

Alleviating the Effects of the COVID-19 Pandemic on the Physical, Psychological Health, and Wellbeing of Students: Coping Behavior as a Mediator

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Background: Public health procedures under the COVID-19 pandemic lockdown policy negatively affect people's health. Students' physical issues have been increased due to restrictions which further impact their psychological and overall well-being.

Objective: The research looks at the influence of coping behavior in mitigating the impact of the COVID-19 epidemic on students' physical/psychological health and general well-being.

Methods: The study's participants were chosen from a pool of 2200 people using convenience sampling. Using an anonymous online poll, the main data were gathered. The collected data were analyzed by using Smart-PLS.

Results: From eight direct correlations, seven were found to be true, except the route pandemic → overall wellbeing, which was not true. Furthermore, it was shown that the mediating effect of coping behavior was statistically significant in the routes of mediation.

Conclusion: Coping strategies have a significant role in how a person responds to trying circumstances. Our study's results suggest that coping strategies had a statistically significant mediation role in reducing the effects of the COVID-19 pandemic. It is concluded that appropriate coping strategies are an effective adaptation of a protective barrier against the damaging effects of COVID-19 on health.

Keywords: coping behavior, pandemic, students, physical health, psychological health

Introduction

The pandemic was described as a worldwide public health emergency by the World Health Organization (WHO). Currently, the coronavirus is linked to over 18 million confirmed cases worldwide. Several countries used proactive and preventive measures, such as population home confinement, to restrict the spread of the pandemic. Other studies examined anxiety and depression among nurses battling COVID-19.^{1,2} Medical professionals who actively treat COVID-19 patients, such as doctors and nurses, have been the subject of research to look at the relationship between perceived risk and problems connected to mental health.³⁻⁵ In addition to providing useful advice for leading active lifestyles during pandemics, the study assesses whether the sense of control mediates the good benefits of physical exercise on positive or negative mental health under unforeseen unexpected situations.^{6,7}

To review the psychological effect of quarantine utilizing three internet databases and analyze individuals' mental health throughout the first 6 weeks of lockdown.^{8,9} It's generally accepted that COVID-19 may have a significant impact on people's mental and emotional health and that we should thus be ready for an onslaught of mental and behavioral problems. Recent studies have investigated COVID-19 from a psychological, social, and neurological perspective, proposing both immediate goals and longer-term efforts for mental health.¹⁰⁻¹²

Health and Well-Being in COVID-19 Epidemic

Researchers attempted to quantify the incidence of depressive/anxiety symptoms, and sleeping difficulties in the Italian population during the lockdown by integrating available research on COVID-19's impact on psychological outcomes and risk variables.^{13–16} Studies looked at the impact of adolescents' perceptions of Coronavirus occurrence and dread on mental health and well-being, as well as the potential preventive role of physical exercise.^{17,18} According to studies, it is impractical to organize psychological intervention teams in many places due to the lack of specialists. The impact of coping mechanisms on the HRQoL of jobless individuals has not yet been researched and these cognitive emotion control techniques relate to the HRQoL of jobless persons and how the virus has a substantial impact on citizens' everyday lives.^{19,20} Examining the link between PA and mental health on a national scale, these studies found a positive correlation between the two. At COVID-19's conclusion, participants reported positive effects on their mental health soon after outdoor activity.^{21,22} Anxiety is common and has been linked to physical inactivity (PA) and a lack of social connections (evident by feelings of isolation), both of which have negative impacts on health and fitness at any age.^{23,24} During the new coronavirus illness (COVID-19) epidemic, public health advice, and government policies imposed social separation, isolation, and house confinement.^{25,26}

Exercise Activities and Well-Being During COVID-19

Given the current situation, there is a strong medical case for regular at-home exercise as a method of maintaining health and a well-functioning immune system.^{27–29} Some studies examine gender and socioeconomic discrepancies in physical activity (PA) and dietary behavior, as well as relationships with country-level indicators of PE curriculum time distribution, wealth, and income inequality.^{30,31} Guidelines advocate a healthy lifestyle and frequent physical activity (PA), and empirical research on the links between fundamental tenets of SDT and actions promoting physical activity and health.^{32–34} To maximize beneficial impacts, treatments and policy recommendations about the link between physical exercise and mental health must take context into account. This involves examining how various forms of exercise and fitness routines carried out at home assist individuals in managing psychological problems and the effects on their physical well-being.^{35–37} Research indicates that insufficient physical activity and social interaction are associated with severe sleep disorders and mental health conditions. Deprivation and prolonged periods of inactivity may cause depression and present a range of health risks.^{38,39} Construct definitions are often absent from output variables measuring people's well-being, and research on the effectiveness of PA and exercise as treatments for most chronic conditions pays little attention to moderating and mediating factors.^{40,41}

