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Saher Al-Sabbah1, Amani Darwish2, Najwan Fares3, James Barnes1 and Jehad Ali Almomani4

Abstract: This study aims to explore the biopsychosocial factors linked with the well-being of students and educators during the Coronavirus Disease 2019 (COVID-19) pandemic, and how these factors affect feelings, thoughts, behavior, family relationships, and work environment. We developed a questionnaire comprising three domains: biological, psychological, and social. These three domains covered some of the symptoms that occurred in people during the COVID-19 pandemic. The sample included educators and students who were randomly selected from two countries: the United Arab Emirates (UAE) and Jordan. The sample consisted of 56 academic staff, 6 administrative staff, and 232 students at the tertiary level. The main findings showed that the most commonly reported biopsychosocial factors linked with educators’ and students’ well-being were the effect on family, depression, negative effect of media, headache, increased eating and sleep, physical comfort, and positive effect on goal achievement. In addition, the results showed that the demographic variables, gender and academic levels, had no statistically significant effect on the participants’ responses, but there was a significant effect of social status. In addition, the study highlighted the common coping strategies used by educators and students, such as doing physical exercise, finding a hobby, sleeping, and eating more meals.

ABOUT THE AUTHOR

The authors have worked hard to accomplish this work. They collaborated to write and revise each paragraph in this paper. Saher Alsabbah initiated the idea of this research at the beginning of the COVID-19 crisis and during the lockdown in UAE. He led a team of researchers from UAE and Jordan and mainly participated in writing abstract, data collection, data analysis, and writing of the manuscript. Introduction, literature review, and discussion have been done by Amani Darwish and Najwan Fares. Data collection from Jordan and participants’ interviews were done by Jehad Almomani. Writing questionnaire items and proofreading were done by James Barnes. The final manuscript has been finalized and reviewed by all the authors and then sent to Taylor and Frances Editing Services for formatting and additional proofreading before submission to the journal. Saher Alsabbah as a corresponding author has uploaded the manuscript and sent it to Cogent Psychology Journal.

PUBLIC INTEREST STATEMENT

Students and teachers, like others in the community, are at risk of being affected by any crises that impact society’s health. COVID-19 pandemic that appeared in 2020 has a great impact on the health of the individual and society. Hence, this study popped up to investigate the wellbeing factors that linked with this crisis on students and educators. Social factor has the greatest impact on the person, and then the psychological and physical factor during a crisis. The major impact of the COVID-19 crisis was towards an individual relationship with family, depression, negative effect of media, headache, increased eating and sleep, positive effect on goal achievement, and decreased physical comfort.
Subjects: Education - Social Sciences; Sociology & Social Policy; Sociology of Health and Illness

Keywords: COVID-19 pandemic; Biopsychosocial factors; Well-being

1. Introduction
After the Chinese government first announced the emergence and the outbreak of the novel Coronavirus Disease 2019 (COVID-19) in Wuhan city China, there has been a massive international concern which led the World Health Organization (Organization, 2020) to declare COVID-19 as a pandemic. The pandemic has had huge overarching consequences on the population worldwide (Dubey et al., 2020). COVID 19, being a global threat, most governments globally locked down most cities to reduce the risk of disease transmission (Spina et al., 2020). As a response to limiting the transmission and the rate of infection of COVID-19, many countries restricted people to move within cities and outside countries, and several measures were taken to control the disease including social distancing, working and studying from home, and practice self-isolation. A growing number of educational institutions in many countries closed and moved courses from face-to-face mode of delivery to online mode (Gewin, 2020). The online learning became the new normal; however, many teachers and students were apprehensive since they have not been trained for online teaching and learning. Additionally, the uncertainty created due to the increase in the number of infected cases in addition to the interruption of classes in higher education combined with social isolation and home quarantine coupled with fears related to health safety and education may lead to undesirable effects on the well-being of university staff and students (Organization, 2020).

Previous studies (Sim & Chua, 2004; Wu et al., 2009) revealed that psychological well-being had been profoundly affected in such a global pandemic. Consequently, it is imperative to determine the various possible ways in which COVID-19 pandemic will have an impact on people's well-being. In this background, the researchers decided to explore the potential impact and consequences of COVID-19 outbreak particularly on teachers' and students' mental, social, and physical dimensions of their health during the quarantine period.

The findings emerging from this study can inform higher education institutions to take proactive measures to support the well-being and well-being of students and staff. This may include training social counselors to have a prominent role in providing the needed well-being support. This can also inform educational institutions to establish a task force to deal with the COVID−19 pandemic, which may include faculty members, human resources, facility administration, student services, and IT department.

