E-Learning stress and coping strategies among nursing students at Albaha University during COVID-19 pandemic, Saudi Arabia

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ABSTRACT

Background/Objective: Stress is one of the serious issues that affect university student's life, its effects could be reflected in student social, academical, and mental health, thus this study is to Assess E-learning stress and coping strategies among nursing students at Al-Baha university during Pandemic COVID-19.

Methods: A descriptive cross-sectional study has been utilized in this study. It was conducted at Nursing Department, Faculty of Applied Medical Sciences at Al-Baha University, Saudi Arabia. Data was collected from 15th February to 24th March using a convenience sampling technique to select participants. *A Stress Likert Scale* was adopted from Smith et al., (2014) [9]. It used (29) items questionnaire to gather information regarding stress and S*tress-Coping Scale* which was adopted from Malik and Javed (2021) [10], consisted of 8 items which scaled. The tools were validated before collecting the required data. The data was analyzed by Statistical Package for Social Science (SPSS) version 22.

Results: Among 110 male and female nursing students at Albaha University, the study showed that nursing students have moderate stress (30%) to high stress (22%) related to contributing factors of E-learning (35% as very stressful and 21% quite stressful), psychosocial stressors related to E-learning (12% as very stressful and 30% quite stressful), physiological stressors related to E-learning (20.67% as very stressful and 29.11% quite stressful). The used coping strategies to face stressors were taking mind off by doing something (74%), getting help from lecturer (66%), getting help from friend (60%), physical activity (54%), taking action (50%) and giving up attempts and praying (48%). The findings also showed that female nursing students have significantly higher stress compared to male students (p-value 0.03) and rural residence significantly increase stress level compared to urban residence (p-value 0.04).

Conclusion: Nursing students have moderate to high stress, the contributing factors related to E-learning are psychosocial stressors, and physiological stressors.The students took mind off by doing something getting help from lecturer or friend, physical activity, taking action or giving up attempts or praying as coping strategies.

Keywords: E-Learning, Coping, Stress, Students

INTRODUCTION

Coronavirus disease 2019 (COVID-19) quarantine has been declared as a global pandemic, governments all around the world have taken strict public health measures to contain the outbreak and yield in the least numbers of mortalities possible[1]. All countries have been put under lockdown, where all public and private institutions have halted their activities and higher educational institutions have been forced to discontinue face to face teaching experiences. Therefore, with the widespread transmission of the virus between countries and even continents, and the institutional closure have resulted in more than 80% of students all over the world not going to their universities and colleges. It is expected that even after the epidemic is finally put under containment, the effects of the dangerous novel coronavirus "COVID-19" would undoubtedly resound through international higher education institutions[2].

In Saudi Arabia, E-learning has been adopted as the alternative teaching or learning strategy during the coronavirus disease 2019 (COVID-19) quarantine to fill the academic gap that has been created by the existing reality of the pandemic due to nationwide closures[1]. Electronic learning (e-learning) is a wider learning approach that offers new learning and teaching experiences further away from the conventional classroom experience in many fields of education. In recent decades, field research indicates a proliferation of content and inconsistencies in e-learning that affect interoperability trends for students and teachers in education; however, little has been done to test the usability of e-learning systems[3]. Despite the benefits of E- learning, the students face a lot of challenges in the course of their programs. Research evidence suggest that E-Learning consequently attributed many emotional and physical symptoms among students such as fatigue, headaches, depression to stress[1].

Stress and coping with stress are phenomena closely intertwined with human life. They relate to all minor and major events in life[3]. Stress is a common aspect of many different emotions like anxiety, frustration, anger, worry, fear, sadness and despair. A very clear physical aspect is also involved in it. Some may experience such as a pain in the chest or in the pit of the stomach or in the form of clenching their jaws.

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Students in general experience stress in situations such as going to a new college, appearing for the exams, dealing with their friends/ peers, when their friends were not feeling well, divorce or separation of parents, death of a relative, etc. In the academic scenario, stress has become an inevitable factor in the lives of students, and everyone related to them. Parents of adolescents have to face the stress of helping their children deal with academic stress as well as their own stress[4,5].

