PERCEIVED STRESS IN DISTANCE LEARNING AMONG UNDERGRADUATE COLLEGE STUDENTS DURING THE COVID-19 PANDEMIC FOR THE STUDENTS IN KERBALA, IRAQ 2022

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Abstract:

Introduction: Global health issue of COVID-19's rapid spread has a substantial impact on educational institutions. Therefore, the COVID-19 pandemic has altered the way we learn in high education and compelled us to convert to an online learning environment, the current study set out to assess students' stress of online education during the COVID-19 period.

Method: This study used the sampling approach, where a simple Random sample was collected, and 500 students were selected out of five colleges in the universities of Kerbala. A three-part questionnaire was used to achieve the study objectives. The first section contains social and demographic information for the student, the second section contains academic variables related to the use of smart devices and electronic problems, and the third section contains psychological variables related to assessing students' stress according to PSS-10.

Result: The mean for age participants was (22 ± 2) years old. The results showed that around (64.6%) of students had high levels of stress, while approximately (34%) had moderate levels. also about (1.4%) had a low level of stress through e-learning during COVID-19. Most participants were female (67.8%), There is a significant association between stress level and college, (24.1%) of higher-stress levels in candidates of Engineering college and (16.4%) of lowest-stress levels in candidates of College of Education and Physical Sports. there is a significant difference between electronic problems and the income of students, students with poor income were more likely to have online learning problems. p-value < (0.05) is significant.

Conclusion: more than half of our students had a high level of perceived stress, and more than one-fourth had a moderate level of stress among the students of Kerbala University after the outbreak of Covid-19 disease. This study found a significant association between stress levels and college.

Keywords: perceived stress, COVID-19, Distance learning, college student

INTRODUCTION:

A pandemic is defined by the World Health Organization (WHO) as the worldwide spread of a disease that affects a huge number of people [1]. In December 2019, the virus first appeared in Wuhan, a Chinese city, that became the center of a coronavirus outbreak (COVID-19) [2]. That is In January 2020, the World Health Organization declared a public health emergency of worldwide concern, which is to try to prevent the infectious disease from spreading internationally as much

as possible while also supporting the affected country's response [3]. Maintaining social distance is one of the ways that the World Health Organization recommends to protect against viruses, as you protect yourself for at least 14 days during the incubation stage of the virus [4]. Following recommendations by the health authorities to protect students and staff, people, therefore, closed all schools, and universities to reduce the spread of infectious disease in the community by breaking important chains of transmission (except for essential services such as pharmacies, supermarkets, and hospitals) as a preventive and precautionary measure [5]. During the COVID-19 pandemic, students received clinical training via distance or online learning, which included video/recorded lectures, PowerPoint presentations, and animations [6]. E-learning, also known as electronic learning, or digital learning, is a method of providing learning assistance through the use of digital technology [7]. It has several benefits, including the ability to improve the quality of higher education, promote e-learning, save travel time and costs, and protect students' health from epidemics [8]. During COVID-19, students experience stress for many reasons, including worry about performing poorly and a delay in finishing their studies [9]. This new epidemic situation is very frightening and stressful for everyone due to the high death rate of COVID-19 as well as due to associated factors such as economic instability, unemployment, stress, anxiety, and insecurity, it is normal for people to experience a wide range of unexpected thoughts, feelings, and reactions[10]. These results might be due to poor e-learning organizations, including an absence of skill obtainability or reduced internet access, and weakness of electricity[11]. Academic stress arises from exposure to widespread and persistent stress due to several factors such as scholarship requirements, family-related pressures, competition in the classroom, and financial burdens on students and families [12].

Psychological stress is caused by an imbalance between a person's perspective and their needs outside of themselves, Thought stress is a subjective assessment of life events that entails determining how difficult a situation in one's life is perceived to be [13]. Stress can be classified into various levels depending on the situation. There are three levels of stress:

1-   Acute stress: The most prevalent form of stress that every person encounters at a certain point in their lives. acute stress is triggered by current or impending events. It can be beneficial as well as harmful, for example, the excitement before a fun event. An automobile accident might cause severe acute stress. But there is nothing wrong with experiencing acute stress as long as it doesn't last too long or occur too frequently; it's usually simple to cure using basic approaches, signs of acute stress [14] such as:

 • Stomach pain, such as heartburn

 • High blood pressure and heart rate, SOB, chest pain

• Headache, back pain, and jaw pain

1-   Episodic stress: "Episodic acute stress" is a word that describes a sort of stress that occurs frequently. Those who are stressed regularly and try to handle it are frequently overwhelmed. For example, instead of studying all day, pupils learn continually at night before a test. This type is unintentional until it develops into a habit.