2. Conceptual Framework

2.1. Well-being and COVID−19
The World Health Organization (WHO) defined health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (WHO, 2018). In light of this definition, the terms disease and illness can be differentiated. According to Sperry (2006, p. 6), disease represents “an objective and definable process characterized by pathophysiology and pathology” while illness refers to “the subjective experience of a disease state”. A significant implication of the meaning of the term health is that well-being is more than just the absence of mental disorders or disabilities. According to WHO (2018), well-being is a state of well-being in which individuals understand their own aptitudes, can manage everyday stressors, can be productive at work, and is able to contribute to their community. On this basis, well-being and wellbeing can be considered as an essential concern of individuals and societies worldwide.
As the coronavirus (COVID-19) pandemic spreads worldwide more and more every single day, it is causing widespread concern, stress, and fear, all of which are natural and normal reactions to the changing and uncertain situation that everyone finds themselves in. Dr. Hans Henri P. Kluge, WHO Regional Director for Europe explains in a press conference published on WHO official website on 27 March 2020, “The issue facing each and every one of us is how we manage and react to the stressful situation unfolding so rapidly in our lives and communities. Here we can draw on the remarkable powers of strength and cooperation that we also fortunately possess as humans. And that is what we must try to focus on to respond most effectively to this pandemic as individuals, family and community members, friends and colleagues.”

2.2. The biopsychosocial model of health
This study is grounded on the biopsychosocial model proposed by Engel in 1977 that explains how psychological stress affects the development of diseases due to the interrelation and interaction between the body and mind. The biopsychosocial model rejects the assumption that disease is entirely related to physical and tries to explain the strong relationship and interconnectedness between health and disease by taking into consideration the biological, social, and psychological facets of health (Engel, 1977). In light of the biopsychosocial model, illness is produced by the contribution of biological, psychological, and sociological elements. According to Brooker and Brabban (2004), to treat any illness, treatment interventions should encompass the medical, social, and psychological paradigm with the intent to achieve rapid recovery. The chief aim of these interventions is to examine and identify the root causes of the disease by evaluating the reasons for biological, psychological, and social problems.

Considering the biopsychosocial model of health and in light of the emerging and dynamic nature of COVID-19, educational institutions should not only focus on implementing different measures to reduce and limit the spread of the virus but should also make sure that students and staff are provided with services to support their well-being and well-being during their quarantine. Moreover, In addition, special psychological support and services should be given to the vulnerable individuals and those who already suffer from mental and emotional problems and disorders, as they may be less likely to act in accordance with physical distancing guidelines and personal hygiene requirements required during the pandemic creating by that a potential risk to the community (Brown et al., 2020).

2.3. Shaping the new normal
Even as governments globally are coordinating a massive immediate response to the COVID-19 pandemic, policymakers are also keeping an eye on what the long-term impact will be and how the “new normal” will take shape. Some Arabic countries in the MENA region including the Abu Dhabi government have already started taking control of this process and has started moving from a reactionary posture towards shaping the new normal itself by focusing on five key themes: Social Cohesion & Wellbeing, Economic Security, Public Health, Education, and Digital Trust and Inclusion (PwC, 2020). These five areas of consideration will not for pandemic management (PwC, 2020). Step 1 was building awareness and focusing on reactionary pandemic management and emergency response measures. Step 2 was adapting to the “new normal” by the gradual reopening and rebuilding and covers the themes of Social Cohesion and Wellbeing, in addition to the Economic Security and also setting foundations for the next phase. Step 3 focuses on how Education, Public Health, and Digital Trust and Inclusion can be reshaped and transformed for the better (PwC, 2020).

The context of this paper is about Education and Well-being, therefore, the Education and Social Cohesion and Wellbeing themes will be highlighted more based on a recent research done by (PwC, 2020).

2.4. Social cohesion & wellbeing
The current global condition is driving both governments and individuals to tackle how to maintain social cohesion, both within and between households, while also maintaining social distancing. This comes in light of the increase of fear and anxiety caused both by health concerns and extended
isolation and dramatically increased time spent online, all of which are also taking a marked toll on mental and emotional wellbeing. Living in lockdown conditions has radically altered the dynamics of people’s lives. While lockdowns and social distancing are driving a deterioration of people’s well-being and an uptick in domestic violence, substance abuse, and, in some places, suicide. Governments around the world are launching initiatives targeted to raise awareness on well-being, provide resources and support those in need of help, particularly as there has been an uptick in suicides and substance abuse in several areas. Abu Dhabi has launched the “Together we are Good” program as a project of the Ma’an Authority’s social fund, which has seen people come together to donate funds and volunteer their time to provide for others and serve the community. The UAE has further activated a major national mental wellbeing strategy to boost well-being throughout the country. This has involved outreach via social media, podcasts and through interaction with health and public safety officials, all aimed at reassuring citizens and reducing stress and anxiety, especially among young and older children.

According to a study done by Dubey et al. (2020), the Covid-19 strict worldwide quarantine measurements have raised concerns regarding the consequences on mental health which may lead to adopt unhealthy lifestyles across the different strata of the society. Imposed mass quarantine applied by lockdown programs can produce mass hysteria, anxiety, and distress, due to factors such as sense of getting cornered and loss of control. This can be increased if families require separation to limit the spread of the virus, by uncertainty of disease progression, insufficient supply of basic essentials, financial losses, increased perception of risk, which usually get magnified by vague information and improper communications through media in the early phase of a pandemic. Previous outbreaks have reported that psychological impact of quarantine can vary from immediate effects, like irritability, fear of contracting and spreading infection to family members, anger, confusion, frustration, loneliness, denial, anxiety, depression, insomnia, despair, to extremes of consequences, including suicide (Dubey et al., 2020).