Stress is known as stressors. Being physical or emotional, internally, or externally generated, the stressors are classified as: A) Exogenous or external factors: they are those factors which originate from outside and individual has no control over that, B) Endogenous or internal factors include strong memories of previous unpleasant experiences, which make individuals highly sensitive to such instances and C) The combination of endogenous and exogenous factors also leads to the creation of stress. The students' academic overload in colleges and unrealistic parental demand and social expectations are imposing severe stress on students and do not give much importance to other activities[1]. Even the parents are convinced that these are the crucial years where the students need to concentrate only on academics in order to perform well in the marathon race of entrance examinations at the end of senior intermediate. Thus, the students are left with no choice except participating in this race, especially those students who opt for medical or nursing sciences branches at colleges[1].

Coping has an effective connotation in stress literature. It has been used to denote the way of dealing with stress or effort to master conditions of harm, threat, or challenge when a routine or automatic response is not readily available. Coping strategy refers to a technique of coping adopted in a specific context. Over a period of time the student develops a specific coping style[2]. According to Moos and Billings (1982), there are many ways to classify the coping process, but the three main categories are: 1) Appraisal focused coping strategies occur when the person modifies the way they think. 2) Problem focused strategies are efforts to do something active to ease the stressful circumstances. People, who use problem focused strategies, try to deal with the cause of the problem. They do this by finding information on the problem, learning new skills to manage the problem and rearrange their lives[1]. Emotion focused strategies involve realizing pent-up emotions, distracting one-self, managing hostile feelings, meditating, using systematic relaxation procedures, etc. This involves efforts to regulate the emotional consequences of stressful or potentially stressful events. In addition to above categories, in a qualitative perspective, there are two types of coping strategies: a) Active coping strategies: an individual can cope with taxing circumstances by directly approaching the cause of the conflict. b) Avoidant coping strategies: an individual copes with taxing circumstances by avoiding it. This strategy makes people activate a mental state that keeps them from directly addressing the event. This appears to be a psychological risk factor or marker for adverse response to stressful line events[6].

Jilmy and Jose (2015) found that stress can lead to academic decline, poor relationships with peers and family members and overall dissatisfaction with life[7]. Fawaz and Samaha (2020)[2] added that the sudden shift to exclusive e-learning methods of instruction have produced anxiety and depression symptoms among a significant portion of the students due to the stressful load of work required[1]. Additionally, in recent years, there is a growing appreciation of the stresses involved in nursing training. It is important for nursing educators to know the prevalence of psychological distress and psychological well-being among nursing students during E-Learning strategy of pandemic COVID-19 and how to apply active coping strategies. Hence, the present study aimed to assess E-learning stress and coping strategies among nursing students at Al-Baha university during Pandemic COVID-19[8].

Stress is one of the serious issues that affect university student's life, its effects could be reflected in student social, academical, and mental health. Academic stress among college students has been a topic of interest for many years. In Saudi Arabia, nursing students reveal high academic workload, difficulty reading textbooks, family related problems, health related problems and financial problems as most of the sources of students' stress[9-11].

Managing stress is very vital to averting any negative effect of prolonged stress. Students can use various coping strategies in managing stress. Coping strategies to reduce stress is a necessary condition for preventing the harmful effects of prolonged stress. So, each university has to assess its students stress in order to provide them with the suitable mental health care and the efficient methods to cope with stress. The aim of this study is to Assess E-learning stress and coping among nursing students at Al-Baha university during Pandemic COVID-19.

MATERIAL AND METHODS

Research Design: A descriptive cross-sectional study has been utilized in this study.

Setting: The study was conducted at nursing department of both male and female sections, Faculty of Applied Medical Sciences at Al-Baha University.

Subjects: 110 student nurses (62 from Male section) and (48 from Female section) were recruited for this study. Data was collected from 15th February to 24th March. The inclusion criteria were Nursing department students all academic levels with E-Learning education and voluntarily agreed to participate in this study. A convenience sampling technique was used to select participants. Students were recruited from a population of 1st, 2nd, 3rd, and 4th year students, they were chosen randomly.

Tools of Data Collection: The tools used for data collection included the following:
Sociodemographic Data: it designed to identify students' characteristics consists of age, sex, academic year, residence, family type, number of sibling and presence of father/mother. This tool developed by the researchers.