Coping Behavior in the COVID-19 Period

In the COVID-19 pandemic, studies on coping strategies, social and educational influences on behavior, scientific assertions, moral judgment, guidance, and stress and coping mechanisms are examined to ascertain the prevalence of severe stress disorder and factors associated with inner distress.^{42,43} Studies analyze how preventative measures improve health and fitness, provide new information for fighting COVID-19, and highlight existing problems.^{42,44} Studies have attempted to incorporate the physical and psychobiological aspects of home-based physical activity while addressing the worldwide problem of social isolation. Some research suggests that people's mental health and quality of life may improve from exercising by analyzing the effects of the activity on self-esteem and self-perception and by raising self-esteem.^{45,46} The COVID-19 pandemic causes increased emotional distress in people, but it's unclear whether this affects coping mechanisms in ways that go beyond current theories to investigate psychological discomfort associated with the virus among Southern Germans and their coping mechanisms.^{47,48} The research revealed discomfort, fear, and coping methods during the epidemic, and continuous mental health assistance is needed to avert pandemic mental illness.⁴⁹ As the COVID-19 pandemic spreads, it is crucial to discover the coping strategies associated with poor psychosocial outcomes in postpartum women.⁵⁰ The COVID-19 epidemic has added to the previously high levels of stress practiced by nursing students. There is a need for nurses to have acceptable and adaptable ways of dealing with stress in clinical practice earlier, during, and subsequently, the COVID-19 pandemic, so that the healthcare system may remain robust during and after the pandemic.^{51,52}

Theoretical Framework

Protection motivation theory (PMT) covers people's risk awareness and examines the desire to take defensive actions, which are highly impacted by high levels of apparent risk. The hypothesis says public insight into a disease's harshness and susceptibility impacts risk perception. It's been commonly utilized to explain why people engage in protective activities when they feel in danger.^{53,54} Social-cognitive models of health behavior highlight cognitive procedures in health-related decision-making and have helped expose psychological aspects behind the desire to conduct healthy activities like exercise.⁵⁵ The protection motive hypothesis explains how fear appeals affect health attitudes and actions.⁵⁶ A threat appraisal and a coping appraisal are used to explain health-related behavior change. People may initially be exposed to threat-increasing information, such as cardiovascular disease if they do not exercise. Technology acceptance is the approval, positive reception, and continuous usage of innovative equipment and systems.⁵⁷ It is established the first technology acceptance model (TAM), which showed that apparent utility and ease of using impact consumer attitudes toward new technologies. Rogers' Protection Motivation Theory (PMT) has been included in health.⁵⁸⁻⁶⁰ Health care wearables capture users' personal health information continuously, raising data privacy concerns. An individual's choice to embrace health care wearable technologies involves a confidentiality calculus, in which handlers may weigh the supposed benefit and privacy risk. Active video games and exergaming may employ virtual reality (VR) as a rehab aid. VR games increase motor learning, and brain plasticity, and may supplement traditional workouts. VR games may improve motor skills by integrating physical and cognitive training.^{61,62} Strong autonomous motivation makes people more active than guilt, shame, or peer pressure. Two components make up what we call "autonomous motivation": (1) motivational regulation motivated by the pleasure one experiences from the behavior itself (intrinsic motivation); and 2) motivational regulation motivated by objectives outside the behavior but compatible with the individual's values and sense of self. Interventions for autonomous motivation may vary. The goals of self-determination therapy are autonomy, competence, and relatedness.⁶³ Digital interference may provide a sense of closeness by exhibiting good intentions. Take the user's viewpoint with empathy, express appreciation or care, engage the person, learn about them pay close attention, and be there when needed.⁶⁴

The research looks at how coping behaviors might work as a mediator to lessen the detrimental consequences of COVID-19 on one's emotional and physical well-being. A conceptual framework (see [Figure 1](#)) and research hypotheses (see [Supplementary hypotheses of the research](#)) were created by adhering to the aforementioned literature debate.

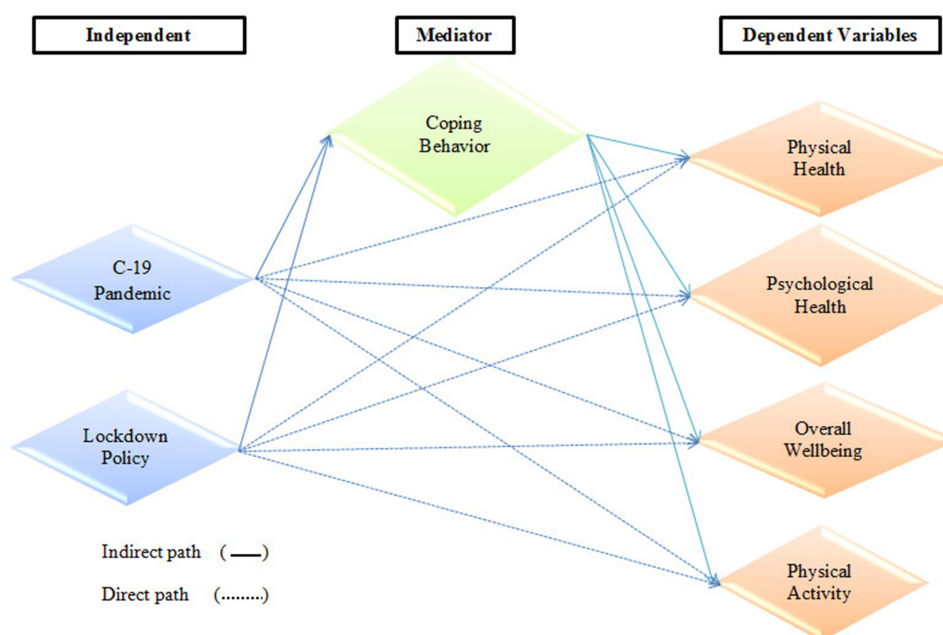


Figure 1 Model of the study.

