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Students' mental health and well-being during the COVID-19 pandemic. The role of psychological resilience and daily functioning.

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Abstract

The Covid-19 pandemic poses a challenge to people's psychological health worldwide. Concerning college students' well-being, Covid-19 outbreak impacts their psychological and academic functioning. However, few studies have investigated the protective factors regarding students' well-being during the pandemic. Hence, the study aimed to assess how Covid-19 and the imposed social/physical protection measures are related to students' personal, academic, emotional, and social difficulties and to analyze protective factors, such as resilience and daily functioning to students' well-being. Our sample included 208 college students from a private University in Cyprus. Students completed the COVID-19 Functioning Scale, the Perceived Stress Scale, the Depression Anxiety Stress Scale, and the Connor Davidson Resilience Scale. Research findings highlighted that COVID-19 difficulties and challenges negatively impacted students' mental health and well-being. In addition, results revealed that students with a higher level of resilience and a healthier daily routine and functioning indicate lower levels of perceived stress and mental difficulties, such as anxiety and depression. Study findings highlighted that high resilience and functioning could protect students' well-being during the pandemic. Thus, activities that foster resilience should be included in broader strategies to support students' mental health and well-being. Universities should increase their psychological services offering, including counseling interventions, meditation practices, and experiential workshops.

Keywords: COVID-19; mental health and wellbeing; resilience; functioning; mental difficulties; perceived stress

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Introduction

The World Health Organization declared the coronavirus COVID-19 a pandemic in March 2020 (Sohrabi et al., 2020). The pandemic resulted in a drastic effect on individuals' medical and physical health and the death of millions of people. Therefore, governments worldwide implemented strict physical and social distancing measures to prevent contamination from COVID-19. For example, the Cyprus government imposed a total lockdown, suspended school operations, and closed businesses. Furthermore, all Cypriot tertiary education institutions were closed to students, and the in-person educational system was transferred within a short time to virtual, online learning. Most universities were forced in a short period (a few weeks) to adapt to distance education with modern synchronous and asynchronous teaching methods. The students had to primarily adapt to the new daily life, learn to attend the course online, take the exams online, and get used to the new social isolation measures to limit the spread of the epidemic (Barrot et al., 2021; Demetriou et al., 2020).

Recent evidence showed that these pandemic-related stressful events and life changes could lead to psychological consequences and distress among people, mainly because of the long-term nature of the pandemic. For example, research findings showed that the outbreak of the COVID-19 lockdown and social distancing measures had caused intense emotions such as fear, sadness, sleep problems, panic attacks, somatic symptoms, PTSD symptoms, and social dysfunction in the general population in all countries all over the world (Brooks et al., 2020; Demetriou et al., 2020; Ioannidou et al., 2022; Pfefferbaum & North, 2020; Rajkumar, 2020; Shah et al., 2020; Wang et al., 2020).

Furthermore, several studies indicated the impact of restrictive measures on students' mental health and the ability to respond immediately to online education (Hussein et al., 2020). For example, social distancing, lockdown, and online classes induced by the COVID-19 pandemic negatively affected students' personal lives and academic goals, leading to a low sense of well-being and inadequate academic performance, such as dropping a course (Elmer et al., 2020). Other studies also showed that the restriction measures and social distancing are associated with a higher level of stress, anxiety, depression, sleep disturbances, and insomnia in students (Babb et al., 2022; Demetriou et al., 2020; Kibbey et al., 2021). Moreover, the closure of recreational activities restricted students to participate in leisure and maintenance activities that influence their physical health and social life (Shahidi, Williams, & Hassani, 2020).

Psychological Resilience and Daily Functioning

Like any crisis, the unexpected situation due to COVID-19 has short-term and long-term effects on students and the general population (Bendau et al., 2020). Therefore, there is an urgent need to identify adaptive psychological and behavioral pathways that reduce the potential burden on young adults. Psychological resilience is a highly relevant construct to adaptation to the current COVID-19 pandemic (Mancini, 2020).

