

# A Longitudinal Study on University Students' Coping Strategies and Psychological Symptoms during COVID-19 Full and Partial Lockdowns Over a 5-Month Interval

Aqsa Chaman & Tahira Shaheen

## Abstract

**Background:** Scholars have broadly debated the profound and detrimental effect of both full and partial COVID-19 lockdowns on the physical and mental health of individuals globally. University students have encountered different social, financial, academic, and psychological challenges stemming from the epidemic. Therefore, the present study aimed to elucidate the effectiveness of utilizing both maladaptive and healthy coping strategies to mitigate or ameliorate psychological challenges experienced during the different waves of COVID-19's partial and full lockdowns.

**Method:** The study employed a double-blind, purposive sample technique, within-group design, and pretest-posttest experimental design. 40 university students aged 18 to 25 years ( $M = 21.57$ ,  $SD = 1.05$ ) were included at the Foundation University School of Science and Technology, Pakistan, from March 23 to August 23, 2020. The study used two standardized psychological instruments to measure coping strategies, somatic symptoms, obsessive-compulsive symptoms, interpersonal sensitivity, depression symptoms, anxiety symptoms, hostility symptoms, phobic anxiety symptoms, paranoid ideation symptoms, and psychotic symptoms in university students.

**Results:** This study revealed that healthy coping strategies were helpful in mitigating mental health challenges across both partial and full lockdown phases. The results also exhibited that denial coping strategies were a more prevalent coping mechanism in the full lockdown phase, whereas emotional support-seeking coping strategies emerged as more prominent in partial lockdowns. Moreover, self-distraction and religious coping were found to be helpful strategies. Conversely, the behavioral disengagement coping strategy was observed as a maladaptive coping mechanism in partial lockdowns. Moreover, the stability of psychological symptoms during the pre-test, post-test, and follow-up examinations during both partial and full COVID-19 epidemic lockdowns in Pakistan students.

**Conclusions:** This study's findings are very important to comprehend how university students navigate mental challenges and bolster their psychological well-being during and beyond the epidemic. This study draws the inference that both adaptive and maladaptive coping strategies used by students can have lasting effects on their mental health and academic performance.

**Keywords:** A longitudinal experimental study, coping strategies, psychological symptoms, COVID-19, Full lockdown, partial lockdown

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## Background

The Coronavirus Disease 2019 (COVID-19) is well known worldwide as a highly infectious disease that has unleashed a catastrophic effect on the whole world. This illness stems from the acute respiratory syndrome coronavirus 2 (Althomali et al., 2024; Aqeel et al., 2020, 2022; Cascella et al., 2023; Gibbs et al., 2024; Micah et al., 2023; Naeem et al., 2021; Wilzer et al., 2024). In December 2019, the World Health Organisation (WHO) issued its initial statement regarding an influenza-like infection of unknown source in the city of Wuhan, China (Chaman et al., 2022; Klinkosz et al., 2023; Shuja, Aqeel, et al., 2020; Tabassum et al., 2020; WHO, 2019). Since the start of the COVID-19 epidemic, it has extremely affected lives all over the world (Islam et al., 2020; Shahzad et al., 2021; Shuja, Shahidullah, et al., 2020; Tabassum et al., 2020; Taleb et al., 2024). The World Health Organisation (WHO) provided estimates that approximately seven hundred million COVID cases have been documented universally in the pandemic phase (WHO, 2019).

Therefore, several nations worldwide, such as the United States of America, the United Kingdom, Russia, France, Pakistan, and India, introduced numerous measures to control and mitigate the effect. These measures comprised the closure of all public and private spaces, the suspension of whole transport systems, and imposed restrictions on local and international travel for citizens from other countries (Fatima et al., 2022; Gul et al., 2022; Kwekha-Rashid et al., 2023; Sumathi & Elavarasi, 2024; Tomaino et al., 2024; Wu et al., 2020). This shift away from the customary of society to travel and socialize provoked substantial stress, leading to a surge in mental health problems in people (Sumathi & Elavarasi, 2024).

In Pakistan, the first case of coronavirus illness was formally reported on February 26, 2020. Consequently, Pakistan, along with many other Asian nations, implemented a full lockdown strategy on March 23rd, 2020, aimed at creating "social distance" through "home isolation," thereby decreasing the spread of the extremely contagious virus in its population (Abbasi & Aqeel, 2023; Aqeel et al., 2017; Bhamani et al., 2020; Khattak, 2023; Munawar et al., 2021; Steinberg, 2001; Tariq et al., 2023; Yeasmin et al., 2020). All public and private schools all over the world were initially closed due to this lockdown enforcement, from March 23 to April 15, 2020. However, the government transitioned from a full lockdown to a "partial lockdown" due to challenging economic situations on May 9, 2020 (Aqeel et al., 2022; Shuja, et al., 2020).

In the Pakistan context, the partial lockdown primarily extended until May 31, 2020, and later it was more prolonged until August 15, 2020, during the first wave of COVID-19. This

extension came after a comprehensive assessment of the critical situation by the health ministry (Aqeel et al., 2021; Khan et al., 2024; Shuja, et al., 2020; Su et al., 2021).

