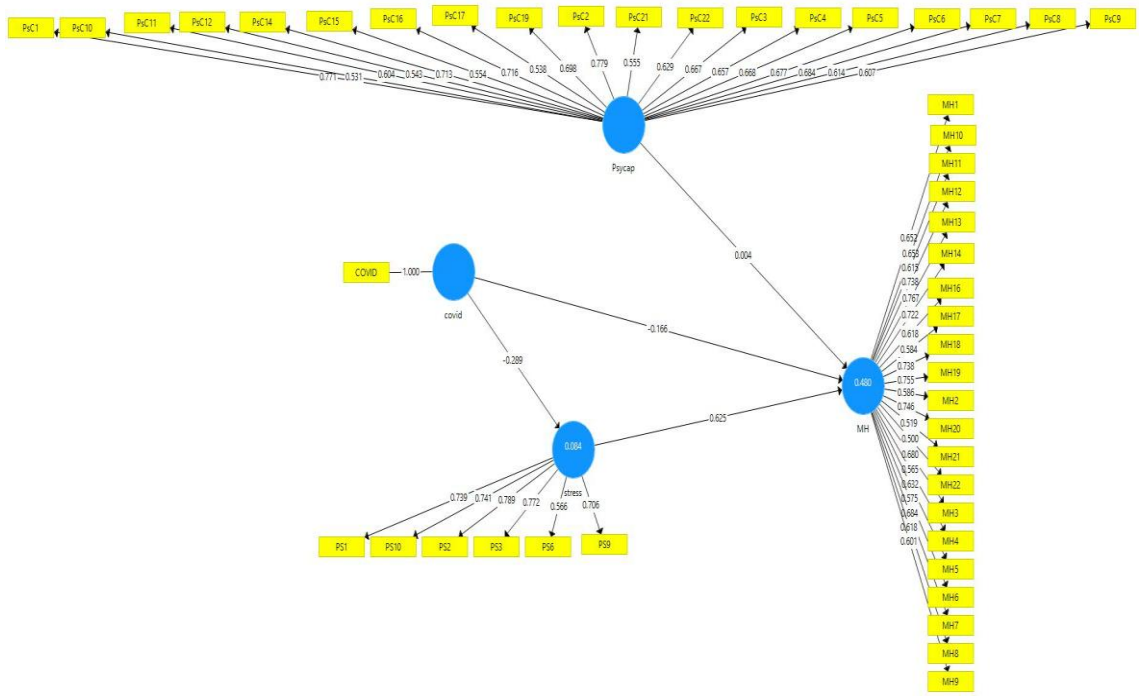


Fig. 2. The presentation of 20% of the items with outer loadings of less than 0.5 were expelled to improve the validity of the measurement model

Table III. A negative relation between COVID-19 on perceived stress with a significant value of -.336**

Variables	Alpha	Mean	St. Dev.	COVID	P-Stress	Mental health	PsyCap
COVID		1.40	0.49	1			
P-Stress	0.77	3.44	0.69	-.336**	1		
Mental Health	0.92	2.86	0.77	-.295**	.559**	1	
PsyCap	0.91	4.32	0.76	-.240**	.275**	.089	1

** Correlation is significant at the 0.01 level

The above-mentioned table shows a negative relation between COVID-19 on perceived stress with a significant value of -.336**. A significantly negative effect of COVID-19 on mental health has been observed with a value of -.295**. From these results, it has been clarified that the coronavirus outbreak has caused stress and mental health problems in the population. Perceived stress also shows a significant effect on mental health with a value of .559**. This shows that stress during the pandemic and quarantine has also promoted mental health issues in the population. This stress may arise from different stressors (unemployment, social exclusion, self-isolation, etc.) leading to mental health issues which may have long-term consequences if left untreated and unbothered. Therefore, perceived stress during the time of the pandemic should be to treat mental health concerns in public.

The results of the correlation analysis, which let us know that there is a link between variables, are validated using regression analysis. It describes the variables' interdependence and the degree to which modifications in one variable induce the changes in the other variable. Simple regression or multiple linear regressions are used to examine the relationship between independent and dependent variables. When there are several variables, multiple linear regression analysis is utilized. This study also functioned on multiple linear regressions.

The Andrew Process Hayes macro was used in this study for the analysis of both mediation and moderation regression.

Table IV. The significant effect of COVID-19 on mental health with a significant P-value

	R	B	Std. Error	T	Sig.
	0.571				
COVID		-0.191	0.062	-2.14	0.031
P-Stress		0.583	0.088	9.34	0.000

R= variance, B= beta (coefficient), Sig. = significance level or confidence interval

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Our results show a significant effect of COVID-19 on mental health. With a significant P-value our hypothesis 1 that, there is a negative relationship between Coronavirus and mental health has been proved. With the increase in COVID-19 disease, the mental health of the population decreases or gets affected negatively. The Beta value (β) -0.191 shows that with the rise in COVID-19 cases across the nation mental health reduces leading to mental health disorders.