Stress Likert Scale: it designed to assess Factors contributing to E-Learning stress among nursing students. It was adopted from Smith et al., (2014)[12]. It used (29) items questionnaire to gather information regarding stress. These items assess (3) main domains; the first is the Academic Factors (11) items, the second is Psychosocial Factors (9) items, and the third is the Physiological Factors (9) items. The students were asked to respond to the questionnaire items on as "not stressful at all", "somewhat stressful", "Quite stressful" and "very stressful". The students rated their answers on a continuous scale from 0 (not stressful at all) to 4 (very stressful), where total scores would range from 0 to 116, and subscales were computed by summing the questions relating to each domain.

Stress-Coping Scale: it designed to assess the coping strategies used to minimize stress among students. It was adopted from Malik and Javed (2021)[13]., consisted of 8 items which scaled; Strongly agree, Agree, Neutral, Disagree and strongly disagree. The students were asked to show their agreement or disagreement on a 5-point Likert scale ranged between 'Strongly agree as 5' and 'Strongly disagree as 1'

Content and Face Validity: It was ascertained by a group of 5 experts including Medical-Surgical Nursing and Mental Health Nursing. experts. Their opinions were elicited regarding the tools

format layout, consistency, and scoring system. The content validity of the tools was tested regarding knowledge accuracy, relevance and comprehensiveness.

Ethical Considerations and Human Rights

An electronic consent statement to be ticked by all nurses who agreed to participate, those who did not tick it will not be able to fill the questionnaire.

Pilot Study : Will be carried out on 10% of Participants to evaluate the validity of the tool, which will be used in this study for data collecting and accordingly necessary modification will be done. The participants who will be tested as pilot study will be excluded from the study sample.

Procedure: To achieve social distance in this critical situation, the researchers used the online data collection method. A Google form was created, and participants were invited to complete and submit it. A questionnaire link was shared with groups for nurses on Facebook and WhatsApp. After preparation of questionnaire and assessing its validity and reliability, researchers requested the students to fill in the questionnaire. Completion of the questionnaire was voluntary. Data was collected by guided self-administered questionnaire. The time taken by the students for filling in the questionnaire was around 15 minutes.

Statistical Analysis: Data entry was done using Epi-Info 6.4 computer software package, while statistical analysis was done using the Statistical Package for Social Science (SPSS) version 11. Data were presented using descriptive statistics in the form of frequencies and percentages were compared using chi-square test. Statistical significance was considered at p-value < 0.05.

RESULTS

The sociodemographic characteristics of 110 nursing students at Al-Baha University (Participants) illustrated in (Table 1). The empirical results showed that most of sex of participants were male, their age ranged between 19 to 23 years old, and vast majority of them were at 20 years old, 45 (40.91%), their academic years from Low graded students to fourth academic year university students and more than fifty 59 (53.64%) of participants were at fourth academic year, all of them are single and no one is married, 50.91% were urban and more than half of them from extended families.

Table 1: Demographic characteristics of nursing students, n=110

Age	**Frequencies**	**Percentage**
19 years old	17	15.45%
20 years old	45	40.91%
21 years old	28	25.45%
22 years old	13	11.82%
23 years old	7	6.36%
Gender		
Male	62	56.36%
Female	48	43.64%
Academic year		
Second	23	20.91%
Third	21	19.09%
Fourth	59	53.64%
Low graded students	7	6.36%
Marital status		
Single	110	100.00%
Married	0	0.00%
Residence		
Urban	56	50.91%
Rural	54	49.09%
Family Type		
Extended	59	53.64%
Nuclear	51	46.36%

Table 2 Demonstrates the Demographic characteristics of families of 110 nursing students at Al-Baha University (Participants). The findings showed that the number of siblings of participants ranged between 0 to 5: most of the participants 50 (45.45%) have only one sibling: 23.64% have no siblings, while only 6 (5.45%) have 2 siblings. Near all participants 107 (97.27%) their mothers were present, and only 3(2.73%) of them did not present; near two-third of mothers 68(61.82%) were working, and most of them were University graduates 66 (60.00%), on other hand, 105(95.45%) of participants' fathers were the presence and only 5(4.55%) didn't; the vast majority of fathers were working 77(66.36%), and most of them were University graduates 48(43.64%). The family income was adequate 68(61.82%) for the majority of them.