Research Method

Study Locale

The current study was conducted in two Pakistani cities: Islamabad, the country's capital, and Lahore, which is located in the Punjab Province. The World Medical Helsinki Policy was followed in this study and was approved by the School of Physical Education, Soochow University ethics committee. Before commencing the conclusive stage of data collection, the study participants needed to provide their informed consent. The participants were provided with an explanation regarding the objective of the study and were given reassurance that their comments would be utilized exclusively for research purposes.

Participants

During the lockdown, the existing study population involved (+21) people from Lahore, Punjab Province, and Islamabad, Pakistan's capital region. By sending out an online survey to residents in both areas, we were able to gather this data using a convenience sample methodology. In all, 2295 individuals responded to the online survey. After data quantification, the final data analysis was based on the answers of 2200 people, 1254 from Lahore and 946 from Islamabad. Because there was insufficient data, the 95 respondents' replies were ignored. The bulk of survey respondents, or around (57%), lived in Lahore, Punjab Province, where the initial lockdown was imposed due to the severity of the COVID-19 pandemic, while approximately (43%) lived in Islamabad, the capital territory at the time of the lockdown.

After studying relevant literature and some studies in the socio-economic and COVID-19 pandemic standpoint,^{65,66} the present study included living place (Islamabad, Lahore), gender (male, female), age (21–27, 28–35, 36–43, 44–51 and above 51 years old), marital status (single, married, widowed, and divorced), and education (high school, to a doctoral degree). All demographic characteristics were provided by survey participants. The COVID-19 pandemic affects people's social and economic lives. It affects their daily lives, where they go, what they buy, and how they do business. (Please see Figure 2).

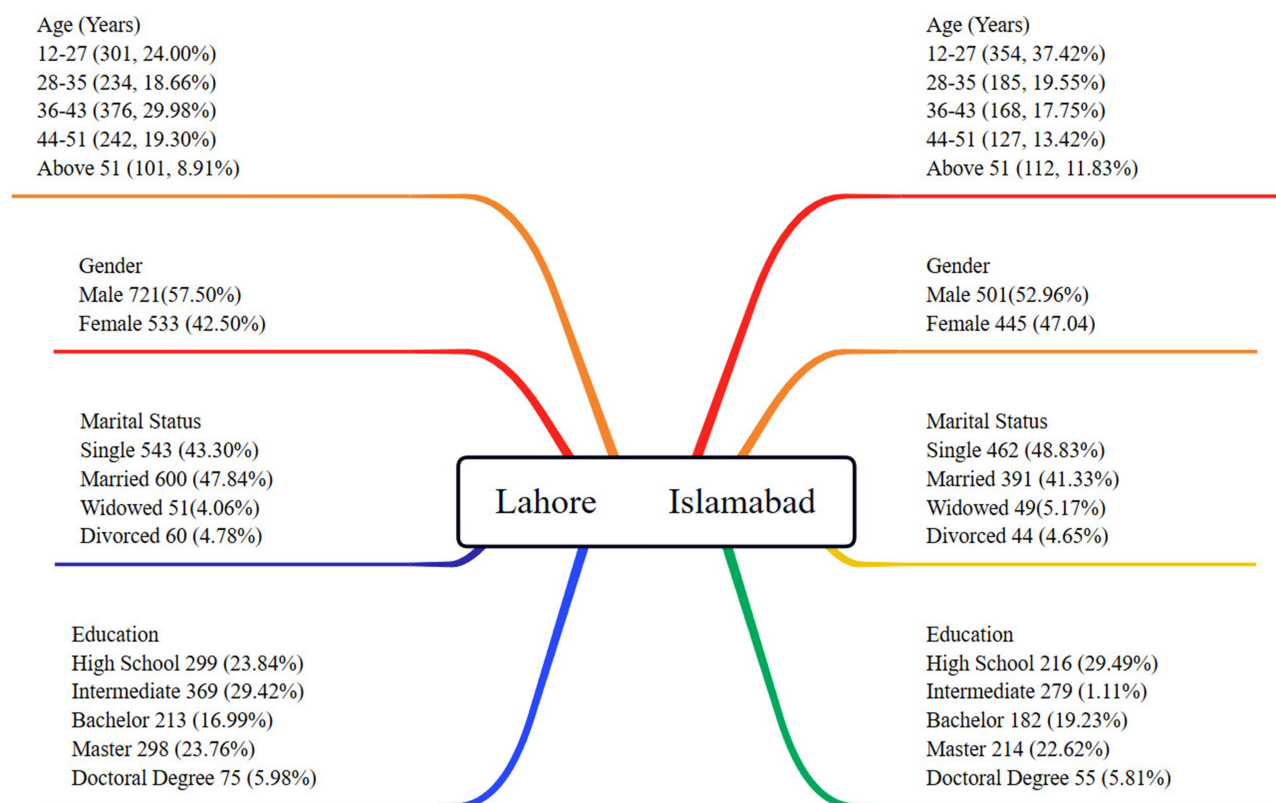


Figure 2 Study Demographics.