Therefore, the COVID-19 epidemic has brought forth important challenges for school, college, and university students globally, which have emerged as a prominent issue of mental health concern. Previous studies have consistently exhibited that young people have faced heightened levels of stress, anxiety, and depression in this period that have been exacerbated by uncertainties surrounding their financial and academic futures (Abida et al., 2023; Commodari & La Rosa, 2020; Khan & Aqeel, 2022; Leung et al., 2024). Home-based quarantine measures during full and partial lockdowns were implemented and have further enhanced these challenges, which affect students' mental health because of limited social interactions and concerns related to their academic and future prospects (Althomali et al., 2024; Nisar et al., 2020; Serpas & Ignacio, 2024; Shuja et al., 2022).

In Pakistan, as in several other nations, the psychosocial effect of the epidemic has been profound, leading to enhanced mental health issues, substance use, and even suicidal behaviour in people (Chaman et al., 2022; Hussain, 2024; Naeem et al., 2021; Naeem & Chaman, 2022). Psycho-social factors, including restricted social interactions, misinformation on social media, and ongoing stressors about the epidemic, have profoundly contributed to the deterioration of mental health among school, college, and university students globally (Huang et al., 2020).

Therefore, many students used different coping strategies to tackle and resolve mental health concerns during COVID-19. Most school students use positive approaches such as seeking social support and engaging in physical activity, whereas others have turned to maladaptive coping mechanisms including behavioural disengagement, social isolation, and using illegal substances (Cheng et al., 2024; Gurvich et al., 2021; Huda et al., 2024; Kołodziejczyk et al., 2021; Umucu et al., 2022; Zhang et al., 2013). It was very crucial to comprehend and address these mental health concerns of students during this challenging time by providing adequate intervention and support to mitigate the effect of the epidemic on their mental and physical health (Aqeel et al., 2018; Aqeel & Ahmed, 2018; Bhatti et al., 2023; Shuja et al., 2021; Umucu et al., 2022).

A similar previous study also highlighted that students experienced anxiety, depression, and poor sleep patterns during the epidemic. This study also found that individuals with extrovert, conscientiousness, and neurotic personality traits exhibited more mental health problems such as anxiety and depression (Noorullah et al., 2023). Moreover, Mangi et al. (2023) examine the effect of

the epidemic on the sleep quality of university students, demonstrating that female students were more affected and experienced headaches due to disrupted sleep patterns (Aqeel, et al., 2021; Mangi et al., 2023).

Additionally, although several studies have highlighted the detrimental effect of COVID-19 on the mental and physical health of university students, there have been limited studies into the coping strategies utilized by students during various phases of lockdown to understand and address these challenges. This current study seeks to fill this gap by exploring the coping mechanisms employed by Pakistani students to confront mental challenges in both full and partial lockdown periods. By exploring these coping strategies, the study endeavors to contribute to existing knowledge and provide deep insights into effective coping approaches for supporting the mental well-being and tackling psychological issues of Pakistan university students in times of crisis.

Moreover, this study also comprehensively explores these coping defense mechanisms and their effectiveness in mitigating mental health challenges. The research seeks to inform policymakers on the development of targeted interventions to support the psychological well-being of Pakistan university students. Through this investigation, the study tried to shed light on the particular mental health challenges faced by students and recognize effective coping strategies or defense mechanisms tailored to the unique challenges posed by varying lockdown measures.

## Method

### Research design and Objectives

The study employed a double-blind, purposive sample technique, within-group design and pretest–posttest experimental design. The current study aimed to examine the use of coping strategies in the development of the mental health status of Pakistani university students during both full and partial lockdowns in the COVID-19 epidemic across pre- and post-phases. It seeks to investigate whether Pakistani university students use distinct coping defense mechanisms more commonly in partial lockdowns as compared to full lockdowns to alleviate or improve psychological issues including somatic symptoms, obsessive-compulsive symptoms, interpersonal sensitivity, depression symptoms, anxiety symptoms, hostility symptoms, phobic anxiety symptoms, paranoid ideation symptoms, and psychotic symptoms.

### Sample

Forty participants with age ranged between 18 to 25 years ( $M = 21.57$ ,  $SD = 1.05$ ), they were recruited at the Department of Psychology, Foundation University school of Science and Technology, Pakistan using online survey. This online survey was carried out at the end of March in the start of the COVID-19 epidemic lockdown

which imposed between March 23 to August 23, 2020 in Pakistan. The data was collect from BS 8 class University students. A web-based survey was employed to receive information about the coping strategies and mental health problems through the Google Form. The link of the online survey was shared with participants using social media platform as WhatsApp. Written or verbal informed consent was received from all volunteer participants before conducting present study.

### Eligibility Criteria

**Inclusion criteria:** The inclusion criteria were set to enroll those participants who were properly diagnosed and experienced with COVID-19, and they were also guaranteed at their houses during the COVID-19 epidemic, as well as those participants who regularly attended their classes through an online platform from various cities in Pakistan and had internet facilities to fill out the only forms.

**Exclusion Criteria:** This study excluded those participants' students who had not been properly diagnosed with COVID-19.

### Research Trail design

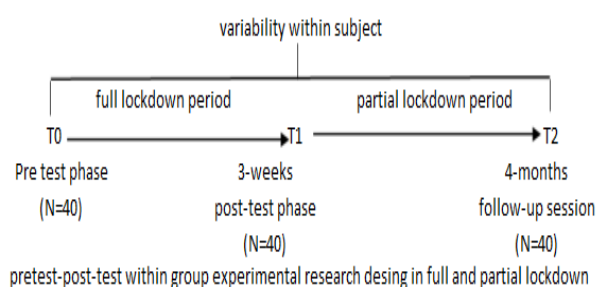
Forty volunteer students were invited to complete standardized psychological instruments to measure coping strategies and mental health problems through a web-based survey in a five-month pre-post-follow-up experimental design.