Table 2: Demographic characteristics of families of nursing students, n=110

Number of siblings		
0	26	23.64%
1	50	45.45%
2	6	5.45%
3	8	7.27%
4	7	6.36%
5	13	11.82%
Presence of mother		
Yes	107	97.27%
No	3	2.73%
Mother work		
Yes	68	61.82%
No	42	38.18%
Mother education		
Illiterate	14	12.73%
Primary	12	10.91%
Secondary	18	16.36%
University	66	60.00%
Presence of father		
Yes	105	95.45%
No	5	4.55%
Father work		
Yes	73	66.36%
No	37	33.64%
Father education		
Illiterate	7	6.36%
Primary	8	7.27%
Secondary	47	42.73%
University	48	43.64%
Family income		
Adequate	68	61.82%
Inadequate	42	38.18%

Table 3 represents the evaluation of contributing Factors to E-Learning stress among 110 nursing students at Al-Baha University (as Participants),this table clarified that most of participants (64%) felt very stressful due to academic overwork load and referred it as contributing Factors to E-Learning stress, half (50%) of participants said much

clinical assignments, lack of learning materials/resources and difficulty reading and understanding online modules were very stressful and act as contributing factors, missing attending lectures was quite stressful contributing factor for more than third (40%) of participants, while two-thirds (76%) of participants said problems in networks were contributing factors and very stressful to E-Learning stress, as Overall stress contributing Factors to E-Learning stress,(35%) of participants said it was Very Stressful.

Table 3: Factors contributing to E-Learning stress among nursing students, n=110

Factors	Not stressful at all	Somewhat stressful	Quite Stressful	Very Stressful
Academic overwork load	6%	12%	18%	64%
Online Lectures	30%	38%	16%	16%
Much Clinical assignments	4%	16%	30%	50%
Missing attending lectures	24%	26%	40%	10%
Lack of Learning materials/Resources	8%	14%	28%	50%
Difficulty reading and understanding online modules	4%	28%	18%	50%
Much Frequency of Examinations	50%	24%	16%	10%
Poor grades in Examinations	48%	24%	12%	16%
Worried from online Theoretical Exam	60%	30%	8%	2%
Worried from online Practical Exam	20%	14%	26%	40%
Problems in networks	4%	4%	16%	76%
Overall stress	23%	21%	21%	35%

Table 4 shows evaluation of Psychosocial Stressors related to E-Learning among 110 nursing students at Al-Baha University (as Participants); the results explained that more than- third of participants (36) said Family/Marriage problems, were Psychosocial Stressors related to E-Learning, (26) said Feeling of Loneliness, (22) said High pressure from Parental expectations, while only (2) of participants said Anxiety about the performance in E-learning Exam. Near two-thirds (44) of participants felt Quite Stressful due to the Inability to Concentrate during -lectures, and the overall level of Psychosocial Stressors related to e-Learning was .(16.44%)

Table 4: Psychosocial Stressors related to E-Learning among nursing students, n=110

Factors	Not stressful at all	Somewhat stressful	Quite Stressful	Very Stressful
Inability to manage time	24	38	30	8
Inability to concentrate during -lectures	28	18	44	10
Anxiety about the performance in E-learning Exam	24	32	42	2
High pressure from Parental expectations	12	28	38	22
Worries about future	20	36	36	8
Feeling of Loneliness	14	22	38	26
Financial problems	32	26	30	12
Family/Marriage problems	24	28	12	36
Lack of time for relaxation	8	26	42	24
Overall level	20.66%	28.22%	34.67%	16.44%

Table 5 explores Physiological Factors related to E-Learning among 110 nursing students at Al-Baha University (as Participants), results approved that most of participants (46) agreed that Chronic Illness/ Heath problems are Very Stressful as physiological factors related to E-Learning. As an overall level, (25.11%) of participants were Not Stressful at all, while only (20.67%) of them said they were Very Stressful with regards to all Physiological Factors related to E-Learning. As an overall stress level evaluation, only (20.67%) of participants were Very Stressful to all Physiological Factors related to E-Learning, (29.11%) of them were Quite Stressful, (25.11%) were Somewhat stressful and the same percentage (25.11%) were not stressful at all.