The concept of psychological resilience refers to a dynamic process in which the individual displays positive

adaptive behaviors when dealing with complex and adverse situations, such as the pandemic (Luthar, Cicchetti, & Becker, 2000). Many studies have examined mental resilience in adults, college students, and children in education and the work context in the last decades. Studies highlighted that college students with high levels of resilience have a high level of emotion regulation and positive emotions, which help them effectively manage stressful events (Arici-Ozan et al., 2019; Chung Turnbull & Chur-Hansen, 2017). In addition, studies showed that increased levels of resilience are negatively correlated with anxiety and depression in college students and positively correlated with well-being during the COVID-19 pandemic (Kimhi et al., 2020; Ye et al., 2020). College students with a high level of resilience could better manage their negative emotions regarding COVID-19 and employ healthy strategies for dealing with those emotions (Wu et al., 2020). Resilience can be a significant predictor of how well college students mentally cope with the effects of the pandemic (Babb et al., 2022). On the contrary, other studies showed that lower resilience in students was associated with greater worry about the effects of COVID-19, and worse mental health outcomes, including depression and anxiety (Killgore et al., 2020).

To cope with the excessive negative experiences associated with the pandemic, students must employ strategies to manage and respond to stress and negative emotions appropriately. Such strategies could be a healthy daily routine and functioning. Daily functioning could include personal care, social engagement, physical, academic, and work activity (Petzold, 2020). Functioning reflects how effectively an individual is able to perform in various personal, interpersonal, and community domains (American Psychiatric Association, 2013). Recent research shows that daily activity participation correlates with students' better physical and social health (Ali et al., 2021). To our knowledge, no published research investigates how daily functioning helps students or people adjust during Covid-19. Most studies investigate how physical function, individuals' ability to perform activities of daily living, and health-related quality of life activities were affected and reduced in patients of Covid-19 (Belli et al., 2020; de Oliveira Almeida et al., 2022; Yu, Kioskli, & McCracken, 2021).

Research Purpose

In reviewing the relevant literature, it becomes evident that most studies investigate the implications of the COVID-19 outbreak to the negative psychological consequences for the general population and students. However, few studies have investigated the protective factor of resilience on students' well-being during COVID-19. Furthermore, there are no studies examining students' daily functioning during covid. Hence, the study aimed to assess stress, anxiety, and depression with regard to COVID-19 difficulties and challenges and to analyze protective factors (resilience and daily functioning).

The research questions of the study were as follows:

- 1) The COVID-19 outbreak and the protection measures may impact students' academic performance, social activity, and financial situation.

- 2) The COVID-19-related difficulties and challenges may impact students' mental health and well-being.
- 3) Students' resilience and daily functioning will be protective factors for students' mental health and well-being (less stress and mental difficulties).
- 4) Students' resilience may indirectly impact students' perceived stress and mental difficulties through the mediating role of students' daily functioning.

Methodology

Participants

The study participants were 208 students from a private University in Cyprus. As shown in Table 1, 121 (58.2%) were female students, and 87 (41.8%) were male students. 60.6% of students were 18-23 years old, 20.2% were 24-29 years old, 7.7% were 30-35 years old, 7.7% were 36-41%, and 3.8% were 42-60 years old. Most of the sample were undergraduate students (88.9%), while 7.7% and 3.4% were Master's and Doctorate students, respectively. Regarding university school, 64 (30.8%) students studied in Business and Law School, 52 (25%) studied in Education and Social Sciences School, 42 (20.2%) studied in Engineering School, 25 (12%) studied in Arts School, and 25 (12%) studied in Health Sciences School. Regarding students' ethnicity, the majority of the students were Cypriot ($n = 137$, 65.9%), while 58 (27.9%) students were Greek, 8 (3.8%) were from other countries in Europe, and only 5 (2.4) were from countries out of Europe. Finally, regarding residence, 81 (38.9%) students lived in Limassol, 70 (33.7%) in Nicosia, 20 (9.6%) in Larnaca, 20 (9.6%) abroad, 11 (5.3) in Paphos, and 6 (2.9%) in Ammochostos.