2-   Chronic acute stress: can be described as a constant source of tension that drains you. It

frequently happens as a result of circumstances that feel miserable and uncontrollable, like a failing marriage, a bad job, or malnutrition. This form of stress hurts your health, resulting in cardiovascular disease, cerebrovascular disease, and maybe cancer, Chronic stress necessitates seeking help [15].

Several studies have revealed that during a period of home confinement, the COVID-19 outbreak hurt both medical and non-medical students. The vast majority of medical students who took online courses (82.3%) reported feeling moderately to severely stressed [16]. A global epidemic and studying during the COVID-19 outbreak may cause both medical and non-medical students to experience emotional reactions that are more acute, increasing the chance of negative emotions such as fear and sadness [17].

Another study including 683 young adults in the United States was done, after fourteen days of full closure; the findings revealed that their emotional well-being was not fully dependent on their adherence to social separation. Anxiety levels in young individuals have been reported to be higher and greater. The most visible signs of stress in everyday life [18].

*Objective of the study

This study aims to Assessment of Perceived Stress in Distance Learning among undergraduate Students during the COVID-19 Pandemic for the Students of Kerbala University, Iraq 2022.

SUBJECTS AND METHODS :

Study design setting and time:

This cross-sectional study was conducted between December 15, 2021, and January 1, 2022.

Study participants: The students subject to the e-learning system are the participants in this study, including 5 colleges for 500 students at Kerbala Universities. These included 100 students from the College of Medicine, 100 students from the College of Engineering (Civil Department), 100 students from the College of Applied Medical Sciences (Department analytics), 100 students from the College of Physical Education and Sports Science, and 100 students from the College of Education for Human Sciences (Department of psychology).

Questionnaire development:

Under the direction of psychiatrists, the questionnaire was created in English and then translated into Arabic using questions taken from various articles.

A structured questionnaire with 30 questions, designed into 3 parts, was created:

The first part of 11 items includes demographic variables

The second part contained academic variables with 9 items (problems with the online class)

The third part psychological variables included 10 items to find out the extent of their psychological impact according to the perceived stress scale (PSS-10) was scored ranging from never (0) to frequently (4), [19].

Scales of the Perceived Stress Scale (PSS-10):

The Perceived Stress Scale (PSS): is a well-known method for evaluating stress.

For each question choose from the following alternatives: 0 – never   1 - almost never   2 – sometimes   3 - fairly often   4 - very often Respondents rate each item on a five-point scale ranging from "never (0)" to "frequently (4)". The scores for the component items that are negative

should be reversed, reverse your scores for questions 4, 5, 7, and 8.

On these 4 questions, change the scores like this:

$0 = 4$, $1 = 3$, $2 = 2$, $3 = 1$, $4 = 0$

Individual scores on PSS range from 0 to 40, with a higher score indicating higher perceived stress

► **Scores ranging from 0-13 would be considered low stress.**

► **Scores ranging from 14-26 would be considered moderate stress.**

► **Scores ranging from 27-40 would be considered high perceived stress**

The total score could put them in a good or bad position, depending on their perception. One of those people is in the low-stress group, whereas the total score may put the second person in the high-stress category.

Ethical consideration:

The survey was conducted after ethical approval by the Research Ethics Committee at the College of Medicine- University of Kerbala.

Data Analysis:

All data were entered into the Microsoft Excel spreadsheet and then loaded and coded into statistical analysis was performed by using the Statistical Package for the Social Sciences (SPSS) version 22 software. Continuous variables were expressed as mean and standard deviation and categorical variables as numbers (percentage). The statistical tests used in the current study were chi-q (T. test) for less than 3 variables. ANOVA for ≥ 3 variables. According to our definitions, demographic traits constituted the independent variables, and perceived stress was the dependent variable. A P-value of less than 0.05 was considered to be of statistical significance.

Results:

In a cross-sectional study of 500 persons, the mean age was (22 ± 2) years old, 67.8% of candidates are females, (96.6%) of them are below 25 years old, (85%) they are unmarried, (65.2%) are average monthly income, (40%) of candidates are 2nd class level, (87.4%) of them live with parents, (85.2%) of candidates are living in urban, (86%) of them live inside Kerbala, (92.2%) of candidates have own home, (89.2%) of them live with 4-10 persons in the home. as shown in Table 1. Table (1): distribution of variables included in the current study

variables		frequency	percentage
Gender	male	161	32.2
	female	339	67.8
Age group	<25	483	96.6
	=>25	17	3.4
Marital state	married	75	15.0
	unmarried	425	85.0
Monthly income	poor	32	6.4
	average	326	65.2