Table 5: Physiological Factors related to E-Learning among nursing students, n=110

Factors	Not stressful at all	Somewhat stressful	Quite Stressful	Very Stressful
Lack of healthy diet/ Irregular eating habits	28	18	44	10
Irregular Sleep problems	34	22	24	20
Chronic Illness/Heath problems	28	12	14	46
Vision Problems	22	32	42	4
Hearing Problems	12	24	36	28
Headache problem	20	36	36	8
Neck pain problems	32	26	30	12
Suffering from back pain	12	34	18	36
Strain of Legs and hands	38	22	18	22
Overall level	25.11%	25.11%	29.11%	20.67%

Table 6 illustrates Student's coping strategies to alleviate E-Learning Stress among 110 nursing students at Al-Baha University (as Participants),table's results approved that most of participants (74%) Strongly agreed that doing something to take my mind off the situation such as watching TV, movies, shopping, listening to music were coping strategies to alleviate E-Learning Stress, while only (2%) of them Strongly disagreed, (66%) of participants believed that and Strongly agreed Getting help and advice from lecturers or tutors coping strategies to alleviate E-Learning Stress, (60%) of them strongly agreed that getting emotional support/advice from friends and family were coping strategies to alleviate E-Learning Stress, also more than half (54%) of participants strongly agreed that physical activity as sporting was coping strategies to alleviate E-Learning Stress, (50%) said taking action to negative stressor and less than half(48%) strongly agreed and said Praying was one of coping strategies that can alleviate E-Learning Stress.

Table 6: Student's coping strategies to alleviate E-Learning Stress, n=110

Factors	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Taking action to negative stressor	50%	24%	16%	6%	4%
Seeing something good in what is happening, learning from experience	40%	24%	16%	14%	6%

Giving up the attempt to do anything about the situation	48%	28%	18%	2%	4%
Getting emotional support/advice from friends and family	60%	22%	6%	8%	4%
Getting help and advice from lecturers or tutors	66%	24%	6%	0%	4%
Doing something to take my mind off the situation such as watching TV, movies, shopping, listening to music	74%	12%	6%	6%	2%
Praying	48%	34%	12%	6%	0%
Physical activity as sporting	54%	24%	14%	4%	4%

Figure 1 explains levels of stress related to E-learning among 110 nursing students, at Al-Baha University (as Participants), figure revealed that level of stress 48% of participants experienced low stress level ,30% of them experienced moderate and 22% showed high level of stress.

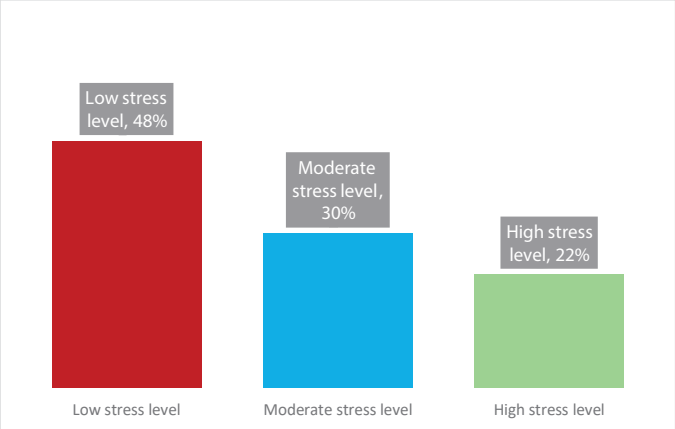

Figure 1: Level of stress among nursing students related to E-learning, n=110

Table 7 demonstrates the Comparison of demographic variables, and the levels of stress among 110 nursing students, at Al-Baha University (as Participants), table revealed that there is significant relationship between gender and the level of stress (0.03), also there was significant relationship between Participants' residence and the levels of stress (0.04). On other hand, there was no any significant relationships between age (0.06) and academic year of participants (0.07).

The results showed that most of participants (46%) agreed that Chronic Illness/Heath problems are Very Stressful as physiological factors related to E-Learning.

DISCUSSION

Higher education institutions across the world moved to E-learning in response to the disruptions caused by the pandemic. While E-learning has an advantage for students that they can attend to their courses from anywhere at their convenience, yet the disruptive shift to E-learning during the pandemic saw students facing many challenges, which had strong ability to induce stress among the students. In order to fulfil the aim of the study the following questions were to be answered: What are the factors contributing to E-Learning stress among nursing students? and What are the coping strategies to alleviate E-Learning Stress among nursing students?