Another study done in China by Zhu et al. (2020) draws light on the psychological effect of the Covid-19 based on gender. A cross-sectional study was conducted to evaluate the current psychological status during the outbreak of the Covid-19 pandemic between February 17 and 10 March 2020 in China. The sample was composed of 922 individuals (656 medical staff and 266 general staff). Information on demographic data included date, residence in China, gender, age, and work. It was shown that females were likely to have more poor psychological health than males.

It might help some of us, psychologically, to remember that we are not the only humans to have experienced such trials and distress, and we will not be the last. It is also important to remember that pandemics do eventually end, and that modern science and medicine can be incredible forces for good.

2.5. Education during COVID-19
Globally, many teachers and students had to move to the online delivery mode amid COVID-19 crises. However, many teachers and students were not techno-savvy and many faced challenges in coping up with an online delivery mode that included the availability of computers, IT devices, good internet facilities at home, and teaching practicals and labs (Sahu, 2020). As a result, many educators and educational professionals highlighted the importance of giving more attention to quality over quantity in online learning.

According to the Arabic context such as Lebanon, Jordan, and UAE different educational institutions have closed. Distance learning has become the “new normal” or norm and there is a possibility that schools will remain closed through the next semester or even academic year (PwC, 2020). Many students and educators in different parts of the world are comparatively well-leveled to adapt to the transition to distance learning as it boasts high connectivity as well as high GDP among students. Yet, challenges will still exist such as lack of devices, connectivity, and parental ability to support education at home, especially in large families.
Although everyone is perceptive to change, younger students might find the changes that have taken place recently difficult to understand, and both young and older students may express irritability, anger, and in some cases, depression. This indeed will have a great impact on their biological, physical, and emotional well-being.

3. Method

3.1. Objectives
This study aimed to investigate the interaction between the biopsychosocial factors and well-being of students and teachers during the COVID-19 pandemic. The focus of this study was to highlight the positive and negative factors linked with well-being and the coping strategies used by educators and students to manage their problems during the COVID-19 pandemic. In addition, we examined the influence of three demographic variables: gender, academic level, and social status on students’ and educators’ well-being.

3.2. Study design
This study aimed to survey the main factors linked with students’ and teachers’ well-being during the COVID-19 pandemic, and the effect they have on their feelings, thoughts, and behavior. The study used mixed research methods by including both qualitative and quantitative data. The study design was based on a strong theoretical background that describing all the elements mentioned in the biopsychosocial model, and the research methodology was determined based on a post-positivist perspective that uses methodological pluralism. We developed a questionnaire consisting of 36 items: 15 items for psychological factors, 11 for biological factors, and 10 for social factors. In addition, we added two open-ended questions to the questionnaire to obtain the participants' feedback on other factors that might be linked to their well-being and how they coped with them.

3.3. Research questions
(1) What are the main psychological, biological, and social factors linked with educators’ and students’ well-being during the COVID-19 pandemic?
(2) What is the overall well-being of students and educators?
(3) Is there any interrelation between biological, psychological, and social factors?
(4) Is there any significant difference between the participants' responses due to gender, academic level, and social status?
(5) What are the main strategies used to cope with the diverse stressors during the pandemic?

3.4. Study population and sample
Population of the study:
The population of this study consisted of all staff and students at Fatima College of Health Sciences (FCHS) in Abu Dhabi City, the Capital of the UAE, and all staff and students at Amman Arab University in Amman City, the Capital of Jordan. The total number of students at FCHS at the time of conducting this study was 1821 students and 125 staff, and for Amman Arab University-Faculty of Educational and psychological sciences was 281 students and 35 staff.

Sample of the study:
A random sampling strategy was used to determine the participants in this study. The questionnaire's link was sent to all students and staff in both institutes, and a total number of 294 respondents from both institutes used to form the study's sample, which consisted of 56 academic staff, 6 administrative staff, and 232 students at the higher education level. In more detail, the number of participants from FCHS was 260 consists of 45 staff and 215 students, and the number of participants from Amman Arab University-Faculty of Educational and psychological sciences was 34 consists of 19 staff and 15 students.
3.5. Data collection and data analysis
The data collection has been done by sending the online questionnaire link with the consent form to participants in Fatima College of Health Sciences and Amman Arab University. The data analysis method used in this study was based on descriptive analysis to assess the common frequent factors associated with well-being by determining the average for each factor in the study. A one-way ANOVA was used to determine whether there were any significant differences between male and female participants and their social status in the different categories: students, administrative staff, and academic staff.

3.6. Reliability and validity

Reliability:

The reliability coefficient for the questionnaire was computed using Cronbach’s Alpha analysis model to determine the internal consistency of the whole scale. The values of the Cronbach’s Alpha were found to be as in the following Table 1.