	good	142	28.4
Class Level	*2nd*	200	40.0
	3rd	50	10.0
	4th	200	40.0
	5th	50	10.0
Colleges	*medicine*	100	20.0
	Applied medical sciences	100	20.0
	Sport science	100	20.0
	engineer	100	20.0
	psychology	100	20.0
Live with parents	*yes*	437	87.4
	no	63	12.6
Place of living	*urban*	426	85.2
	rural	74	14.8
Province living	*inside Kerbala*	430	86.0
	outside Kerbala	70	14.0
Accommodation type	*own*	461	92.2
	rented	39	7.8
No. of a family live you	*1-3*	24	4.8
	4-10	446	89.2
	>10	30	6.0

In figure 1; the distribution of level of stress, (64.6%) of candidates have a high level of stress, (and 34%) of them have a moderate level of stress.
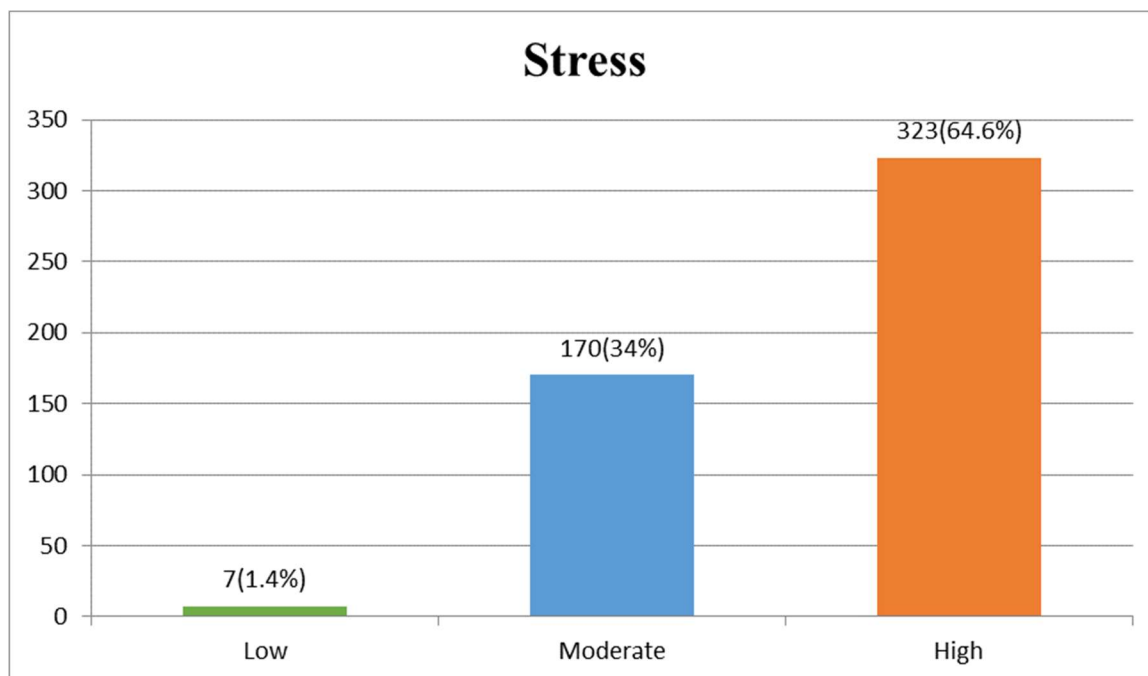
Fig 1: Distribution of level of stress

There is a significant difference in the mean of problems in the use of electronic devices, married candidates have more problems than unmarried, the poor income is more problematic than good income, the 2nd stage has more problems than 5th, and also 4th stage more problematic than 5th. Sports College has more problems than Medicine College also Psychology College is more problematic than medicine in the use of the smart device. There is no significant difference in the mean of problems in the use of the electronic device and other variables, as in table 2.

Table (2): Difference between the mean of electronic problems according to variables in the current study

Variables		N	Electronic		P-value
			Mean ± SD		
Gender	*male*	161	34.30	4.7	0.9
	female	339	34.34	4.9	
M.S.	*married*	75	35.21	4.1	0.046*
	unmarried	425	34.17	4.9	
Income	*poor*	32	34.84	4.2	0.005*
	average	326	34.79	4.7	
	good	142	33.14	5.0	
Post Hoc significant (average and good)					
Class	*2nd*	200	34.78	4.6	0.006*
	3rd	50	34.10	4.9	