Our hypothesis 2 states that perceived stress will mediate the relationship between COVID-19 and mental health has proved that a P-value of .000 (that is less than 0.5) shows that stress due to COVID-19 is linked with the mental health concerns of the general public. With the increase in covid-19 cases the stress levels in the general population increase because of the stressors they face, leading to mental health issues (depression, anxiety).

Table V. Direct effect of Covid on mental health

	Effect	S.E	T	P	LLCI	ULCI
Covid ⟶ Mental health	-0.19	0.09	-2.17	0.03	-0.36	-0.02

S.E= standard error, p= level of significance LLCI= lower level confidence interval, ULCI= upper level confidence interval

With a significant P-value i.e. 0.03 and a negative lower and upper confidence interval the direct effect of covid-19 on mental health appears to be significant. This shows that coronavirus disease (Covid-19) has negatively affected the mental health of individuals during the pandemic and quarantine. As mental health is the key component it will aggravate the health of individuals if left untreated.

Table VI. Indirect effect of Covid on mental health

	Effect	S.E	LLCI	ULCI
Covid ⟶ Perceived Stress ⟶ Mental Health	-.28	.05	-.39	-.18

S.E= standard error, LLCI= lower level confidence interval, and ULCI= upper level confidence interval

Both the stress and coronavirus pandemic have affected the mental health of individuals, with negative lower- and upper-class intervals it has been proved. Both direct and indirect effects of coronavirus on mental health prove partial mediation with a significant P-value i.e. .03 that is less than 0.5 and a negative upper- and lower-class interval. Our third hypothesis that is stress mediates the relationship between covid-19 and mental health proves to be right. In such an unstable condition created by the coronavirus pandemic, stress has increased, which could be due to many stressors like finances, fear of morbidity and mortality, fear of losing loved ones, etc. can lead to depression and anxiety. This depression and anxiety will affect the mental health of individuals causing psychiatric disorders.

MODERATION ANALYSIS

A moderation analysis is carried out to determine whether the significance of a third variable influences (moderates) the relationship between two or more variables. Here Psychological Capital is acting as a moderator between stress and mental health relation. We tested the hypothesized model using Andrew Hayes' (2013) PROCESS Model 1 with 5000 bootstrapped samples and a 95% confidence interval through SPSS version 21.

The traditional method for determining whether a moderating effect exists is to include a (linear) interaction term in a multiple regression model. A multiple regression analysis with an interaction term makes a moderator.

Table VII. Moderation Effect of PsyCap

	Coeff. B	S.E	T	P	LLCI	ULCI
Int_l	0.12	.06	2.00	.05	.00	.24

Coeff. B= coefficient beta, S.E= standard error, p= level of significance, LLCI= lower level confidence interval and ULCI= upper level confidence interval

In our third hypothesis we proposed that PsyCap moderates the relationship between Stress and Mental Health in a way that the relationship will be weaker when Psycap is larger, which turned out to be true with a P-value of .05. Positive psychological capital helps people to engage in their daily activities with

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a positive approach towards work or task. It will help people normalize in such a stressful pandemic. With a positive approach towards life through hope, self-efficacy, resilience and motivation towards betterment stress can be reduced, reducing mental health adverse outcomes. When psychological capital (hope, self-efficacy, resilience, and optimism) increases in an individual the relation between stresses leading to mental health will become weaker, as PsyCap helps people to recover from stress. A positive approach towards life makes them psychologically healthy