Tab. 1 Participants' Distribution and Socio-demographic Variables (only gender, age and educational level).

| Demographic Variables | N | % |
|-----------------------|-----|------|
| Gender | | |
| Female | 121 | 58.2 |
| Male | 87 | 41.8 |
| Age | | |
| 18-23 | 126 | 60.6 |
| 24-29 | 42 | 20.2 |
| 30-35 | 16 | 7.7 |
| 36-41 | 16 | 7.7 |
| 42-60 | 8 | 3.8 |
| Educational Level | | |
| Undergraduate | 185 | 88.9 |
| Master | 17 | 7.7 |
| Ph.D. | 7 | 3.4 |

Procedure

Students filled out an anonymous online survey. Students were not asked for personal information and voluntarily participated in this study to avoid Bias. The survey was shared via social media and email for a limited time (only one month). The time of the survey's completion was approximately 15

minutes. Before participants completed the survey, researchers provided written information about the study's objectives and requested the participants' informed consent. The survey included all the measures described in the next section. The University's Social Welfare Service and Research Committee approved the study. The research followed all the ethical guidelines and procedures according to the Helsinki Ethical Declaration and that of the University's Social Welfare Service and Research Committee.

Measures

Demographic information: First, students completed an ad hoc questionnaire regarding their sociodemographic characteristics, such as age, gender, race/ethnicity, residence, study level, and school.

General Information related to the COVID-19 Pandemic: Students filled up a questionnaire, which was created for the purposes of the study, asking about the difficulties and challenges they faced during covid, the support they received from the university services, and the strategies they used during the covid period.

COVID difficulties and challenges: Students had to select which of the following experiences they faced during the covid period (multiple answers were possible): Academic delays in assignments, exams, tests, and other obligations, not attending classes due to psychological issues, concern about academic performance, deduction of social contact, financial difficulties, and loss of work.

Support from university services: Students were asked whether they received the following support from university services during the pandemic (multiple answers were possible): Academic support, academic hours, online study groups, counseling center, technical support, and financial support.

Strategies: Students had to select which of the following strategies they used to enhance their mental well-being during the pandemic (multiple answers were possible): Hybrid interaction with friends, live interaction with friends, family support, counseling support from mental health professionals, participation in self-development workshops, and meditation.

Psychological Resilience (CD-RISC; Connor & Davidson, 2003)

The Connor Davidson Resilience Scale (CD-RISC) was used to assess resilience, with higher scores indicating higher resilience capacity (Connor & Davidson, 2003). The scale comprises 25 statements and is rated on a five-point range of responses from not true at all to true nearly all the time. The statements reflect the ability to tolerate experiences such as change, personal problems, illness, pressure, and failure. Some examples of Connor Davidson Resilience Scale are: "I am able to adapt when changes occur", "I tend to bounce back after illness, injury or other hardships", "Under pressure, I stay focused and think clearly", "I am able to handle unpleasant or painful feelings like sadness, fear, and anger". The internal consistency was $\alpha = .94$.

Students Functioning during the COVID-19 Pandemic

The COVID-19 Functioning Scale was developed for the study's purposes to investigate how students assess their daily routine and functioning (academic, personal, physical, and social activity) during the COVID-19 period. The scale is a five-point Likert, and it consists of 10 items. The scale's questions are the following: 1. My daily life is approximately the same as before during the COVID-19 pandemic, 2. My academic performance is approximately the same as before during the COVID-19 pandemic, 3. My engagement in physical activities (e.g., sports, gym) is approximately the same as before during the COVID-19 pandemic, 4. My engagement in social activities (e.g., friends/family gatherings) is approximately the same as before during the COVID-19 pandemic, 5. My relationship with my boyfriend/girlfriend is approximately the same as before during the COVID-19 pandemic, 6. My work performance is approximately the same as before during the COVID-19 pandemic, 7. My energy and pleasure of doing things is approximately the same as before during the COVID-19 pandemic, 8. My sleep is approximately the same as before during the COVID-19 pandemic, 9. My appetite for food is approximately the same as before during the COVID-19 pandemic, 10. My health is approximately the same as before during the COVID-19 pandemic. High rates in this scale were interpreted as high functioning. The internal consistency was $\alpha = .79$.