	4th	200	34.49	4.9	
	5th	50	32.12	4.8	
Post Hoc significant (5th and 2nd, 5th and 4th)					
College	medicine	100	33.11	5.0	0.035∗
	laboratory	100	34.32	4.7	
	sport	100	35.05	4.8	
	engineer	100	34.20	5.0	
	psychology	100	34.96	4.4	
Post Hoc significant (medicine and sport, medicine and psychology)					
Living with	yes	437	34.23	4.9	0.16
	no	63	35.02	4.0	
Place	urban	426	34.22	4.9	0.2
	rural	74	34.96	4.5	
Kerbela	inside	430	34.27	4.8	0.5
	outside	70	34.69	4.8	
Accommodation	own	461	34.29	4.9	0.4
	rented	39	34.79	3.5	
Age	<25	483	34.26	4.8	0.07
	=>25	17	36.35	4.4	
No. of persons	1-3	24	36.00	3.8	0.06
	4-10	446	34.15	4.9	
	>10	30	35.60	4.3	

There is a significant association between stress levels and college, (with 24.1%) having high-stress levels in candidates of engineering college and (20.7%) having
high-stress levels in candidates of laboratory diagnosis college while (42.9%) of candidates have no stress in medical college.

There is no significant association between stress level and other variables in the current study, as in table 3.

Table 3: Association between variables and stress

variables		Stress			P-value
		Low	*Moderate*	*High*	
Gender	*Male*	3 (42.9%)	49 (28.8%)	109 (33.7%)	0.45
	Female	4 (57.1%)	121 (71.2%)	214 (66.3%)	
M. state	*Married*	0 (0.0%)	26 (15.3%)	49 (15.2%)	0.53
	Unmarried	7 (100.0%)	144 (84.7%)	274 (84.8%)	
Monthly income	*poor*	1 (14.3%)	10 (5.9%)	21 (6.5%)	0.5
	average	3 (42.9%)	106 (62.4%)	217 (67.2%)	
	good	3 (42.9%)	54 (31.8%)	85 (26.3%)	
Class Level	*2nd*	1 (14.3%)	65 (38.2%)	134 (41.5%)	0.25
	3rd	1 (14.3%)	12 (7.1%)	37 (11.5%)	
	4th	3 (42.9%)	73 (42.9%)	124 (38.4%)	
	5th	2 (28.6%)	20 (11.8%)	28 (8.7%)	
College	*Medicine*	3 (42.9%)	32 (18.8%)	65 (20.1%)	0.005∗
	Applied medical scie	3 (42.9%)	30 (17.6%)	67 (20.7%)	
	Sport	1 (14.3%)	46 (27.1%)	53 (16.4%)	

	Engineer	0 (0.0%)	22 (12.9%)	78 (24.1%)	
	Psychology	0 (0.0%)	40 (23.5%)	60 (18.6%)	
Live with parents	*Yes*	6 (85.7%)	143 (84.1%)	288 (89.2%)	0.27
	No	1 (14.3%)	27 (15.9%)	35 (10.8%)	
Place of living	*Urban*	7 (100.0%)	137 (80.6%)	282 (87.3%)	0.07
	Rural	0 (0.0%)	33 (19.4%)	41 (12.7%)	
Province living	*Inside*	5 (71.4%)	148 (87.1%)	277 (85.8%)	0.49
	Outside	2 (28.6%)	22 (12.9%)	46 (14.2%)	
Age group	*<25*	7 (100.0%)	162 (95.3%)	314 (97.2%)	0.47
	≥25	0 (0.0%)	8 (4.7%)	9 (2.8%)	
Live with you	*1-3*	0 (0.0%)	13 (7.6%)	11 (3.4%)	0.2
	4-10	7 (100.0%)	149 (87.6%)	290 (89.8%)	
	>10	0 (0.0%)	8 (4.7%)	22 (6.8%)	
Accommodation	*Own*	6 (85.7%)	157 (92.4%)	298 (92.3%)	0.81
	Rented	1 (14.3%	13 (7.6%)	25 (7.7%)	

There is a significant difference between the mean of electronic problems according to stress classification. The post Hoc test revealed that a high mean of electronic problems lead to high-stress level and a low mean of electronic problems lead to low-stress level. As shown in table 4 and fig 2.