Students completed a questionnaire using an online survey in two distinct phases: in the initial phase (T-0), when COVID-19 started and coincided with the sudden closure of Pakistani universities because of the epidemic, and students were facilitated using an online social media platform such as WhatsApp for data collection purposes. Subsequent to the pre-testing phase (T-0), the same forty students were invited to complete the similar survey instruments for the post-testing phase (T-1) later, approximately 22 days (3 weeks) of full lockdown in Pakistan. Subsequently, with the lifting of the full lockdown and the change to a partial lockdown during the epidemic, students completed the follow-up phase (T-2) after five months. The government-mandated T-0 phase started when establishments abruptly shut down Pakistani universities during the ongoing pandemic and instituted an inclusive lockdown. Subsequent to the T-0 phase, students completed the post-test phase (T-1) after the relaxation of a twenty-two-day full lockdown period. Later, students go through the follow-up phase (T-2) after 5 months, coinciding with the conclusion of the smart lockdown. The entire trial procedure is summarized in Figure

### Details of the lockdown phase

The COVID-19 epidemic lockdown unfolded in two phases in Pakistan (Aqeel et al., 2022). A full lockdown trailed after a smart lockdown. Both phases of the present study align

With these shifts. The pre-test phase, T-0, started on March 23, 2020, when the government enforced a worldwide full lockdown. The post-test phase, T-1, commenced on April 15, 2020, which was marked by the Pakistani government's decision to comfort lockdown limitations because of an important economic crisis. Conversely, faced with the intricate financial landscape of the country of the country and a surge in contagions, the authority changed from a complete lockdown to a smart lockdown from May 9, 2020, to August 15, 2020. This time coincided with the beginning of data collection for the follow-up phase (T-2), as illustrated in Figure 1.



## Measures

### The brief symptom inventory

The brief symptom inventory was devised by Derogates (1983) to examine different symptoms of psychological problems in both clinical and normal samples. It is a 53-item self-report inventory that consists of nine psychological problems: (1) somatic symptoms; (2) obsessive-compulsive symptoms; (3) interpersonal sensitivity symptoms; (4) depression symptoms; (5) anxiety symptoms; (6) hostility symptoms; (7) phobic anxiety symptoms; (8) paranoid ideation symptoms; and (9) psychotic symptoms. Each item of the brief symptom inventory is rated on a 4-point Likert scale between 0 (not at all) and 4 (extremely). The brief symptom inventory has revealed adequate validity and reliability (Derogatis, 1983).

### The brief-cope inventory

It was developed to examine different coping strategies that people may have in reaction to a particular situation or condition (Carver, 1997). It consists of 28 items, which include 14 subscales: active coping, self-distraction coping, denial coping, use of emotional support coping, use of instrumental support coping, substance use coping, behavioral disengagement coping, positive reframing coping, venting coping, planning coping, acceptance coping, religion coping, and self-blame coping strategies. Each item of the brief-cope inventory is rated on a 4-point Likert scale from 1 (I usually don't do this at all) to 4 (I usually do this a lot). The brief-cope inventory has shown satisfactory validity and reliability (Carver, 1997).

## Procedure

This study was approved by the Institutional Ethical Review Board at the

Department of Psychology, Coventry University, UK, following the guidelines of the American Psychological Association (APA) and the Committee on Publication Ethics (COPE), but performed at the Department of Psychology, Foundation University School of Science and Technology, Pakistan, using an online survey. Forty participants were recruited from the Department of Psychology, Foundation University School of Science and Technology, Pakistan. The present study employed two psychological instruments to examine coping strategies and mental health issues in university students. Prior to carrying out the examination, approval to proceed with the study was obtained from the appropriate authority at Foundation University, Islamabad, Pakistan. Written and verbal informed consent was received from all participants. Participants completed two distinct phases of an online survey through the WhatsApp platform: the pretesting phase (T-0) happened during the abrupt closure of Pakistani universities because of the epidemic, enabled through WhatsApp. Subsequent to this, the same group completed the post-testing phase (T-1). After 22 days, the full lockdown was lifted and changed to a partial lockdown. Finally, all participants underwent a follow-up phase (T-2) after five months, coinciding with the conclusion of the smart lockdown. Furthermore, univariate analysis was performed to approve these objectives through SPSS-20 software.

### Data management and analysis plan

Firstly, the missing values of all study scales were dealt with using an imputation method on SPSS-23. Prior to conducting the analyses, all scale values were first converted into standardized Z-scores by compiling the results from all students' pre-test, post-test, and follow-up measures in order to determine the mean and standard deviation. This study employed One-way analysis of variance (ANOVA) to examine the effect of the partial and full COVID-19 lockdown experience on coping strategies and mental health problems during all waves of the COVID-19 epidemic in Pakistani university students (Field, 2013).