Students Perceived Stress (PSS; Cohen, Kamarck, & Mermelstein, 1983)

The Perceived Stress Scale was used to assess the students' perception of stress during the COVID-19 period (Cohen, Kamarck, & Mermelstein, 1983). The questionnaire consists of 10 items. Using a five-point Likert scale, students assessed the degree to which situations in their life are appraised as stressful. Some examples of the Perceived Stress Scale are: "In the last months, how often have you found that you could not cope with all the things that you had to do?", "In the last months, how often have you been upset because of something that happened unexpectedly?", "In the last months, how often have you felt nervous and stressed?". The internal consistency was $\alpha = .71$.

Students Mental Difficulties (DASS-21; Lovibond & Lovibond, 1995)

The Depression Anxiety Stress Scale (DASS-21) evaluated students' emotional and behavioral well-being (Lovibond & Lovibond, 1995). Its short version encompasses three subscales to appraise the person's stress, anxiety, and depression states. Students indicated how much the Covid-19 pandemic affected their emotions and behavior on a four-point Likert scale. Some examples of the scale questions are: "I found it hard to wind down," "I felt that I was using much nervous energy," and "I felt that life was meaningless." The internal consistency was $\alpha = .94$.

Statistical Analysis

We processed and analyzed our data using the SPSS (version 26) software. We initially extracted internal consistencies, descriptive statistics, correlations, and frequency analysis.

We then conducted Factor Analysis, Multivariate Regression Analysis, and Mediation Model Analysis to examine our main research hypotheses.

Results

Descriptive Statistics and Correlation Analysis

The means, standard deviations, and bivariate correlations between variables of resilience, perceived stress, daily functioning, and mental difficulties (all were continuous variables) are presented in Table 2. Bivariate correlations revealed significant negative correlations between resilience and perceived stress ($r = -.44, p < .01$) and mental difficulties ($r = -.30, p < .01$). There were also statistically negative correlations between daily functioning and perceived stress ($r = -.40, p < .01$) and mental difficulties ($r = -.54, p < .01$). Resilience and daily functioning were positively correlated ($r = .31, p < .01$) and perceived stress and mental difficulties were also positively correlated ($r = .59, p < .01$).

The means, standard deviations, and the bivariate correlations between Covid difficulties and challenges (categorical variables), perceived stress, and mental difficulties are presented in Table 3. The bivariate correlations between all variables were positively statistically significant. Only the correlation between the reduction of social contacts and loss of work was not statistically significant ($r = .07, p = .07$). For all bivariate correlations (both tables), multicollinearity did not appear to be infringed, as the Tolerance index was greater than 0.2 and the VIF (variance inflation factor) index was less than 10.

Tab. 2. Bivariate Correlations for Resilience, Perceived Stress, Daily Functioning, and Mental Difficulties.

| | 1 | 2 | 3 | 4 |
|------------------------|-------|-------|-------|-------|
| 1. Resilience | 1 | | | |
| 2. Perceived stress | -.44* | 1 | | |
| 3. Daily functioning | .31* | -.40* | 1 | |
| 4. Mental difficulties | -.30* | .59* | -.54* | 1 |
| Mean | 92.98 | 29.50 | 2.92 | 19.92 |
| Standard deviation | 16.37 | 5.94 | 0.98 | 6.24 |

* $p < .01$

Tab. 3. Bivariate Correlations for Covid Difficulties and Challenges, Perceived Stress, and Mental Difficulties.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. Academic delays | 1 | | | | | | | |
| 2. Not attending classes due to psychological problems | .27** | 1 | | | | | | |
| 3. Concern about academic performance | .15** | .32** | 1 | | | | | |
| 4. Reduction of social contacts | .21** | .27** | .55** | 1 | | | | |
| 5. Loss of work | .30** | .21** | .14* | .07 | 1 | | | |
| 6. Financial difficulties | .20** | .23** | .28** | .33** | .31** | 1 | | |
| 7. Perceived stress | .30** | .32** | .21** | .14* | .34** | .21** | 1 | |
| 8. Mental difficulties | .38** | .47** | .40** | .21** | .45** | .37** | .59** | 1 |
| Means | 1.25 | 1.40 | 1.34 | 1.20 | 1.11 | 1.12 | 29.50 | 19.92 |
| Standard deviations | 0.43 | 0.50 | 0.48 | 0.40 | 0.31 | 0.33 | 5.94 | 6.24 |