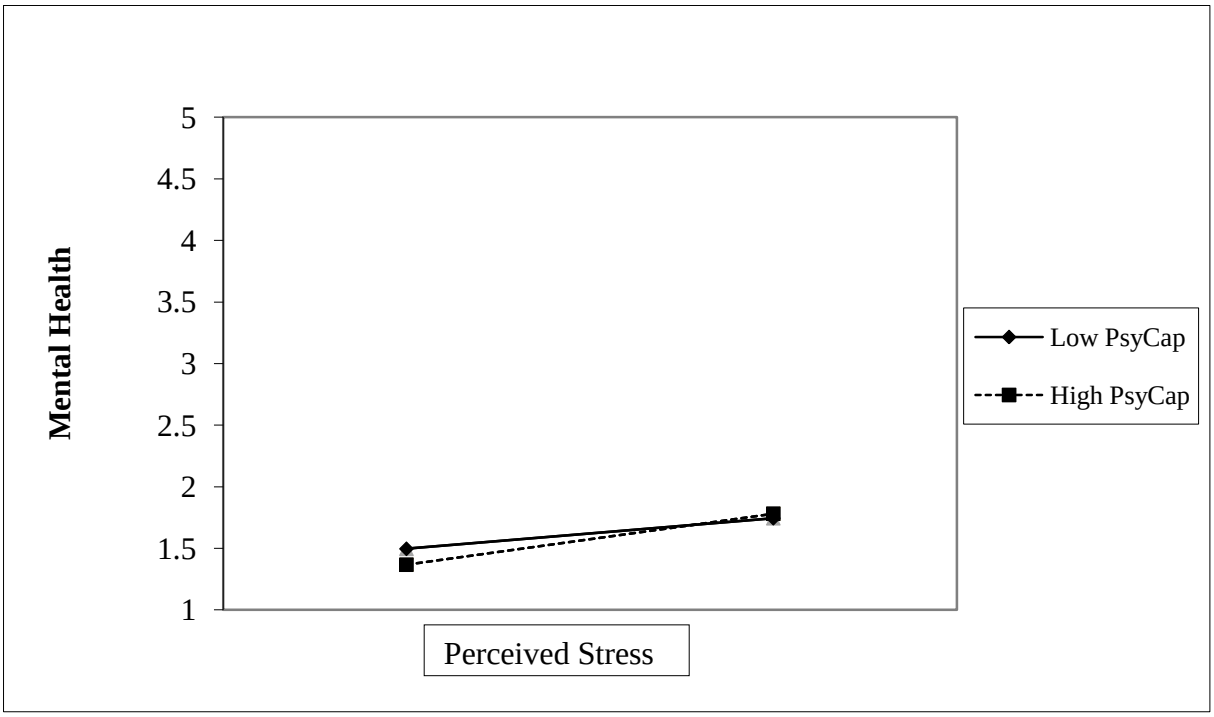


Fig. 3. The moderation graph, the role of the moderator, PsyCap between perceived stress and mental health relation

The two-way linear interaction graph shows the role of moderator, PsyCap between perceived stress and mental health relation. Positive Psychological Capital engages people in extra health-promoting habits and seeks out more social support. During the lockdown, it may make bad events appear less scary and reduce anxiety about health risks, economic hardships, and isolation. During such an instable time of pandemic, stress is the main reason causing mental health problems in all age groups of people (that is 18 years and above). Positive psychological capital (PsyCap) keeps an individual moving on in life with motivation, hope, and resilience, releasing stress which in turn will help in maintaining the mental well-being of people. An increase in PsyCap, promotes the betterment of mental health or psychological well-being of people. Psychological intervention teams should be established to provide timely and effective psychological intervention to the general public to save them from harmful emotional and psychiatric effects. This knowledge would aid in the development of more specific and effective evidence-based psychological interventions for the general public.

DISCUSSION

The primary objective of this research was to measure the effect of coronavirus on the mental health of the population with the mediating role of stress and Psychological Capital as a moderator. Covid-19 has significantly affected the mental health of people, with high levels of stress. In the setting of the Coronavirus lockdown, considerable psychological health problems exist among people, which is compatible with the moderate to severe symptoms of anxiety, stress, and depression found in the Chinese population during the early stages of the covid-19 pandemic (21). Our first hypothesis that covid-19 hurts mental health has been accepted showing that mental health was affected severely during quarantine and the pandemic with a P-value of 0.01. Many similar studies have been carried out in different countries reporting other variables like high levels of fear, anxiety, depression, and stress during the Covid-19 pandemic majorly affecting females as compared to males (22).

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These findings add to the body of knowledge because most of the emerging scientific literature on this topic has focused on the psychological health of workers and undergraduates rather than the general population (23). We suggest that the mental wellness of an individual not only affects his/her life but also affects those who are depending on that particular person. With affecting the mental health of an individual, those who live and work with that individual also get affected as they are linked to him in certain ways. With a positive approach towards life, a person can spread positivity to others also (24) it has been reported that three main occurrences during the Covid-19 outbreak may have frightened the public (1) Covid-19's human-to-human transmission was officially confirmed in the month of January; (2) the strict quarantine was implemented and (3) WHO's announcement of Public Health Emergencies of International Concern (PHEIC) was launched on 31 January. Isolation and quarantine have affected the public in many ways. According to another comprehensive study by Stiglic and Viner (25), the health consequences of excessive screen use in children and adolescents, higher amounts of screen time were reported which is highly associated with more obesity, less healthy diets, depressive symptoms, and lower quality of life. From previous studies, it has been reported that covid-19 and the pandemic situation is leading to stress. Therefore, in our study, we have tested the mediating role of perceived stress on mental health because of Covid-19. Our second hypothesis that perceived stress mediates the relation between COVID-19 and mental health has been accepted proving that mental health is of great importance during a pandemic. Covid-19 as well as stress is affecting the mental health of individuals making them vulnerable to performing well in their daily life. Many researchers have linked stress with depression, anxiety, and fear of Covid-19 (26). The high daily rates of new cases and deaths, as well as the barrage of information that individuals are subjected to through the media, can have an impact on the onset of mood disorders, fear, and stress (27). Longer-term strategic research programs aim to create new interventions to safeguard mental health, including those based on positive mechanistically based components (i.e., causal, changeable characteristics) like altruism and pro-social behavior. Increased opportunities to evoke public support, exercise, social activities, assertiveness, conflict resolution training, and group interventions that provide support through peers could all be part of this (28). Instead of abuse, people with coronavirus disease should be treated with compassion, offered phone and text support, and offered aid when needed, but never with anger or judgment.