## Results

The results of one-way analysis of variance (ANOVA) revealed significant differences in denial coping strategy ( $F = 3.80, p < .01$ ), substance use coping strategy ( $F = 24.70, p < .000$ ), use of emotional support coping strategy ( $F = 11.52, p < .000$ ), use of instrumental support coping strategy ( $F = 5.05, p < .000$ ), venting coping strategy ( $F = 9.23, p < .001$ ), planning coping strategy ( $F = 3.88, p < .000$ ), acceptance coping strategy ( $F = 33.37, p < .001$ ), and religion coping strategy ( $F = 8.53, p < .000$ ) across the pretesting phase, post-testing phase, and follow-up phase during the COVID-19 epidemic lockdown in Pakistan students. Moreover, the stability of psychological symptoms, including



obsessive-compulsive symptoms, somatic symptoms, depression symptoms, hostility symptoms, paranoid ideation symptoms, phobic anxiety symptoms, and psychotic symptoms, during the pre-test, post-test, and follow-up examinations across both partial and full COVID-19 epidemic lockdowns in Pakistan students. This study's findings highlighted the enduring effect of the COVID-19 epidemic on students' mental well-being. Overall, these findings contribute to our understanding and provide deep insight into how Pakistani university students cope with and tackle psychological challenges in COVID-19 lockdowns, thus informing policymakers to develop targeted psychological interventions to facilitate their mental health needs.

### **Denial coping strategy**

In the first phase ( $T = 0$ ), the study's findings revealed a significant increase in denial coping strategy at the start of the full lockdown. When the COVID-19 epidemic hit, all Pakistani universities were closed. In the second phase ( $T = 1$ ), the results demonstrated a significant improvement in denial coping strategies at the end of the full lockdown. COVID-19 epidemic and start of partial lockdown COVID-19 epidemic when all universities were opened and again started online education after 3 weeks. Whereas, in the third phase ( $T = 2$ ), the results revealed a significant decline in denial coping strategies at the end of the partial lockdown COVID-19 epidemic when all universities had taken their semester exams. The results demonstrated that university students used a denial coping strategy to survive in full lockdown as compared to partial lockdown during the COVID-19 epidemic (see Figure 1).

### **Substance use coping strategy**

In the first phase ( $T = 0$ ), the study's findings demonstrated a significant increase in substance use coping strategies at the start of the full lockdown. When the COVID-19 epidemic hit, all Pakistani universities were closed. In the second phase ( $T = 1$ ), the results demonstrated a significant improvement in substance use coping strategies at the end of the full lockdown. COVID-19 Epidemic and start of partial lockdown COVID-19 Epidemic when all universities were opened and again started online education after 3 weeks. Whereas, in the third phase ( $T = 2$ ), the results revealed a significant increase in substance use coping strategies at the end of the partial lockdown. COVID-19 Epidemic when all universities had taken their semester exams. The results demonstrated that university students used substance use coping strategies to survive in partial lockdown as compared to full lockdown during the COVID-19 epidemic (see Figure 2).

### **Use of emotional support coping**

In the first phase ( $T = 0$ ), the study's findings demonstrated a significant increase in use of emotional support coping at the start of the full

symptoms, interpersonal sensitivity, anxiety lockdown When the COVID-19 Epidemic hit, all Pakistani universities were closed. In the second phase ( $T = 1$ ), the results demonstrated a significant improvement in use of emotional support coping at the end of the full lockdown COVID-19 Epidemic and start of partial lockdown COVID-19 Epidemic when all universities were opened and again started online education after 3 weeks. Whereas, in the third phase ( $T = 2$ ), the results revealed a significant increase in use of emotional support coping at the end of the partial lockdown COVID-19 Epidemic when all universities had taken their semester exams. The results demonstrated that university students used a use of emotional support coping to survive in partial lockdown as compared to full lockdown during the COVID-19 Epidemic (see Figure 3).

### **Use of instrumental support coping strategy**

In the first phase ( $T = 0$ ), the study's findings demonstrated a significant increase in use of in Instrumental support coping strategy at the start of the full lockdown When the COVID-19 Epidemic hit, all Pakistani universities were closed. In the second phase ( $T = 1$ ), the results demonstrated a significant improvement in use of instrumental support coping strategy at the end of the full lockdown COVID-19 Epidemic and start of partial lockdown COVID-19 Epidemic when all universities were opened and again started online education after 3 weeks. Whereas, in the third phase ( $T = 2$ ), the results revealed a significant increase in instrumental support coping strategy at the end of the partial lockdown COVID-19 Epidemic when all universities had taken their semester exams. The results demonstrated that university students used instrumental support coping strategy to survive in partial lockdown as compared to full lockdown during the COVID-19 Epidemic (see Figure 4)

### **Venting coping strategy**

In the first phase ( $T = 0$ ), the study's findings demonstrated a significant increase in venting coping strategy at the start of the full lockdown When the COVID-19 Epidemic hit, all Pakistani universities were closed. In the second phase ( $T = 1$ ), the results demonstrated a significant improvement in venting coping strategy at the end of the full lockdown COVID-19 Epidemic and start of partial lockdown COVID-19 Epidemic when all universities were opened and again started online education after 3 weeks. Whereas, in the third phase ( $T = 2$ ), the results revealed a significant increase in venting coping strategy at the end of the partial lockdown COVID-19 Epidemic when all universities had taken their semester exams. The results demonstrated that university students used venting coping strategy to survive in partial lockdown as compared to full lockdown during the COVID-19 Epidemic (see Figure 5).