Data Collection Process

About lockdown policy, physical and psychological health (PH, PsH), physical fitness (PA), and overall well-being, the COVID-19 pandemic (CP) and lockdown policies (LP) effects were evaluated (OW). The main information was gathered from the targeted demographic in the cities of Lahore and Islamabad using an online questionnaire survey approach. The basic data for the present investigation was gathered using the survey approach. Before conducting the survey, A meeting was scheduled with the local authorities provided with an explanation regarding the objective of the study, and permission and reasonable support were granted from authorities for the data collection process. The participants were provided with an explanation regarding the objective of the study. Also, reassurance was given to participants that their comments would be utilized exclusively for research purposes. After reviewing the data from earlier research studies on SARS and influenza epidemics, the questionnaire was created.⁶⁷ Before performing the final survey for data collection, pre-tests of the questionnaire were conducted with members of the intended population in Islamabad and Lahore. After the complete questionnaire was pre-tested, several items were revised and its wording was adjusted to get the highest response rate possible from the study participants. From June 16 to September 30, 2020, an online poll through WhatsApp groups was conducted in these two cities, to assess the COVID-19 pandemic and lockdown measures as well as the health-related quality of life. Closed-ended 5-point Likert scale questions about the respondents' demographics, the COVID-19 pandemic, the COVID-19 lockdown policy, coping behaviors, physical and psychological health, participation in physical fitness, and general well-being during the COVID-19 lockdown period made up the bulk of the questionnaire. All research participants provided permission after being informed of the investigation's goal. The anonymized data was subjected to a quality review by the researchers for correctness, relevance, and completeness. Everyone who participated in the study was informed that their data would only be used for research purposes.

Measurement of Study Variables

In this research, the COVID-19 pandemic and lockdown policy were independent factors. Lahore and Islamabad's COVID-19 pandemic risk perceptions and beliefs were analyzed. Due to climate change, the COVID-19 pandemic caused dread and anxiety, the perception that COVID-19 is a danger to mankind, and the significance of making health and well-being on top precedence after COVID-19. A lockdown was enacted to combat the outbreak. Many initiatives were implemented to preserve public health. In this research, lockdown policy initiatives were questioned (staying at home, social distancing, wearing a face mask, washing hands with sanitizer, quarantining, and avoiding areas where the pandemic is severe).

The study's intermediate variable is coping techniques. During the lockdown, participants reported how they regulated their emotions for psychological, physical, and olfactory health (such as seeking comfort and understanding from another person, using substances to feel better, accepting reality and learning how to deal with it safely, keeping a good outlook, working out to relieve tension and anxiety, and coming up with innovative solutions to the troublesome issue). In a pandemic, emotional stability may be challenging. Unpredictable event planning jeopardizes health. Infectious illness outbreaks never stop; therefore, people are continuously at risk.⁴²

During the COVID-19 lockdown, the participants' levels of physical activity, emotional stability, and physical and mental health were all studied. Each dependent variable's set of question statements on the Likert scale focuses on either physical health (did you practice good particular hygiene for the anticipation of disease), mental health (did you experience anxiety or depression?), or social health (did you feel isolated from others?). Ability to maintain physical fitness for the sake of health; urging others, including loved ones, to do the same; experiencing a decline in fitness during the isolation; experiencing an increase in fitness during the isolation; or maintaining a level of fitness that is roughly equivalent to that experienced before the lockdown. Health-related superiority of life is based on a person's level of physical, mental, and social health. Health-related quality of life is a public health paradigm that takes into account not only physical health but also mental health, social health, and physical fitness.⁶⁸

Data Analysis and Results

Smart-PLS 3.2.9 is used to analyze research data.⁶⁹ Univariate and multivariate techniques were adopted. Univariate analysis analyses survey participants' demographic information. Multivariate analysis used SEM to investigate the research variables'

connections. SEM data analysis consists of two processes. Utilizing the measurement model, first evaluate concept validity, reliability, and convergent validity. Second, a structural model was created to test the theory.^{70,71}

Assessment of the Measurement Model

All three types of validity (convergent, discriminant, and internal consistency) of the measurement model were tested and found to be satisfactory (see Table 1). Cronbach's Alpha (CA) ranged from (0.823) to (0.966), and composite reliability (CR) ranged from (0.876) to (0.975) when used to assess the instruments' internal consistency.⁷² By determining the average variance extracted (AVE) and the factor loadings (FA) of each item, we were able to test for convergent validity. Convergent validity was demonstrated because the AVE for every single construct was more than 0.5 and the loading for every single item was greater than 0.6. The results are illustrated in Figure 3 and detailed in Table 1.

Table 1 Factor Loadings, Construct Reliability and Validity

Constructs/Items	F.L	CA	CR	AVE
Coping Behavior		0.857	0.898	0.638
CB1	0.712			
CB2	0.790			
CB3	0.854			
CB4	0.807			
CB5	0.822			
COVID-19 Pandemic		0.966	0.975	0.907
CPI	0.949			
CP2	0.952			
CP3	0.957			
CP4	0.951			
Lockdown Policy		0.892	0.917	0.648
L-Dp1	0.745			
L-Dp2	0.768			
L-Dp3	0.807			
L-Dp4	0.839			
L-Dp5	0.843			
L-Dp6	0.825			
Overall Wellbeing		0.850	0.893	0.627
O-Wb1	0.776			
O-Wb2	0.831			
O-Wb3	0.832			
O-Wb4	0.816			
O-Wb5	0.696			

(Continued)

Table 1 (Continued).