Working from home, job loss, and social and physical isolation have all unexpectedly cut off many crucial social possibilities for physical and psychological well-being. It's critical to look into the mental health implications of online living, as well as how changes in gaming and online platform engagement might inform therapies aimed at improving mental health. Moving forward, we must quickly learn from existing successful measures to sustain and increase social resources and resilience, as well as encourage excellent mental health in specific communities. Many researchers and medical practitioners are working for the betterment of the mental health of people; this study explores the role of positive psychological capital as an important cognitive resource for influencing a healthy lifestyle in terms of psychological health. Our third hypothesis that PsyCap has a moderating effect on the stress-mental health relationship is proof of it. In a study, Avey and his colleagues (29) offered evidence supporting Psychological Capital (PsyCap) as a major cognitive resource for lowering stress symptoms and intentions to quit.

Our findings made important contributions to mental health, stress, and PsyCap in times of COVID-19. First, our study revealed the effect of stress on mental health during the coronavirus disease pandemic, the most common mental health issues were because of stress, anxiety, distress, and isolation (30). Stress could worsen the mental health condition of individuals therefore it should be controlled. Secondly, our research revealed the effect of positive psychological capital on mental health. Hope, resilience, optimism, and self-efficacy of an individual can help in recovering and coping with negative circumstances of mental health. PsyCap can be improved through training programs, indicating the feasibility of a range of approaches to boost psychological capital in the general population (31). The findings from this study also offer several important practical implications. First PsyCap and its variable acts as a game changer on the negative effects of coronavirus and stress on mental health this suggests that helping people enhance and build their reserves of cognitive resources may have important applications beyond the traditional scope of

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mental health outcomes alone (32). Therefore, problem-solving coping approaches, on the other hand, are frequently linked to positive outcomes, whereas emotion-focused strategies, such as rumination, blame, and avoidance, are frequently tied to bad outcomes (e.g., symptoms of depression). Furthermore, social support was shown to mitigate the effects of stress and promote positive mental health outcomes when employed as a problem- and emotion-focused coping method. Second mental health is of great importance in such pandemics like COVID-19 therefore mental health experts must not wait to be questioned; rather, they should prepare concise talking and preventive points and regularly remind government servants and other top members of the country about the nation's most pressing concerns. Third stress in the pandemic and isolation mustn't only be treated with medications and traditional 10-12 session therapy but CPT (that is used to aid in the recovery of people suffering from post-traumatic stress disorder and other related conditions), and EMDR (An effective psychotherapy method that has been shown to assist people in recovering from traumatic events and other distressing life experiences, such as PTSD, anxiousness, depressed mood, and panic disorders.) are likely to be effective (33). Another study suggests that individual counseling, WET (a tried-and-true method for overcoming irrational fears, worry, and specific anxieties), smartly dosed medicines like propranolol, and mantra regularity may be equally as effective and more easily facilitated through telehealth (34).

CONCLUSION

The coronavirus disease pandemic has adversely affected the mental health of the general public. This study's outcomes revealed that both Covid-19 and stress have negative effects on mental health. Separation, lonesomeness, life-ending care, and grief are possibly especially difficult for older persons and those with much co-morbidity, which could be amplified by the so-called William's temporal need threat model supports our hypothesized model that mental health issues elevate because of isolation, stress depression, and alienation. The Psychological Capital (PsyCap) has a positive response to mental health. Hope, resilience, optimism, and self-efficacy play important roles in providing a positive approach toward work and life. To better manage Covid-19, or any other pandemic in the future it is critical to comprehend the social and economic influence of the pandemic's management strategies, which will certainly have major intellectual health consequences by escalating redundancy, monetary uncertainty, and abject poverty.

Limitation and future findings:

The study has a few limitations. Firstly, because the sample only included Pakistani individuals, the findings cannot be applied to people in other nations with varying degrees of Covid-19 severity. Second, the findings are limited in their generalization due to the utilization of convenience sampling and self-chosen subjects. For the next few years, the Covid-19 pandemic will continue to have an impact on our lives. As a result, raising public health awareness among the general public is essential. The majority of developing countries are already suffering from a lack of healthcare services. However, better knowledge of precautions, safety measures, health, and lifestyle are necessary.

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Conflict of Interest:

The authors have no conflict of interest.

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