### **Planning coping strategy**

In the first phase ( $T = 0$ ), the study's findings demonstrated a significant increase in planning coping strategy at the start of the full lockdown. When the COVID-19 Epidemic hit, all Pakistani universities were closed. In the second phase ( $T = 1$ ), the results demonstrated a significant decrease in planning coping strategy at the end of the full lockdown COVID-19 Epidemic and start of partial lockdown COVID-19 Epidemic when all universities were opened and again started online education after 3 weeks. Whereas, in the third phase ( $T = 2$ ), the results revealed a significant increase in planning coping strategy at the end of the partial lockdown COVID-19 Epidemic when all universities had taken their semester exams. The results demonstrated that university students used planning coping strategy to survive in partial lockdown as compared to full lockdown during the COVID-19 Epidemic (see Figure 6).

### **Acceptance coping strategy**

In the first phase ( $T = 0$ ), the study's findings demonstrated a significant increase in acceptance coping strategy at the start of the full lockdown. When the COVID-19 Epidemic hit, all Pakistani universities were closed. In the second phase ( $T = 1$ ), the results demonstrated a significant improvement in acceptance coping strategy at the end of the full lockdown COVID-19 Epidemic and start of partial lockdown COVID-19 Epidemic when

all universities were opened and again started online education after 3 weeks. Whereas, in the third phase ( $T = 2$ ), the results revealed a significant increase in acceptance coping strategy at the end of the partial lockdown COVID-19 Epidemic when all universities had taken their semester exams. The results demonstrated that university students used acceptance coping strategy to survive in partial lockdown as compared to full lockdown during the COVID-19 Epidemic (see Figure 7).

### **Religion coping strategy**

In the first phase ( $T = 0$ ), the study's findings demonstrated a significant decrease in religion coping strategy at the start of the full lockdown. When the COVID-19 Epidemic hit, all Pakistani universities were closed. In the second phase ( $T = 1$ ), the results demonstrated a significant decrease in religion coping strategy at the end of the full lockdown COVID-19 Epidemic and start of partial lockdown COVID-19 Epidemic when all universities were opened and again started online education after 3 weeks. Whereas, in the third phase ( $T = 2$ ), the results revealed a significant increase in religion coping strategy at the end of the partial lockdown COVID-19 Epidemic when all universities had taken their semester exams. The results demonstrated that university students used religion coping strategy to survive in partial lockdown as compared to full lockdown during the COVID-19 Epidemic (see Figure 8).

## Results

**Table 1**

*One-way analysis of variance (ANOVA) of coping strategies and mental health problems in the pre-test, post-test, and follow-up tests during the COVID-19 epidemic (N = 40).*

Variables	Pre-test		Post-test		Follow up test		F	p
	M	SD	M	SD	M	SD		
Self-Distraction Coping	4.87	1.11	4.60	1.23	4.62	1.39	.59	.55
Active Coping	4.60	1.21	4.35	1.56	4.10	1.17	1.41	.24
Denial Coping	3.07	1.18	3.92	1.68	3.85	1.65	3.80	.02
Substance Use Coping	2.30	.93	3.80	1.39	4.22	1.45	24.70	.00
Use of Emotional Support Coping	3.85	1.51	5.00	1.41	5.37	1.51	11.52	.00
Use of Instrumental Support Coping	3.85	1.49	3.10	1.35	2.90	1.37	5.05	.00
Behavioral Disengagement Coping	3.32	1.28	3.47	1.46	3.40	1.51	.11	.89
Venting Coping	3.77	1.25	4.90	1.72	5.30	1.89	9.23	.00
Positive Reframing Coping	3.62	1.53	4.27	1.64	4.40	1.75	2.55	.08
Planning Coping	3.90	1.33	3.15	1.38	3.17	1.37	3.88	.02
Humor Coping	2.62	.77	2.65	1.00	2.85	.97	.71	.49
Acceptance Coping	3.52	1.28	6.00	1.94	6.45	1.86	33.37	.00
Religion Coping	3.45	1.51	2.32	1.07	2.85	1.00	8.53	.00
Self-Blame Coping	2.82	1.21	2.32	1.09	2.77	.99	2.47	.08
Somatic Symptoms	5.37	6.49	5.95	6.29	6.40	6.24	.26	.77
Obsessive Compulsive Symptoms	6.52	7.07	6.95	6.94	6.50	6.67	.05	.94
Interpersonal Sensitivity	4.80	4.99	4.70	4.73	4.70	4.73	.00	.99
Depression Symptoms	6.17	7.66	5.57	5.82	5.20	6.29	.21	.80
Anxiety Symptoms	6.35	6.73	6.42	6.86	6.30	5.97	.01	.99
Hostility Symptoms	4.45	5.17	5.12	4.91	4.65	5.04	.18	.82
Phobic Anxiety Symptoms	5.02	5.42	5.37	5.20	4.92	5.69	.07	.92
Paranoid Ideation Symptoms	5.30	5.18	6.05	5.52	6.27	5.39	.36	.69
Psychotism Symptoms	5.10	5.34	5.05	4.84	5.92	4.00	.42	.65

Figure 1: Depicting the mean difference in denial coping strategy among the pre-testing phase, post-testing phase, and follow-up during the COVID-19 epidemic ( $N = 40$ ).