Constructs/Items	F.L	CA	CR	AVE
Physical Fitness		0.867	0.904	0.652
PF-1	0.796			
PF-2	0.831			
PF-3	0.765			
PF-4	0.845			
PF-5	0.800			
Physical Health		0.823	0.876	0.587
Ph-H1	0.733			
Ph-H2	0.793			
Ph-H3	0.829			
Ph-H4	0.757			
Ph-H5	0.712			
Psychological Health		0.959	0.967	0.830
Ps-H1	0.878			
Ps-H2	0.892			
Ps-H3	0.936			
Ps-H4	0.903			
Ps-H5	0.925			
Ps-H6	0.930			

Discriminant Validity

Fornell Lacker and Hetro Trait-Mono Trait are two approaches to determining discriminant validity (HTMT). To start the process of establishing discriminant validity, it is necessary to verify the Fornell-Lacker criterion. For this particular technique to be effective, it is necessary for the inter-correlations between the constructs to exceed the square root of the average variance extracted (AVE) of one of the constructs. A construct's components must show greater variance for it to be distinguished from the other constructs in the model. [Table 2](#) shows that for all structures, the square roots of the AVEs are greater than the values of the conforming inter-correlations.

Heterotrait-Monotrait Ratio (HTMT)

The Heterotrait-Monotrait Ratio (HTMT) technique, which assesses discriminant validity among each pair of variables, was created in terms of discriminant validity.⁷³ The HTMT values are less than the 0.90 standards, as shown in [Table 3](#).

Assessment of the Structural Model

The construction of structural equations that evaluate the inner route model is made possible by the structural model, which serves as a tangible basis. Significant metrics used to analyze the structural model in this work were the route coefficient (p), coefficient of determination (R²) for endogenous variables, effect size (f²), prediction significance (q²), and multicollinearity (inner VIF).^{74–76} The starting value and justification for each benchmark are provided in [Table 4](#) of the structural model below.

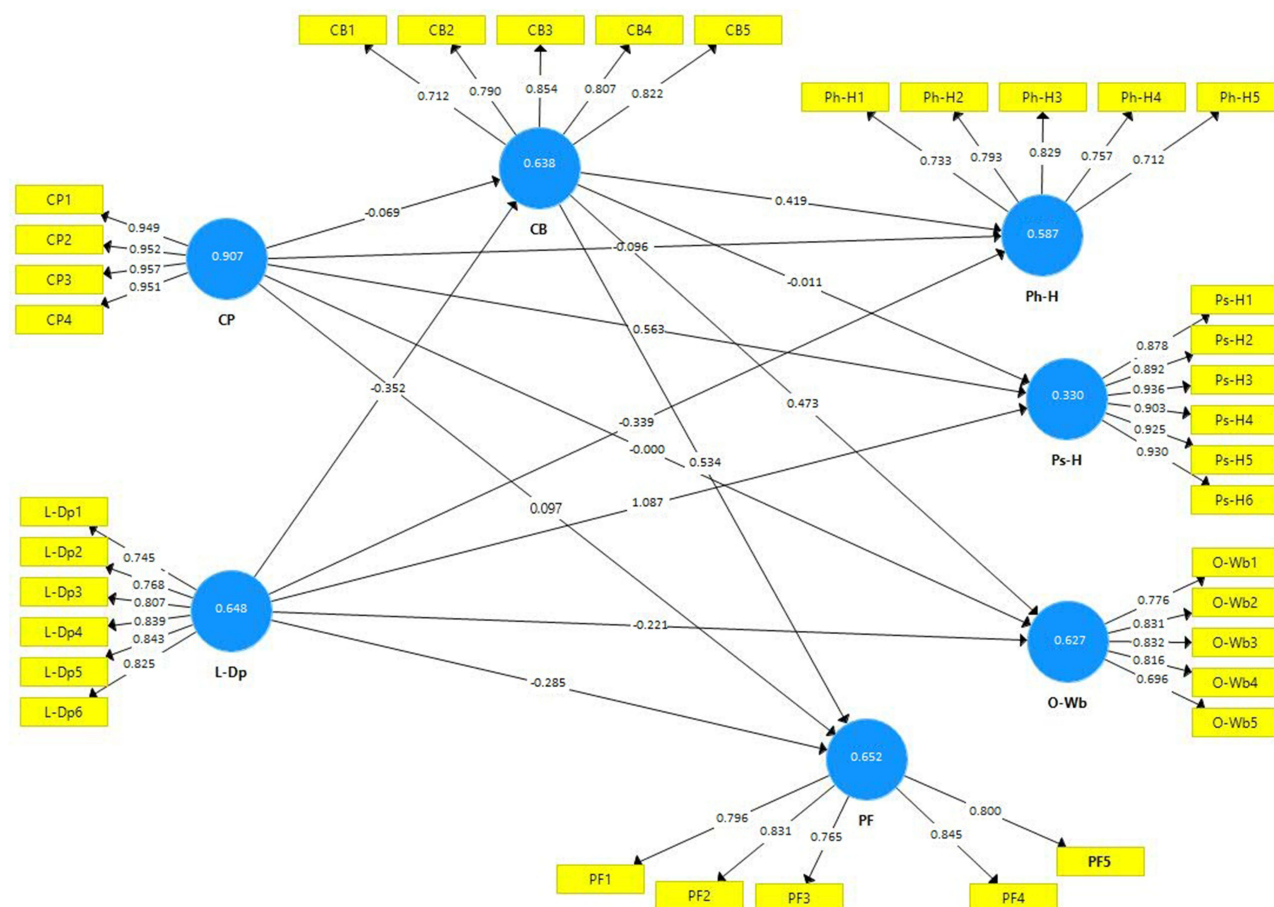


Figure 3 PLS-SEM.