The Cronbach’s values for whole scale and subscales are considered good and acceptable and indicated a good internal consistency of the wellbeing questionnaire and its three factors; psychological, biological, and social.

Content validity:

The questionnaire was validated using the face and content validity method by sending the questionnaire items to eight experts in the field of psychology and education psychology from FCHS, Abu Dhabi University, Yarmouk University, and Amman Arab University. The experts’ evaluation and validation were conducted to obtain experts’ feedback and suggestions. Assessment and constructive feedback were provided by the experts in the form of valuation suggestions using validation sheets that aimed at examining content validity at the items, subscales, and test levels. Based on that, some items in the initial draft of the questionnaire were modified, removed, or replaced. As a result of this evaluation, four items were removed from the initial draft of the questionnaire and six items were modified based on the experts’ suggestions and recommendations, and the final number of items in the finalized questionnaire was 36.

Construct validity:

The factor analysis is used in this study to check on the validity of the questionnaire and to ensure the fundamental theoretical structure of the questionnaire is accurate. The factor analysis used the principal component method to extract the factors from the scale. The results showed the following Table 2.

The result of KMO was found to be .88, which indicated a very good sampling adequacy, and the Bartlett’s test of Sphericity is 0.00, which is statistically significant at a level of P-value 0.05. The

| Table 1. The Cronbach’s Alpha for whole scale and subscales |
|-------------------------------------------------------------|
| Scale | Cronbach’s Alpha | Cronbach’s Alpha Based on Standardized Items | N of Items |
|-------|------------------|---------------------------------------------|------------|
| Whole Scale | .91 | .91 | 36 |
| Psychological | .87 | 87 | 15 |
| Biological | .76 | .71 | 11 |
| Social | .73 | .73 | 10 |
correlation matrix of the total variable explained using Extraction Method: Principal Component analysis is ranging between (0.5 to .72), which indicated that all the items in the scale are above 0.3 and significant.

**Pearson correlation for item’s validity**

By calculating the Pearson’s Correlation Coefficient for items and the total scale’s score, the critical value of Pearson’s correlation was found to be (0.094) at a significance level of P-value (0.01) of a One-Tailed directional test. The correlation coefficient matrix showed the following results (Table 3).

Most of the items in the scale have a significant relationship with the scale with a comparison to Pearson’s critical value of 0.094. The results from the Pearson correlation coefficient indicated a good construct validity of the scale. The computed correlation values from Pearson Correlation were compared to the critical value, and if the computed value is more than the critical one it will consider correlated and significant, but if it is lower than the critical value it will consider not correlated and not significant.

**4. Limitations of the study**

The study was applied to a sample of faculty members, administrators, and students at higher education levels in Jordan and the UAE during the COVID-19 pandemic. Therefore, the results cannot be generalized to other populations. As the measurement was self-reported, the generalizability of the results is also dependent upon the accuracy and objectivity of the participants’ responses (Table 4).

In addition, the small sample size in this study, which is due to the low participation rate is considered one of the limitations in this study.

Furthermore, the sample was drawn from an Emirati university and a Jordanian university only, and this could lead future researchers to extend their samples to more number of universities.

**5. Results**

This section is divided into two parts: quantitative and qualitative.

**5.1. Quantitative results**

The researchers used a Likert-Scale for the questionnaire, where the participants could either strongly disagree, disagree, neutral, agree, or strongly agree with all of the questionnaire’s items.

**Overall Well-being Results**

The analysis of the well-being of the study sample shows that the overall well-being score for all the participants with an average of 2.93 using Likert-scale 5 points. These results indicated that the overall well-being of the participants in this study is on the average, and these results came from computing the average of all items in the questionnaire. The overall wellbeing is a combination of three factors; biological, social, and psychological factors (Bevers et al., 2016).
| Item | Pearson Correlation | Sig.  |
|------|---------------------|-------|
| 1- I find myself putting off or avoiding doing tasks | .097* | .048 |
| 2- My concentration is bad. | .098* | .047 |
| 3- My short-term memory has got better under lockdown. | .277** | .000 |
| 4- My sleep quality is better | .160** | .003 |
| 5- I have tended to eat more. | .264** | .000 |
| 6- My motivation level is greater. | .210** | .000 |
| 7- I am less happy. | .153** | .004 |
| 8- I tend not to get angry. | .189** | .001 |
| 9- I know what I want to achieve during the day. | .194** | .000 |
| 10- I find myself having negative thoughts. | .225** | .000 |
| 11- My anxiety has declined. | .132* | .012 |
| 12- I find myself getting depressed. | .272** | .000 |
| 13- I am not stressed by the situation. | .091 | .061 |
| 14- I think I am going to die. | .178** | .001 |
| 15- I worry less. | .128 | .014 |
| 16-I have more energy. | .181** | .001 |
| 17-I find myself in more physical discomfort. | .153** | .004 |
| 18-I find myself experiencing less fatigue. | .321** | .000 |
| 19-I am doing things impulsively that I generally don't do. | .496** | .000 |
| 20-I have experienced stomach pain. | .292** | .000 |
| 21-I have experienced heart palpitations. | .268** | .000 |
| 22-I have not experienced nausea and gastrointestinal upset. | .171** | .002 |
| 23-I feel dizzy sometimes. | .326** | .000 |
| 24-I have not experienced any stiffness in my shoulder and neck. | .118 | .021 |
| 25-I have maintained my muscle tone by exercising. | .201** | .000 |
| 26-I have experienced more headaches. | .251** | .000 |
| 27-I find the media affecting me negatively. | .376** | .000 |
| 28-My family has a positive effect on me. | .072 | .108 |
| 29- I am having better relationships with friends and colleagues. | .266** | .000 |
| 30- Working at home has been positive. | .221** | .000 |
| 31- My responsibilities at work have been difficult to achieve. | .182** | .001 |