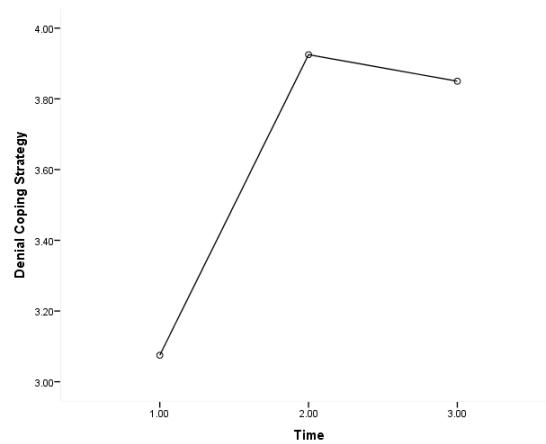


Figure 2: Depicting the mean difference in substance use coping strategy among pre-testing, post-testing, and follow-up phases in adolescents' students during partial and full COVID-19 Epidemic Lockdown ( $N = 40$ ).

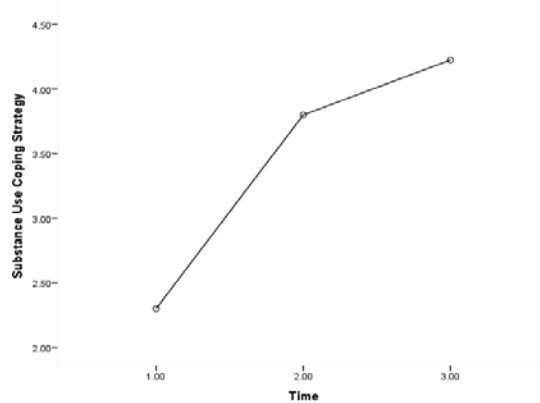


Figure 3: Depicting the mean difference in use of emotional support coping among pre-testing, post-testing, and follow-up phases in adolescents' students during partial and full COVID-19 ( $N = 40$ ).

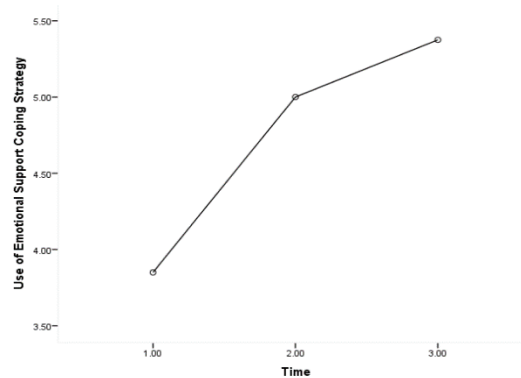




Figure 4: Depicting the mean difference in use of instrumental support coping strategies among pre-testing, post-testing, and follow-up phases in adolescents' students during partial and full COVID-19 ( $N = 40$ ).

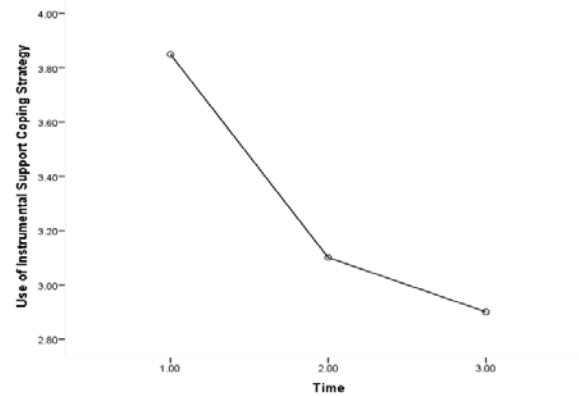


Figure 5: Depicting the mean difference in venting coping strategies among pre-testing, post-testing, and follow-up phases in adolescents' students during partial and full COVID-19 Epidemic Lockdown ( $N = 40$ ).

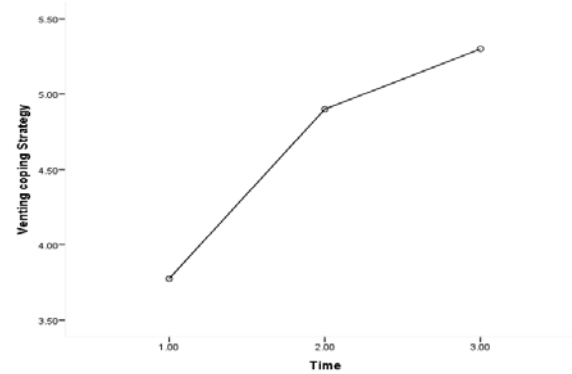


Figure 6: Depicting the mean difference in planning coping strategies among pre-testing, post-testing, and follow-up phases in adolescents' students during partial and full COVID-19 Epidemic Lockdown ( $N = 40$ ).

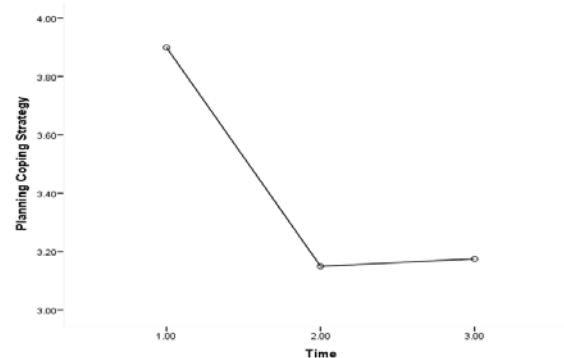


Figure 7: Depicting the mean difference in acceptance coping strategy among pre-testing, post-testing, and follow-up phases in adolescents' students during partial and full COVID-19 Epidemic Lockdown ( $N = 40$ )