Model Fit Summary

The fitness model analysis before SEM is shown in Table 5. Model fitness metrics include chi-square, normed fit index, squared Euclidean distance (d_ULS), geodesic distance (d_G), and standardized root mean square residual (SRMR). The structural equations from the structural model may be used to evaluate the inner route model. The structural model was evaluated using the coefficient of determination, path coefficient, effect size, prediction significance, and multicollinearity of endogenous variables. The beginning value and rationale for each statistic are provided in Table 5 of the structural model.

Table 2 Discriminant Validity: Fornell Larcker (N=2200)

Constructs	CB	P	LDp	O-Wb	PF	PH-H	Ps-H
CB	0.799						
P	-0.081	0.952					
LDp	-0.355	0.033	0.805				
O-Wb	0.552	-0.046	-0.388	0.792			
PF	0.632	-0.015	-0.473	0.688	0.808		
PH-H	0.547	-0.141	-0.491	0.553	0.590	0.766	
Ps-H	-0.087	0.567	0.110	-0.137	-0.095	-0.124	0.911

Table 3 Discriminant Validity (HTMT)

Constructs	CB	P	LDp	O-Wb	PF	PH-H	Ps-H
CB							
P	0.091						
LDp	0.394	0.071					
O-Wb	0.641	0.06	0.435				
PF	0.733	0.039	0.527	0.803			
PH-H	0.653	0.15	0.555	0.656	0.701		
Ps-H	0.098	0.586	0.118	0.155	0.105	0.133	

Table 4 Assessment of Structural Model

R-Square	Endogenous Variables	R Square	R Square Adjusted	Criteria			
	CB	0.131	0.130	0.26: Substantial 0.13: Moderate, 0.02: Weak			
	OW	0.347	0.346				
	PA	0.472	0.472				
	PH	0.410	0.409				
	PsH	0.330	0.329				
Effect Size (F-Square)	Exogenous Variables	CB	O--Wb	PF	PH-H	Ps-H	Criteria
	P	0.007	0.012	0.005	0.042	0.475	0.26: Substantial, 0.13: Medium effect, 0.02: Small effect
	CB		0.563	0.722	0.299	0.001	
	LDp	0.321	0.008	0.038	0.083	0.007	
Collinearity (Inner VIF)	Exogenous Variables	CB	O-Wb	PF	PH-H	Ps-H	Criteria
	P	1.001	1.008	1.008	1.008	1.008	VIF <= 5.0,
	CB		1.325	1.325	1.325	1.325	
	LDp	1.001	1.323	1.323	1.323	1.323	
Predictive Relevance (Q-Square)	Endogenous Variables	CCR	CCC	Criteria			
	CB	0.150	0.471	Value larger than (0) indicates Predictive Relevance			
	O-Wb	0.277	0.437				
	PF	0.347	0.472				
	PH-H	0.243	0.378				
	Ps-H	0.271	0.756				

Table 5 Model Fit Summary

Fit Indices	Model
SRMR	0.065
d_ULS	2.631
d_G	0.689
Chi-Square	9190.326
NFI	0.821

Hypothesis Testing

Table 6 shows the results regarding our direct hypotheses, although all of the eight direct correlations were found to be true, except the route P → O-Wb, which was not true since the p-value was greater (0.998) than 0.05. However, P → PF, P → Ps-H, and LDp → Ps-H exhibited a positive impact. Significant associations such as P → PH-H, LDp → O-Wb, LDp → PF, and LDp → PH-H revealed the negative direction. **Table 6** and **Figure 4** include all the relations that have been established.

Furthermore, it was shown that the coping behavior had a statistically significant mediating influence along the mediated channels, P→CB→O-Wb, LDp→CB→O-Wb, P→CB→PF, LDp→CB→PF, P→CB→PH-H, and LDp→CB→PH-H since the t-values are larger than 1.96 and the p-values are less than 0.05. The confidence interval findings for those associations further supported the mediation effect by indicating that both LL and UL are negative values (ie, “0” is not in between). Except the mediation P → CB → O-Wb, which is complete mediation since the direct influence between P and O-Wb was found to be small, all substantial mediation effects are also determined to be partial because their direct links are also shown to be significant. However, since their p-values are larger than 0.05 and there is a 0 between LL and UL, two mediation paths—P→CB→Ps-H and LDp→CB→Ps-H—revealed no significant mediation. As a consequence, **Table 7** exhibits all of the aforementioned findings.