** $p < .01$, * $p < .05$

Frequency Analysis

Regarding the COVID difficulties and challenges, results showed that 25% of the whole sample faced academic delays in assignments, exams, tests, and other obligations, 40.4% didn't attend classes due to psychological issues, 34.1% concerned about their academic performance, 10.6% had financial difficulties, 20.2% reduced their social activities, and 12% lost their work.

Regarding the kind of support students received and requested from the university, findings indicated that 24.5% of the whole sample received academic advisor's support, 21.6% received learning support during academic hours, 13% pursued support from the university's counseling center, 10.1% participated in online study groups, 19.7% requested technical support, and 4.3% asked for financial support.

Finally, regarding coping strategies that students used to enhance their mental well-being during the pandemic, results highlighted that 33.2% used hybrid interaction with friends, 41.8% pursued live interaction with friends, 59.6% pursued family support, 12% sought counseling support from mental health professionals, 18.8% used meditation techniques, and 3.8% participated in self-development workshops.

Factor Analysis

We performed Factor Analysis for the COVID-19 Functioning Scale, which we developed for the study's purpose (Table 4). We applied The Principal Components Analysis (PCA) with Varimax rotation for the scale's data analysis. This method analyses variance and explores the patterns that emerge in all variance (Costello & Osborne, 2009; Tabachnick & Fidell, 2007). PCA method is also helpful for the study because it contributes to understanding the scale's strengths and weaknesses in terms of content and structural/factorial validity (Aladwani & Palvia, 2002). The Kaiser-Meyer-Olkin indication confirmed the adequacy of the sample for analysis, $KMO = .65$. Bartlett's test for sphericity, $\chi^2(6) = .654, p < .001$, was statistically significant. Regarding the export of components, based on the Kaiser

criterion, we exported two components, which explains 60% of the variation. However, in this study, we used only one element/variable (containing all ten items of the scale) called "Daily functioning". We used only one variable because the survey's purpose is to examine students' functioning as one holistic/global variable, containing all the levels that assess functioning, such as personal, physical, academic, and social performance.

Multivariate Regression Analysis

The Multivariate Regression Analysis was used to test how much variance in students' perceived stress and mental difficulties (dependent variables) was explained by students' resilience and daily functioning (independent variables). Multiple regression analysis is an extension of bivariate regression analysis. It allows us to test the influence of multiple independent (predictor) variables on dependents variables (one or more) (Stockemer, 2019).

At first, the application of Pillai's trace in the Manova analysis, demonstrated a significant impact of students' resilience and daily functioning on students' perceived stress, $V = 0.13, F(2,204) = 15.19, p < .001$, and mental difficulties, $V = 0.24, F(2,204) = 32.78, p < .001$. The separate univariate ANOVAs also showed significant effects of students' resilience on students' perceived stress, $F(1,205) = 30.481, p < .001$, and on mental difficulties, $F(1,205) = 5.662, p < .05$. The separate univariate ANOVAs also indicated significant effects of students' daily functioning on students' perceived stress, $F(1,205) = 21.465, p < .001$, and on mental difficulties, $F(1,205) = 64.852, p < .001$. The model interpreted 27% of the total students' perceived stress variation ($R^2 = .269, Adjusted R^2 = .269$) and 31% of the total students' mental difficulties ($R^2 = .309, Adjusted R^2 = .309$). Parameter estimates (Table 5) showed that students' resilience negative predicted students' perceived stress ($b = -.13, s.e. = .023, p < .001$) and mental difficulties ($b = -1.76, s.e. = .381, p < .001$). In addition, parameter estimates showed that students' daily functioning negative predicted students' perceived stress ($b = -.01, s.e. = .00, p < .05$) and mental difficulties ($b = -.37, s.e. = .05, p < .001$).