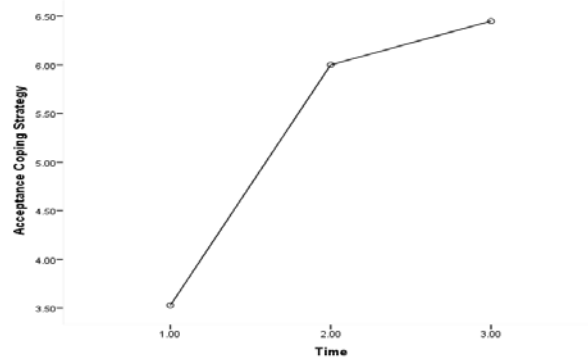
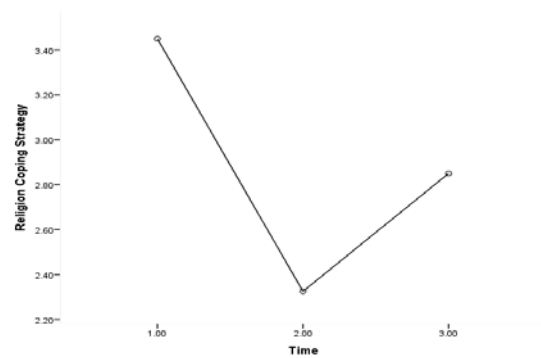


Figure 8: Depicting the mean difference in religious coping strategy among pre-testing, post-testing, and follow-up phases in adolescents' students during partial and full COVID-19 Epidemic Lockdown ( $N = 40$ ).



## Discussion

The present study examined the effectiveness of different coping strategies employed during the partial and full lockdowns among the initial wave of the COVID-19 epidemic among Pakistani university students. It aimed to investigate their effect on psychological problems, including somatic symptoms, obsessive-compulsive symptoms, depression, anxiety, and hostility. The study revealed that healthy coping strategies were helpful in mitigating mental health challenges across both partial and full lockdown phases, with students using more strategies in partial lockdowns. For example, denial coping strategies were a more prevalent coping defense mechanism in the full lockdown phase, whereas emotional support-seeking coping strategies emerged as more prominent in partial lockdowns. Moreover, self-distraction and religious coping were found to be helpful strategies. Conversely, the behavioral disengagement coping strategy was observed as a maladaptive coping mechanism in partial lockdowns. This study's findings recommend the significance of larger sample sizes and offer a comparison of data across countries with differing lockdown measures for future studies.

This study's findings revealed that different coping strategies were considered effective in improving the mental health and reducing psychological issues of university students during the full and partial lockdown phases. Furthermore, this study showed that university students used more coping strategies to survive in partial lockdown as compared to full lockdown during COVID-19. The results of this study supported our study objectives and hypotheses. The current study mostly replicates previous studies examining the comparison of coping strategies used by university students during full and partial lockdowns in the first wave of the COVID-19 pandemic in a sample of Pakistani students. Furthermore, the findings revealed a significant increase in denial as a coping strategy used by university students at the start of full lockdown when all educational institutes were closed (Althomali et al., 2024; Aqeel et al., 2020, 2022; Cascella et al., 2023; Chaman et al., 2022; Gibbs et al., 2024; Klinkosz et al., 2023; Micah et al., 2023; Naem et al., 2021; Shuja, Aqeel, et al., 2020; Wilzer et al., 2024). There are many types of research studies that conclude that adaptive defense mechanisms play a crucial role during stressful events like COVID-19 (Chaman et al., 2022; Klinkosz et al., 2023; Shuja, Aqeel, et al., 2020; Tabassum et al., 2020). The results of a study conducted by Walker and co-researchers in 2021 also suggested that people used denial, hypochondriasis, altruism, and humour (Chaman et al., 2022; Shuja, Aqeel, et al., 2020).

Furthermore, these findings revealed that due to distance learning, university students feel negative and rely on substance use as a strategy for coping with the changes brought forth by the pandemic, particularly during the partial lockdown phase compared to the full lockdown phase in the pre-, post-, and follow-up stages. This outcome was also supported by research that was conducted by Shpakou et al. (2023) which found that along with other coping strategies like seeking social bonding, they also significantly used alcohol and other psychoactive substances (Shpakou et al., 2023).

The present study's findings are also consistent with previous study results (Althomali et al., 2024; Cascella et al., 2023; Chaman et al., 2022; Shuja, Aqeel, et al., 2020).

The results also showed that students adopted emotional support coping strategies to survive in a partial lockdown phase rather than a full lockdown period. Similar outcomes were observed in a study conducted by Kuznetsova and colleagues, where it was observed that among the most prevalent strategies used by people during COVID-19 was emotional support from others like family, friends, etc. (Kuznetsova et al., 2023).

Furthermore, the findings support previous research that suggests interactions with teachers and peers have a significant and positive impact on the reduction of mental health issues such as somatic symptoms, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychosis symptoms. Additionally, it assists them in navigating personal concerns while a student, using social media, and interacting with teachers (Aqeel et al., 2016, 2022; Shuja, Aqeel, et al., 2020). However, when coping strategies were compared for the full and partial lockdown phases in the pre-, post-, and follow-up phases, it was found that students significantly improved when they used instrumental support seeking during the partial lockdown period (Babicka-Wirkus et al., 2021). Furthermore, studies have shown that, in stressful circumstances, venting out emotions may help reduce levels of psychological distress. Further venting out emotions allows for lessening subjectively experienced stress (Babicka-Wirkus et al., 2021; Shuja, et al., 2020). Many similar studies also revealed that during the full lockdown phase, there is a significant reduction in the daily social interactions of university students, and they experience loneliness, depression, a lack of planning, an attention deficit, and sleep disturbances. Most students wanted to start their physical education classes and go back to campus (Babicka-Wirkus et al., 2021; Shuja, et al., 2020).