Discussion

During the COVID-19 pandemic isolation period, the study aimed to ascertain how COVID-19 influenced university education and the role of virtual reality fitness in boosting overall well-being.^{77–79} These investigations, which were conducted during the height of the global COVID-19 epidemic,^{80,81} seek to evaluate the overall psychological health of those in the middle and later stages of life, along with related elements and the possible moderating role of coping strategies. The COVID-19 pandemic is hurting people’s mental health and standard of living. However, few research

Table 6 Path Coefficient (Direct Effect) Result

Hypotheses	OS/Beta	T	P Values	Decision
P → O-Wb	0.000	0.003	0.998	Not Significant
P → PF	0.037	2.465	0.014	Significant
P → PH-H	−0.096	5.364	0.000	Significant
P → Ps-H	0.563	46.271	0.000	Significant
LDp → O-Wb	−0.221	7.797	0.000	Significant
LDp → PF	−0.285	10.969	0.000	Significant
LDp → PH-H	−0.339	11.998	0.000	Significant
LDp → Ps-H	0.087	5.293	0.000	Significant

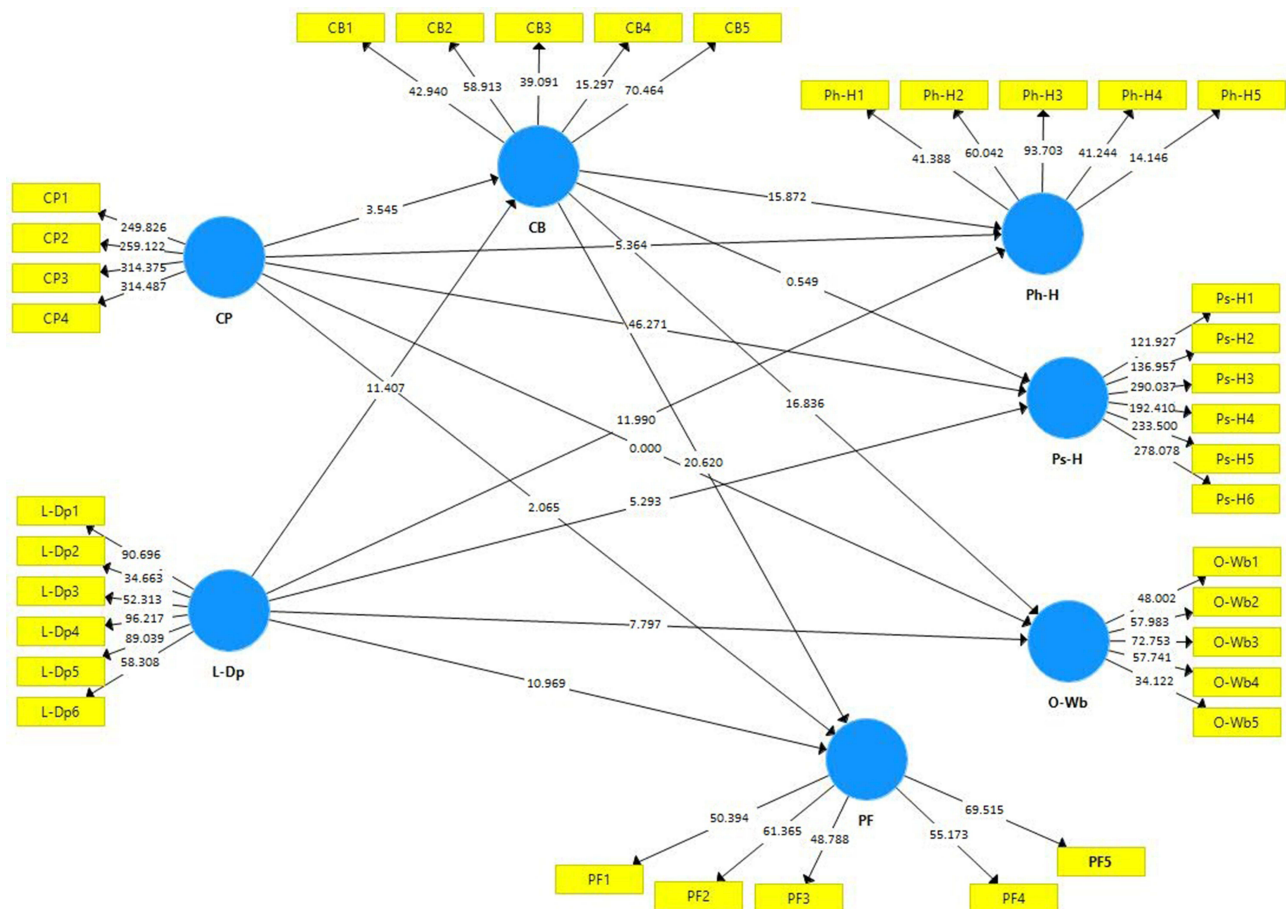


Figure 4 Bootstrapping results.

detail appropriate ways to cope with these effects, thus 14 coping strategies were evaluated to determine whether they were linked.²³ COVID-19's impact on healthcare workers (HCW) has yet to be completely documented. As a result of the COVID-19 occurrence, we looked into how New York City's healthcare workers dealt with their feelings of anxiety, stress, and loneliness.⁸² Previous research has connected COVID-19 stresses to a range of coping techniques; however, it is unclear whether these coping strategies serve as a proxy for the relationship between stressful COVID-19 events and poor mental health in college students.^{83,84}