Tab. 4. Principal Component Analysis.

| Items | Components | |
|--|------------|-------|
| | 1 | 2 |
| 1. My daily life is approximately the same as before during the COVID-19 pandemic | .73 | |
| 2. My academic performance is approximately the same as before during the COVID-19 pandemic | .75 | |
| 3. My engagement in physical activities (e.g., sports, gym) is approximately the same as before during the COVID-19 pandemic | .70 | |
| 4. My engagement in social activities (e.g., friends/family gatherings) is approximately the same as before during the COVID-19 pandemic | .67 | |
| 5. My relationship with my boyfriend/girlfriend is approximately the same as before during the COVID-19 pandemic | .67 | |
| 6. My work performance is approximately the same as before during the COVID-19 pandemic | .62 | |
| 7. My energy and pleasure of doing things is approximately the same as before during the COVID-19 pandemic | | .79 |
| 8. My sleep is approximately the same as before during the COVID-19 pandemic | | .78 |
| 9. My appetite for food is approximately the same as before during the COVID-19 pandemic | | .62 |
| 10. My health is approximately the same as before during the COVID-19 pandemic | | .60 |
| Eigenvalues | 5.05 | 1.08 |
| % of variance | 50.45 | 10.79 |

Tab. 5. Multivariate Regression Analysis.

| Dependent variables | Parameter | B | se | 95% C.I. | t | p |
|-------------------------------|-------------------|-------|------|----------------|-------|---------|
| Students' perceived stress | Resilience | -.13 | .023 | [-.17, -.08] | -5.52 | <.001** |
| | Daily functioning | -1.76 | .381 | [-2.52, -1.01] | -4.63 | <.001** |
| Students' mental difficulties | Resilience | -.01 | .00 | [-.01, -.00] | -2.38 | .018* |
| | Daily functioning | -.37 | .05 | [-.46, -.28] | -8.05 | <.001** |

** $p < .001$, * $p < .05$

Mediation Analysis

We applied the PROCESS mediation analysis in SPSS to examine the indirect effect of students' resilience (independent variable) on students' perceived stress and mental difficulties (dependent variables) through students' daily functioning (mediator variable) during the COVID-19 period. For this purpose, we developed two mediation models, using Model 4 in process, which allows the existence of a mediator (W), which mediates the relationship between the independent (X) and the dependent variable (Y), and constitutes the mechanism that links these two variables.

Figure 1 shows that students' resilience is a statistically significant predictor of their daily functioning and perceived stress ($b = .02, s.e. = .00$, and $b = -.16, s.e. = .02, p < .001$, respectively). Students' daily functioning also predicts students' perceived stress in a statistically significant manner ($b = -1.76, s.e. = .38, p < .001$). Additionally, when we considered

students' daily functioning as a mediating factor, the predictive power of students' resilience in students' perceived stress was less. However, it remained statistically significant, indicating partial mediation $b = -.13, s.e. = .02, p < .001$. We also found a statistically significant indirect effect of students' resilience on perceived stress, mediated by students' daily functioning ($b = -.03, s.e. = .01, Bootstrap\ 95\% C.I.: -.06; -.01$).

The second mediation model (Figure 2) showed that students' resilience significantly predicts students' daily functioning and mental difficulties ($b = .02, s.e. = .00, p < .001$, and $b = -.19, s.e. = .04, p < .001$). Furthermore, students' daily functioning predicts students' mental difficulties in a statistically significant manner ($b = -4.93, s.e. = .59, p < .001$). Additionally, when we considered students' daily functioning as a mediating factor, the predictive power of students' resilience in students' mental health was less. However, it remained statistically significant, indicating that there is partial mediation, $b = -.10, s.e. = .04, p < .01$. We also found a statistically significant indirect effect of students' resilience on mental difficulties, mediated by students' daily functioning, ($b = -.09, s.e. = .02, Bootstrap\ 95\% C.I.: -.14; -.05$).