(Continued)
Biopsychosocial factors

The first research question (What are the main psychological, biological, and social factors linked with educators’ and students’ well-being during the COVID-19 pandemic?) is addressed in this section of the results.

Psychological factors. The descriptive analysis of the psychological items is shown in Table 5.

Four positive and negative psychological factors were found to be highly linked with well-being during the COVID-19 pandemic. The factors, in the following order, are: “I know what I want to achieve during the day,” “I find myself getting depressed,” “I am less happy,” and “I find myself having negative thoughts.”

### Table 3. (Continued)

| Item                                                                 | Pearson Correlation | Sig.  |
|---------------------------------------------------------------------|---------------------|-------|
| 32. My responsibilities at home have been easier to achieve.       | .258**              | .000  |
| 33. My goals for the future have changed.                          | .382**              | .000  |
| 34. Isolation has been a negative experience for me.               | .114*               | .025  |
| 35. My behavior has become a little obsessive.                     | .291**              | .000  |
| 36. My aggression towards others has declined.                     | .188**              | .001  |

Critical Value of Pearson Correlation is .094: *. Correlation is significant at the 0.05 level (1-tailed). **. Correlation is significant at the 0.05 level (1-tailed).

At a sample Size 294

### Table 4. Descriptive analysis of the well-being measurement

| Descriptive Analysis | N  | Range | Sum  | Mean | Std. Deviation | Variance |
|----------------------|----|-------|------|------|----------------|----------|
| Wellbeing            | 294| 2.28  | 863.61 | 2.9375 | .24094 | .058 |
| Valid N (listwise)   | 294|       |       |      |                |          |

### Table 5. Descriptive analysis of the psychological domain

| Item                                                | N  | Mean | Std. Deviation |
|-----------------------------------------------------|----|------|----------------|
| 1. I know what I want to achieve during the day     | 294| 3.29 | 1.075          |
| 2. I find myself getting depressed                  | 294| 3.20 | 1.199          |
| 3. I am less happy                                  | 294| 3.14 | 1.108          |
| 4. I find myself having negative thoughts           | 294| 3.09 | 1.242          |
Biological factors: The descriptive analysis of the biological items is shown in Table 6.

Four biological factors were found to be highly linked with well-being during the COVID-19 pandemic. The factors, in the following order, are: “I have tended to eat more,” “I have experienced more headaches,” “I find myself in more physical discomfort,” and “I feel dizzy sometimes.”

Social factors: The descriptive analysis of the social items is shown in Table 7.

The four social factors found to be highly linked with well-being during the COVID-19 pandemic, in the following order, are: “My family has a positive effect on me,” “I am having better relationships with friends and colleagues,” “I find the media affecting me negatively,” and “My responsibilities at work have been difficult to achieve.”

Interactions between variables

In this section of the results, the second research question (Is there any interrelationship between biological, psychological, and social factors?) has been addressed.

Correlations between the factors. The results of the Pearson’s correlation coefficient analysis demonstrated statistically significant and positive significant relationships between the psychological, biological, and social factors at a P-value of 0.01.

This section addresses the third research question (Is there any significant difference between the participants’ responses due to gender, academic level, and social status variables?).

Gender. The mean scores of males and females were very similar (male = 2.92; female = 2.93). A one-way ANOVA was conducted to determine whether the comparison between the means was

| Table 6. Descriptive analysis of the biological domain |
|-----------------|-----|-----|
| Item            | N   | Mean| Std. Deviation |
| 1. I have tended to eat more | 294 | 3.38| 1.134 |
| 2. I have experienced more headaches | 294 | 3.16| 1.246 |
| 3. I find myself in more physical discomfort | 294 | 3.12| 1.126 |
| 4. I feel dizzy sometimes | 294 | 3.10| 1.243 |

| Table 7. Descriptive analysis of the social domain |
|-----------------|-----|-----|
| Item            | N   | Mean| Std. Deviation |
| 1. My family has a positive effect on me | 294 | 3.61| 1.121 |
| 2. I am having better relationships with friends and colleagues | 294 | 3.17| 1.009 |
| 3. I find the media affecting me negatively | 294 | 3.17| 1.210 |
| 4. My responsibilities at work have been difficult to achieve | 294 | 3.14| 1.149 |
The results demonstrated that there was no statistically significant difference between the means (.707), indicating that gender had no effect on participants' responses.