The results of this study have indicated that the sudden shift to exclusive online instruction and learning methods have rendered the students to be very stressful with their learning experience. There are more than half of the students have very stressful academic factors contributing to E-Learning stress as academic overwork and problems in network. In addition, half of the students were very stressful regarding much clinical assignments, lack of learning materials/resources and they found difficulty in reading and very stressful from understanding on line modules. This is consistent with Kasse and Balunywa (2013)[14], disclosed significant structural vulnerabilities; in specific, the lack of internet access, technological ineptitude, and behavioral difficulties that restricted the full-scale implementation of E-learning. Malik and Javed (2021)[13] emphasized that one commonly experienced mental health issue by university students is the academic stress, which is mostly due to the students' apprehension of loss of grades and fear of failure, fear of lower performance and delay in completion of studies are also the reasons to induce stress among students during COVID-19.

Concerning psychosocial stressors regarding E-Learning among nursing students, the current study revealed that one third of students did not complaining of overall psychosocial stressors, while the majority have some degree of stress regarding inability to manage time, high pressure from parenteral expectations, feeling of loneliness, financial problems, family problems and lack of time for relaxation. These results are congruent with those of Thapa et al. (2021)[15] who reported that extreme demands, time pressure, reduced motivation and poor coping were some of the causes of stress. In addition, Koirala et al., (2020)[16] clarified that psychosocial stressors leading to poor adjustment and can result in poor academic performance among students by impeding memory, concentration, and problem-solving skills. In a minority of students this can result in significant psychiatric morbidity and even withdrawal from the course.

In the same line, the current study shows that the one quarter of nursing students did not complaining of overall physiological stressors, while the third quarter of them have some degree of stress regarding health problems, suffering from back pain, strain of legs or hands, hearing or neck pain problems. In a similar study, Thawabieh and Qaisy (2012)[6] reported that the main items causing stress regarding the physiological factors were can't sleep, feeling tired and back pain. In addition, (Yang and Chen) (2021)[17], found a statistically significant difference in the rate of obesity and overweight with long standing E-Learning with sleep deprivation, disordered and unhealthy eating.

The study also revealed that slightly more than half of the nursing students had a positive attitude regarding coping strategies to alleviate E-learning stress as taking action to negative stressor, getting emotional support and advice from friends or family, or lecturers, or doing something to take mind off the situation or praying. Shah Mohammadi (2011)[1] have shown that After exposure to stress, it is necessary to develop appropriate strategies for dealing with it, and hence the process of coping with stress. Such strategies may be problem-focused since they aim at modifying or changing the stressor or emotion-focused, aiming at altering reactions to the stressor. In the closing remarks, the chapter notes that stress is an unavoidable component of life. Therefore, the differences between how it influences people depends on their ability to cope with it. In the same vein, KWAAH and ESSILFIE

(2018)[4] reported that the majority of the students were using positive coping strategies. Praying/meditation were very important coping strategies for both male (M=3.22, SD=0.89,) and female (M=3.22, SD=1.04) students. In addition, Other important coping strategies were self-distracting (M=2.82, SD=1.07; M=2.69, SD=1.22) such as watching TV, movies listening to music; emotional support.

Concerning the comparison of demographic variables and the levels of stress, the present study revealed that there were significant relationships between each gender, residence and the level of stress ($p<0.05$). The female nursing students exposed to high stress more than the male; this could be explained by the fact that females are more subjected to the community pressure and they still under the pressure of the cultural habits. In addition, in the current study the rural was under high stress than the urban one; this may from problems in network or poor facilities. Hence, the students require proper attention, help, and support from their families and institutions. The institutions should revise their online courses and program delivery mechanisms, methods, and practices to ensure that students are not over stressed, particularly in terms of number of assessments, academic workload, and technical difficulties they face. This study has limitation since it was conducted using convenient sampling method among a proportionally small sample size, as researchers have not been able to more students from other universities that have been closed due to COVID-19 quarantine, which might have given a richer perspective into the research problem and the current study is a cross-sectional design, which investigates the situation at one point in time, such a design does not examine longitudinal fluctuations in perceived stressors over time.

CONCLUSION

Nursing students have moderate to high stress, the contributing factors related to E-learning, are psychosocial stressors, and physiological stressors. The students took mind off by doing something getting help from lecturer or friend, physical activity, taking action or giving up attempts or praying as coping strategies. The male nursing students and those who live in rural areas were more stressed compared to others.

Authorship Contribution: All authors share equal effort contribution towards (1) substantial contributions to conception and design, acquisition, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of the manuscript version to be published. Yes.

Potential Conflict of Interest: None.

Competing Interest: None.

Acceptance Date: 06 June 2022

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