Discussion

The COVID-19 outbreak presented an unexpected situation affecting many countries worldwide. The imposed lockdown measures affected people's and students' personal lives and

Fig. 1. Mediation Model 1.0

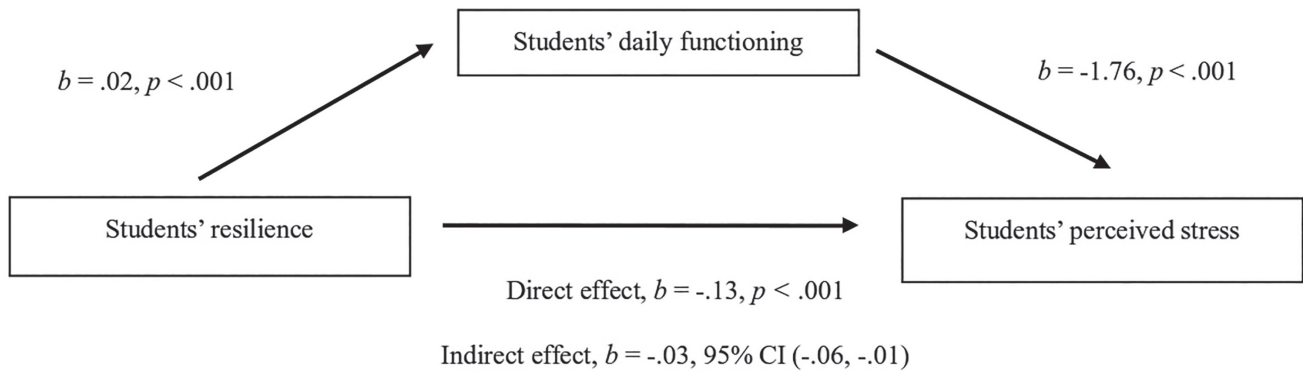
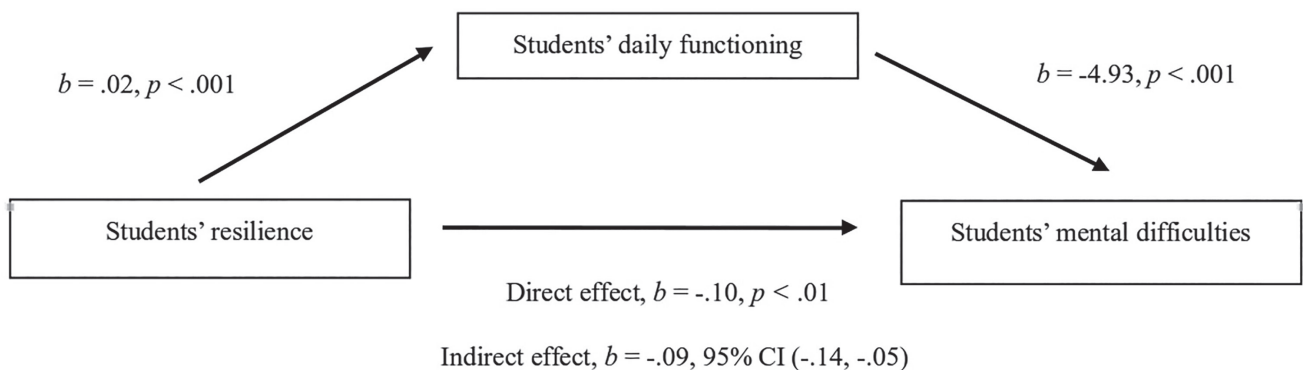


Fig. 2. Mediation Model 2.



functioning. Universities were closed to students, and face-to-face teaching methodology was replaced by online teaching. The present study investigated how the COVID-19 pandemic is associated with students' mental health and well-being. Furthermore, the study examined the protective factors for students' mental health during the pandemic.

First, research showed COVID-19 pandemic negatively impacts students' academic performance, social activity, and financial situation. Specifically, research findings showed students' delays in assignment delivery, exams and tests, decreased class attendance due to psychological issues, and increased concern about academic performance. Furthermore, students had financial difficulties, lost their work, and reduced social activities during the pandemic. Indeed, research reveals that social isolation, social distance measures, and online teaching negatively affect students' academic performance and achievement (Asif et al., 2020; Elmer et al., 2020; Hussein et al., 2020; Ioannidou et al., 2022; Islam et al., 2020). In addition, consistent with our hypothesis, the above COVID-19 related difficulties and challenges were positively associated with increased perceived stress and mental difficulties, such as anxiety, depression, and stress. Research results align with other studies supporting that covid related stressors, restriction measures, and social distancing negatively affect students' mental health and well-being, leading to elevated levels of stress, anxiety, and depression (Babb et al., 2022; Dhar et al., 2020; Essadek & Rabeyron, 2020; Eysenbach et al., 2020; Ma et al., 2020).