**Academic level.** The mean scores of the academic staff, students, and administrative staff were 2.91, 2.94, and 2.94, respectively. The one-way ANOVA showed that the differences in means, based on academic level, were not statistically significant (.655), indicating that academic level had no effect on participants' responses.

**Social status.** The means for the social status levels were as follows. Living with family: 2.93; married and live alone: 3.15; single and live alone: 2.87; and living with friends: 2.78. The one-way ANOVA showed statistically significant differences between the social status categories, with the computed value (0.019) being less than the p-value of 0.05. The figure below shows the mean of each category in the social status variable, with the highest mean in the “married and live alone” category and the lowest in the “living with friends” category **Figure 1**.

A qualitative analysis was conducted to provide a comprehensive description of additional factors that the participants faced during the COVID-19 pandemic, and to compile a list of the coping strategies they used to manage their problems. In order to obtain this information, two open-ended questions were asked to further explore the problems faced and the personal coping strategies used by the participants.

**6. Discussion and implications**

**6.1. Quantitative data analysis and discussion**

Psychological factors linked to the overall well-being

Since the outbreak of COVID-19 in December 2019, many countries have asked their citizens to self-isolate at home in order to reduce contact with infected people and to limit the spread of the infection (Organization, 2020). The current study explored the biopsychosocial factors linked with the overall well-being of students and teachers during the COVID-19 pandemic. As per the result, the psychological consequences that were highly linked with the overall well-being of the participants were “I know what I want to achieve during the day,” “I tend not to get angry,” “increase in the level of depression,” “being less happy,” and “having negative

![Figure 1. Mean plots for the social status variable.](image-url)
thoughts.” The responses related to the items “I know what I want to achieve during the day” and “I tend not to get angry” can be considered as positive consequences of the pandemic. Nevertheless, many studies have reported that most citizens experience negative psychological consequences due to the SARS pandemic (Braunack-Mayer et al., 2013; Cava et al., 2005). Finding positive psychological consequences of the pandemic was, therefore, somewhat unexpected. However, this can be related to the fact that most of the participants were undergraduate students (232) as compared to the lesser numbers of academic and administrative staff (62). Undergraduate students are usually younger and possibly have fewer responsibilities than adults who are usually employed full time. This may be the reason for them reporting positive psychological consequences during the pandemic. This is consistent with other studies on quarantined and non-quarantined undergraduates that reported less negative emotions during the 2009 H1N1 epidemic (Y. Wang et al., 2011).

The responses related to items “increasing the level of depression,” “being less happy,” and “having negative thoughts” can be considered as negative consequences of the pandemic and were found to be consistent with the findings of previous studies that examined the impact of the SARS outbreak on the mental wellbeing of college students (Main et al., 2011; Qian et al., 2005) and residents (Peng et al., 2010). These negative consequences can be linked to the increase in the quarantine duration, which may have increased the frustration and fear of being infected by the virus in addition to the financial losses incurred by some teachers and their spouses, and the parents of some students. This was confirmed by Nicola et al. (2020), who reported that during the COVID-19 pandemic, the workforce across all economic sectors worldwide reduced, causing many people to lose their jobs, and creating fears among many employees. Moreover, many teachers and students were not skilled at using online platforms for teaching and learning. Thus, many faced challenges in coping with online teaching and learning delivery modes that have been adding to their existing fears and frustrations (Sahu, 2020; Wang, Pan, Wan, Tan, Xu, Ho et al., 2020). In addition, many students and teachers felt socially isolated when they shifted to online learning, which might have led to negative emotions and feelings of loneliness and boredom (Hrastinski, 2008).

Biological factors linked to overall well-being

The biological consequences highly linked with the overall wellbeing of the participants during the COVID-19 pandemic were “the tendency to eat more,” “having more physical discomfort,” “experiencing more headaches,” and “feeling dizzy.”

Regarding the first item, “tendency to eat more,” many people find comfort in eating food, especially when experiencing negative emotions. According to Mattioli et al. (2020), quarantine and isolation induce stress and depression. As a result, many people become stress-driven eaters and thus cope with stress by eating and drinking to feel better.

The last three items can be viewed as the negative consequences of the pandemic on the overall well-being. The reported symptoms can be related to musculoskeletal factors linked to prolonged sitting while working on smart devices and poor workstation ergonomics, causing pressure on the spine, as suggested by Janwantanakul et al. (2008). Nevertheless, according to Zhang et al. (2020), having headaches and feeling dizzy are considered symptoms of somatization due to the presence of acute or chronic stress. This answered the second research question by demonstrating the relationship between biological and psychological factors. This was confirmed by Wang et al. (2020a), who explored physical symptoms and health status, and their associations with mental health status. They found that some participants reported physical symptoms, such as chills, headache, and dizziness, which have been associated with stress, anxiety, and depression.