The current study's findings are also consistent with previous research showing that university students used planning as a coping strategy to survive in a partial lockdown phase (Wendy et al., 2021). This outcome was also supported by research conducted by Rathakrishnan et al. (2022), where they concluded that problem-

focused coping which includes planning, active coping and informational support has significantly reduced depression among students during COVID-19 (Commodari & La Rosa, 2020; Rathakrishnan et al., 2023). Religious and spiritual coping mechanisms are among the tools that can be used to manage stress and the negative effects of life's challenges and illnesses. Previous study findings indicated that significant proportions of people used religious coping to overcome their problems after the full lockdown COVID-19 pandemic phase (Commodari & La Rosa, 2020; Rathakrishnan et al., 2023). Moreover, the outcome of this study, in parallel with a previous study, indicated that self-distraction was used as an avoidant coping strategy to reduce stress, worry, and depression during the COVID-19 pandemic (Rathakrishnan et al., 2023).

Furthermore, results show that when faced with a coronavirus danger, university students use behavioral disengagement as a coping mechanism to get through the partial lockout phase. This is related to findings from an earlier study, which identified behavioral disengagement as a maladaptive coping method reflecting the propensity to reduce coping efforts to the point of giving up (Commodari

& La Rosa, 2020; Noor et al., 2016; Noorullah et al., 2023; Rathakrishnan et al., 2023). Additionally, results indicate that university students used humour as a coping strategy significantly more during the partial lockdown phase as compared to the full lockdown phase to spread happy feelings, separate themselves from unpleasant situations, and come together. This result was also supported by previous research, which suggested that people used humour as an effective coping strategy to deal with pandemic-related stress (Noor et al., 2016; Peter et al., 2017; Salman et al., 2022).

Furthermore, statistics show that during partial lockdown, psychological symptoms like anxiety, depression, interpersonal sensitivity symptoms, obsessive-compulsive disorder symptoms, paranoid ideation symptoms, and psychoticism symptoms increased, which was exacerbated by mental fatigue, cognitive difficulties, and financial concerns (Peters & Aqeel, 2020; Salman et al., 2022).

### **Limitations**

Despite the restricted study sample size and limited participant access, it effectively investigated the effect of coping strategies on the psychological well-being of Pakistani university students during full and partial lockdowns. To fully represent the results, larger samples should be used in future investigations. Another flaw was the timing discrepancy between the full and partial lockdowns, which would have affected the results generally because the full lockdown in Pakistan lasted for a shorter time. It would be interesting for future studies to compare data between the countries with full lockdowns for the same period with that of partial lockdown in Pakistan.

### **Future Implications**

The current study is unique in that it attempts to evaluate a comparison of different coping strategies used by university students during full and partial COVID-19 lockdowns in the first wave of the COVID-19 pandemic in Pakistan to improve their mental health and reduce psychological issues. The findings of this study permit the formulation of several suggestions for universities regarding the structuring of training in ways that give greater consideration to the psychosocial functioning of the students. These suggestions include conducting tests of students' psychosocial functioning to identify whether they may require emotional, social, and psychological help, as well as setting up psychological consulting centers for those who do.

### **Conclusions**

Continued study in this field is important to comprehend how university students navigate mental challenges and bolster their psychological well-being during and beyond the epidemic. The results highlight the substantial utilization of coping strategies by university students during various phases of full and partial lockdowns, emphasizing their proactive and positive efforts to defend and support mental health. Despite observed limitations, the

present research contributes to elucidating and understanding the spectrum of emotion-focused and problem-focused coping defense mechanisms adopted by Pakistani university students. Finally, the study highlights the effect of both partial and full COVID-19 lockdowns on the mental health of young adults. Moreover, self-distraction and religious coping were found to be helpful strategies. Conversely, the behavioral disengagement coping strategy was observed as a maladaptive coping mechanism in partial lockdowns. Psychological interventions should be planned to address maladaptive coping mechanisms, which serve as signs of enhanced mental health challenges. University management should consider and offer integrating compulsory courses on coping defense mechanisms to bolster students' cognitive abilities, psychological well-being, and resilience.

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### **Ethical Consideration**

The study was approved by Department of Psychology, Coventry University, UK and conducted at Foundation University School of Science and Technology, Pakistan. Consent Form was taken before taking data and participants were asked to take voluntary participation.

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### **Availability of data and materials**

The data sets used and analyzed during the current study are available from the corresponding author on reasonable request.

### **Authors' contributions/Author details**

Aqsa Chaman performed this study under the guidelines of American Psychological Association.

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### **Ethics declarations**

### **Ethics approval and consent to participate**

This study was approved by the Institutional Review Board of Department of Department of Psychology, Coventry University, UK. A written informed consent was obtained from all participants.

### **Consent for publication**

Not applicable.

### **Competing interests**

The authors declare to have no competing interests.

### **Additional Information**

Not applicable.

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