Furthermore, study results showed that students' high resilience and daily functioning negatively predict students' perceived stress and mental difficulties. Students who reported high resilience, such as adapting to changes, coping with stress, and handling unpleasant and painful feelings due to Covid, indicated less stress and fewer mental difficulties. Furthermore, students whose daily functioning (daily life, social relationships, physical activity, academic performance, and academic productivity) remained approximately at the same level as before covid period indicated decreased symptoms of perceived stress and mental difficulties. Finally, the study results confirmed that students' resilience indirectly impacted students' perceived stress and mental difficulties through the mediating role of students' daily functioning during the pandemic. These results suggest that when students indicate high resilience and keep their daily routine and personal functioning, this leads to less perceived stress and fewer mental difficulties during the difficult period of the pandemic. It seems that high resilience and daily functioning are protective factors for students' mental health and well-being. High resilience helps students adapt to the pandemic's demands and stressors and function without affecting their daily routines. This positive adaptability helps them to be less stressed during the pandemic. These findings are in line with other research results supporting that resilience is inversely correlated with COVID-19 worries, anxiety, and depression symptoms (Barzilay et al., 2020; Kimhi et al., 2020). In addition, research reveals that psychological resilience and self-efficacy could be protective factors against pandemic-driven anxiety and distress (Bendau et al., 2020; Mancini, 2020; Riehm, 2021). Furthermore, relevant research findings show that maintaining a routine and a healthy lifestyle and activity are associated with lower mental distress (Ali et

al., 2021; Petzold, 2020; Shanahan et al., 2020; Woods et al., 2020).

Limitations and Future Research

There may be some limitations to the present study. For example, the results may not be generalized to other cultural contexts and cultures, as the sample comes only from the Greek-Cypriot population. Another limitation is the cross-sectional design of the study. Furthermore, all measurements used in this study came from questionnaires completed by students and some of them were perceived measures. Another limitation is the specific moment of the outbreak, as students may adjusted to covid restrictions. As far as future research is concerned, it would be helpful for future research to use various measurement methods, such as interviews and focus groups. Further, longitudinal studies would also provide more detail on the changes in resilience over time.

Conclusions

The present study investigated the effects of the COVID-19 pandemic on students' well-being and the protective role of resilience and daily functioning on students' mental health. Findings represent novel insight into the existing literature and advance our understanding of how Covid-19 affects students' well-being. Moreover, the present study identifies and highlights the protective factors associated with students' well-being during the pandemic, while most studies have investigated the risk factors (Shah et al., 2020). The protective role of high resilience and functioning is investigated through mediation models, indicating that combining these two factors is beneficial for students' mental health.

The effects of the COVID-19 pandemic seem dramatic for students' mental health and academic performance. However, having a high level of resilience could be protective and preventive against mental distress. Resilience can be learned; therefore, interventions within university campuses to foster resilience should be considered to support students' mental health (PeConga et al., 2020). Interventions could include workshops, seminars, campaigns, and counseling services to promote resilience and self-efficacy. In addition, the role of recommended strategies to reduce psychological distress, such as a healthy lifestyle and routine, social support, acceptance of negative emotions, meditation, mindfulness, and physical activity, would empower and enhance students' well-being and academic performance.

Author Contributions

I.L. conceptualized the main hypotheses of the contribution and developed the methodology, collected data and performed analyses, and wrote the whole manuscript.

Conflict of interest

The authors declare that they have no competing interests.

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Ethical approval

All procedures performed in the study involving human participants were in accordance with the Helsinki Ethical Declaration. The questionnaires and methodology for this study were approved by the University's Social Welfare Service and Research Committee.

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