Social factors linked to overall well-being
The social consequences highly linked with overall being the wellbeing of the participants during the COVID-19 pandemic were “My family has a positive effect on me,” “I am having better relationships with friends and colleagues,” “I find the media affecting me negatively,” and “My responsibilities at work have been difficult to achieve.” The consequences “My family has a positive effect on me” and “I am having better relationships with friends and colleagues” can be considered as positive consequences of the pandemic on the wellbeing of the participants. Although a plethora of studies have discussed the negative consequences of the pandemic on social health, a few studies have reported some favorable consequences of the current pandemic for mental health. These studies have highlighted that the pandemic could provide opportunities to enhance and strengthen social support, increase a sense of community and cohesion among family members and friends, and strengthen self-resilience. Fegert et al. (2020) reported that once families successfully completed the initial transition phase to the “new normal,” many of the stressors disappeared. For instance, the lack of private and business appointments and fewer or no guest visits can bring rest and relaxation into the life of family members, since the aforementioned can often cause stress. In addition, many students and teachers who usually face trouble traveling to and from academic institutions may have found online teaching and learning more relieving. Moreover, personal characteristics such as intrinsic religiousness and positive affectivity are suggested to help in relieving stress and in having a positive mood, as suggested by Park et al. (1996).

On the other hand, the results demonstrated two negative social consequences that were highly linked with well-being during the COVID-19 pandemic. These were: “I find the media affecting me negatively” and “My responsibilities at work have been difficult to achieve.” This may have resulted due to the fact that since COVID-19 has obliged many countries to implement mass quarantine measures to control disease transmission, many individuals felt cornered, isolated, and to feel more connected, they used different social media platforms as a way to communicate with family and friends (Dubey et al., 2020). However, the news on social media often comprised vague, fake, and distorted information leaked from unreliable and dubious sources inviting overwhelming mental burdens in the form of anxiety, extreme fears, phobias, and panic attacks affecting people’s quality of daily work and routine (Sharifian & Zahodne, ; Asmundson & Taylor, 2020).

Differences in participants’ responses according to social status

One of the purposes of this study was to investigate whether there was any significant difference between the participants’ responses regarding the impact of COVID-19 on their overall well-being based on their social status. The overall well-being of the participants who were married and living alone differed significantly from the well-being of the participants who were living with friends. Moreover, the median scores confirmed that the wellbeing of single participants who were living alone was less impacted by the COVID-19 pandemic as compared to that of the participants who were married and living alone. These results contradict previous studies that documented that a positive association exists between marital status and psychological wellbeing, and that marriage improves perceptions of well-being for both males and females (Lindström & Rosvall, 2012; Mookherjee, 1997). However, this can be attributed to the responsibilities that married people have towards their families, which include paying house rent(s) and school fees in addition to providing food supply for the family, which were challenged amid the COVID-19 pandemic. Many people faced financial losses and others lost their job, which further increased the negative emotions experienced by these individuals during the pandemic. These findings are supported by previous studies reporting that many individuals felt worried and stressed about financial limitations during the lockdown. For instance, Chakroborty and Chatterjee (2020) found that the majority of the respondents in his study were worried about the financial loss they were experiencing during the lockdown. These results can also be attributed to the social isolation that people living alone may be experiencing, which may negatively affect their mental wellbeing. This is confirmed by a study conducted by Monteith et al. (2020), who argued that social isolation and perceived burdensomeness are factors that can likely trigger negative risky behaviors and negative emotions amid the COVID-19 pandemic.
Differences in participants’ responses due to gender

With regard to the second demographic variable of gender, the present findings did not show any significant differences in the overall well-being of males and females during the coronavirus pandemic lockdown; men and women are equally affected by mental health problems (Table 9). This finding is supported by Singh et al. (2020), who stated that males that females did not differ significantly in their mental health and wellbeing during the COVID-19 pandemic. However, the World Health Organization (2012) reported that symptoms of depression and anxiety are more common among females than males. Similarly, Lau et al. (2008) reported that males had higher well-being levels than females during the SARS outbreak Table 8.

Differences in participants’ responses according to academic level

The results regarding the academic level of the respondents showed no significant difference in the overall well-being between respondents from different academic levels (Table 10). These results contradict the findings of other studies, which reported that the mental well-being of individuals with lower education levels was negatively impacted by the COVID-19 pandemic. For instance, Alyami et al. (2020) found that individuals with lower education levels suffered from higher depressive symptoms. Similar findings were reported by Wang, Pan et al. (2020a), who suggested that depression and anxiety increased among students with lower education levels when compared to individuals with higher education levels. In this study, it was expected that students’ well-being would be the most affected because the beginning of the pandemic was in the middle of the academic year and students were expected to worry about losing the year. Moreover, as many students have no experience in online learning, the new mode of learning was

| Table 8. Correlations between the biopsychosocial factors |
|----------------------------------------------------------|
| **Type of factors** | Psychological-Biological | Psychological-Social | Biological-Social |
|---------------------|--------------------------|---------------------|------------------|
| Pearson’s correlation | .221** | .155** | .278** |
| Sig. (2-tailed) | .000 | .008 | .000 |
| N | 294 | 294 | 294 |