Table 7 Mediation (Indirect Effect) Result

Hypotheses	OS/Beta	LL	UL	T	P Values	Decision	Mediation
P -> CB -> O-Wb	-0.033	-0.050	-0.014	3.444	0.001	Significant	Full
LDp -> CB -> O-Wb	-0.167	-0.205	-0.131	8.884	0.000	Significant	Partial
P -> CB -> PF	-0.037	-0.056	-0.016	3.477	0.001	Significant	Partial
LDp -> CB -> PF	-0.188	-0.225	-0.150	9.383	0.000	Significant	Partial
P -> CB -> PH-H	-0.029	-0.044	-0.012	3.458	0.001	Significant	Partial
LDp -> CB -> PH-H	-0.148	-0.184	-0.116	8.446	0.000	Significant	Partial
P -> CB -> Ps-H	0.001	-0.002	0.003	0.582	0.561	Not Significant	No Mediation
LDp -> CB -> Ps-H	0.004	-0.010	0.015	0.582	0.561	Not Significant	No Mediation

The goal of the research was to determine if the COVID-19 lockdown limitations had a significant effect on students studying for healthcare professions' mental health, which is linked to lifestyle choices and coping mechanisms.^{85,86} The COVID-19 pandemic's effects on future public health and preventive medicine practitioners are unclear in nations with few resources. Adults' responses to the COVID-19 restrictions are examined in terms of their coping mechanisms, perceived threats, and sources of social support.^{87,88} During the ongoing COVID-19 pandemic, previous research examined stress, coping, and drug use to see whether changes in subjective well-being could be anticipated. Choices in lifestyle and methods of self-care were also investigated.^{89,90} Adults with continuing diseases who reported their apparent levels of domestic and international stress were asked about COVID-19-associated stress and coping strategies. The role of their coping mechanisms as mediators during the initial stages of the pandemic was also studied.^{91,92}

To this end, it could be instructive to look at differences in objective measures of PA and the obstacles people face in trying to become more active.^{93,94} This brief review seeks to summarize the most recent empirical data regarding the COVID-19 pandemic's effects and examines the part of community settings in encouraging or discouraging people's outside physical actions and inactive behavior.^{95,96} To prevent the spread of COVID-19, the people of England were instructed to stay indoors and only go out for necessities like grocery shopping, medical appointments, getting to and from work or getting some exercise. It's unclear how this will affect people's daily routines.^{97,98} Regular exercise has been linked to improved mental and physical health during physical separation in people of all ages and from all over the world, according to a study on COVID-19.⁹⁹ Through the control of physiological mechanisms made possible by exercise, the hypothalamic-pituitary-adrenal (HPA) axis, which controls a variety of tension hormones, and the sympathetic immune system are all affected by exercise, one can improve their mental health.¹⁰⁰ The constructive effects of exercise on mental health have been predictable, and there are several possible mechanisms at play, whether one lives in a group or alone. The psychological, cognitive, and physiological benefits of exercise have been shown to alleviate depression, even amid a pandemic.¹⁰¹

Conclusion

Our study accomplishes that the COVID-19 countermeasures have negative impressions on overall well-being in the framework of physical and psychological health and physical fitness. Individual responses and coping strategies that emerge during this stressful time have become a primary goal in understanding the general population's emotional and cognitive responses to the COVID-19 pandemic and the psychopathology it causes. The coping methods adopted by the general public during an ongoing pandemic appear to change based on the limits imposed, and these constraints differ depending on the level of risk of infection. Coping behavior positively influences study participants' emotions towards physical fitness, psychological and physical health which further contributes in the subjective wellbeing. Mental and behavioral skills (formed in response to a stressful incident) are coping strategies to reduce brief unpleasant aspects and improve personal control perception. To cope with hardship or traumatic situations, people practice a variety of coping strategies. Positive coping can elicit positive emotions and behavior's, leading to improved responses to adversity, but negative coping techniques are not ideal for anxiety and stress management.

Study Limitations

The study includes several restrictions. The study's use of self-report measures brings possible biases into the data collection. Participants may misremember or interpret their coping mechanisms, physical and psychological health, and general well-being erroneously. Additionally, social desirability bias could lead participants to portray themselves in a more favorable light, which might influence the validity of the findings. To mitigate these limitations, future studies could consider using objective measures and multiple data sources, such as physiological indicators and observational data, so that a more complete and precise evaluation of the factors under study may be made. Second, it's hard to conclude cause and effect since the study was cross-sectional, between coping strategies and improvements in physical, psychological, and overall well-being. The study captures the data at a sole point in time, failing to account for the temporal dynamics and potential changes throughout the pandemic. The longitudinal studies that follow participants over a prolonged period would provide a good understanding of how coping behavior evolves and its impact on students' well-being. Additionally, experimental designs, such as randomized controlled trials, could investigate the causal effects

of specific coping strategies on physical and psychological health outcomes, thereby addressing the limitations associated with observational designs.

Abbreviations

CB, coping behavior; CP, covid-19 pandemic; L-Dp, lockdown policy; O-Wb, overall wellbeing; PF, physical fitness; Ph-H, physical health; Ps-H, psychological health; LL, lower limit; UL, upper limit.

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