**Correlation is significant at the 0.01 level (2-tailed).**

| Table 9. Comparison of mean scores according to gender |
|-------------------------------------------------------|
| **Gender** | **Mean** | **N** | **Std. Deviation** |
|------------|---------|------|-------------------|
| Male       | 2.9220  | 31   | .22674            |
| Female     | 2.9393  | 263  | .24290            |
| Total      | 2.9375  | 294  | .24094            |

| Table 10. One-way ANOVA and descriptive analysis for the academic level variable |
|-------------------------------------------------------------------------------|
| **N** | **Mean'** | **Std. Deviation** | **Std. Error** |
|------|-----------|-------------------|----------------|
| Academic staff | 56 | 2.9107 | .20106 | .02687 |
| Students | 232 | 2.9437 | .24982 | .01640 |
| Administrative staff | 6 | 2.9444 | .25276 | .10319 |
| Total | 294 | 2.9375 | .24094 | .01405 |
expected to cause stress among the students. However, the findings showed that the overall well-being of respondents at different academic levels was equally affected during the COVID-19 pandemic Table 11.

### 6.2. Qualitative data analysis and discussion

#### 6.2.1. Biopsychosocial consequences

The open-ended questions of this study aimed to identify additional biopsychosocial consequences of the COVID-19 pandemic on the well-being of teachers and students. The major themes collected from the analysis of the first open-ended question were: increased family conflicts, increased stress due to financial issues, and feelings of loneliness due to social isolation. In addition to the symptoms included in the questionnaire, having sleeping disturbances including insomnia, developing vision problems due to smart device addiction, frequent anxiety, and panic attacks, in addition to having more school and home responsibilities and finding it difficult to cope with the new lifestyle were common among most participants and this is consistent with the findings of another study (Peerayuth & Tipnuch, 2020). Most of these consequences are consistent with the findings of other studies (Brooks et al., 2020; Dubey et al., 2020; Jeong et al., 2016).

The symptoms experienced by most participants can be related to being self-isolated (quarantined), losing their normal routine, and having less social and physical contact with family members and friends, which may have caused boredom, frustration, and a sense of isolation from the rest of the world, causing stress in the participants (Brooks et al., 2020).

#### 6.2.2. Coping strategies

Regarding the analysis of the second open-ended question, which focused on exploring the common strategies for coping with stress that were adopted by the participants during the COVID-19 pandemic, the common strategies reported by the participants included time management, engaging in physical activities, distracting self, and sleeping more in addition to avoiding negative thoughts, meditating, praying, and watching movies. Many of these strategies have been reported by previous studies (Ho et al., 2020; Organization, 2020; Region et al., 2020).

The stress coping strategies that were used by the participants could be related to the fact that negative thoughts and emotions tend to decline over time and people start using stress coping mechanisms so they can restore their normal daily routines (Qian et al., 2005). According to Region et al. (2020), situation-specific coping strategies such as personal hygiene practices and avoidance of crowds that were recommended by most governments and health authorities might have helped in managing anxiety levels over time.

The overall results of this study can be interpreted in light of the biopsychosocial model that explains that the interactions between biological, psychological, and social aspects determine the source, expression, and outcome of wellness. Although the results of this study showed

### Table 11. One-way ANOVA and descriptive analysis for the social status variable

|                  | N  | Mean | Std. Deviation | Std. Error |
|------------------|----|------|----------------|------------|
| Living with family | 270| 2.9329 | .23852         | .01452     |
| Married and live alone | 11 | 3.1439 | .20928         | .06310     |
| Single and live alone | 11| 2.8712 | .25254         | .07614     |
| Living with friends | 2 | 2.7778 | .23570         | .16667     |
| Total            | 294| 2.9375 | .24094         | .01405     |
that the well-being of the participants in this study was on the average; however, the overlap between the bio, psycho, and social status among the participants is prominent. The findings showed that the physical health of some participants such as having physical discomfort was assumed to be influenced by other psychological and social factors that were developed due to the COVID-19 pandemic and the obligation to abide by health and safety guidelines that limited people physical activities and the change in the mode of teaching and learning. Similarly, some social factors such as communication and social interaction were considered as contributors to the psychological wellbeing of individuals. Moreover, it is clear that COVID-19 affects differently the wellbeing of participants from certain social status; yet, the impact of gender, as a biological element, had no significant difference on the overall well-being of the participants during the COVID-19 pandemic.

In conclusion, the study of the effect of the COVID-19 pandemic on the well-being of health-care students and educators and its three scopes (bio-psych-social) supports the development of proper and effective strategies for promoting the well-being of educators and students in the health sciences education. It can also be argued that biopsychosocial model can be used as a philosophy of care to underpin health-caring practices of health-care educators and future health-care providers during a pandemic.

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