Table 4: the difference between the mean of electronic problems according to stress classification

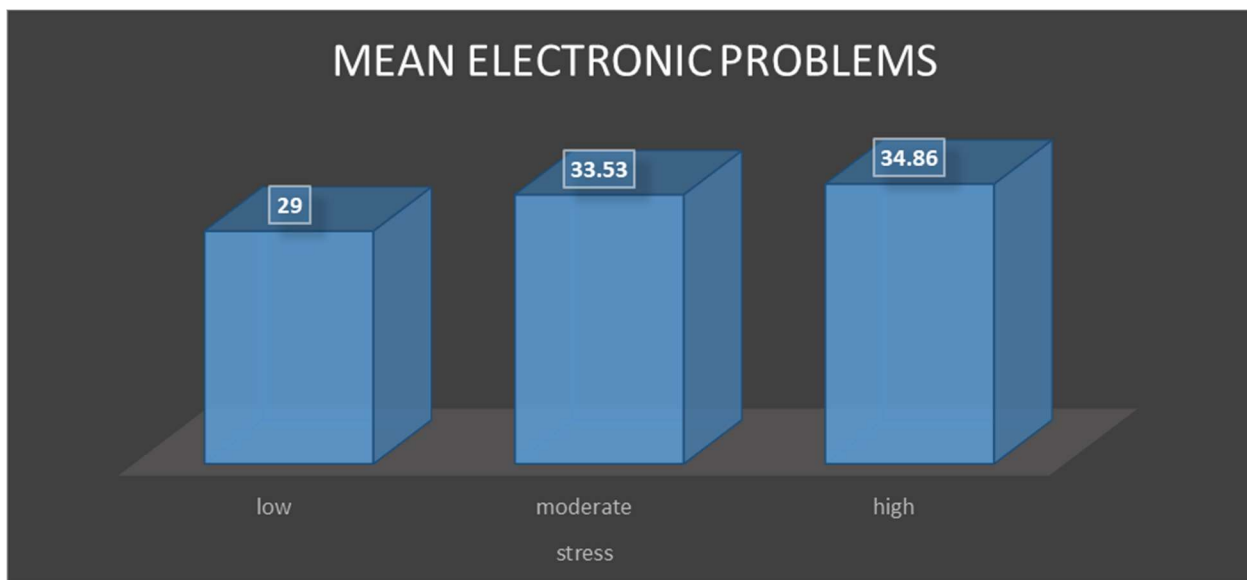| Variables		Electronic		P-value
		N	Mean ± SD	
Stress	*Low*	7	29±4.6	0.0001*
	Moderate	170	33.53±4.9	
	High	323	34.86±4.6	

Fig 2: the difference between the mean of electronic problems according to stress classification

DISCUSSION

The current study is an exploration of stress Levels among undergraduate students and to find the significance between the stress with their variables during university closures after the rapid spread of the COVID-19 pandemic in Kerbala, Iraq. In this study, 500 students, mean age (of 22 ± 2) years old, the female's number about (n=339, 67.8%), and the male about (n= 161, 32.2%), this is similar to the study show that the main gender is female and mean age of (22.8 ± 1.9) years old in Ethiopia [19], the female student more than the male student, because the number of females students in Kerbala are more than males students [20].

In the current study, most of the students are unmarried 85%, According to Iraqi cultural norms, students prefer to get married after graduating. most of them are an average monthly income of 65%. they live with their parents about (87.4%) due to the majority living in Kerbala governorate and being single. the number of students in the urban appeared more than in the rural about (85.2%) because of the accessibility of facilities, services, and job opportunities, the population is more densely distributed in cities than in rural areas. All these results are similar to other study show

similar study in Ethiopia, India, and Saudi Arabia [19],[21], [22].

In the current study, the distribution of levels of stress moderate to high levels of stress candidates about (34%) and (64.6%) respectively. This is also similar to the study on the prevalence of high perceived stress in Turkey, Bangladesh, Saudi Arabia, Palestine, and India [13],[23],[24],[25], and [26]. These results don't agree with china, and Cyprus [27][28]. The explanation for these results that lead to high perceived stress among students could be due to many reasons that include frequent internet interruption during the exam, distractions during online learning at home, (problems of network accessibility, connectivity, lack of synchrony between audio and video, and audio disturbance), the difficulty in using smart devices, there is no interaction with teachers during e-learning may be (due to the distance and lack of attention) and finally reasons due to the spread of the

Corona pandemic (hearing about the news of deaths and fear of being infected by his or any member of his family with corona).

In this current study, there is a significant difference in electronic problems during online learning, married candidates have more problems than unmarried, and the mean of learning problems observed for married students (35.21±4.1) was higher as compared to unmarried students (34.17±4.9), these results are similar to another study in Oman [29]. In contrast with this result in Nigeria [30], This finding explains this is because married people are busy with home and children matters and do not have enough time to use smart devices.

Among the salary categories, there were statistically significant differences between the electronic problem and income (p<0.005) the low salary is a more problem than the average and good salary, and the mean of the electronic problem (34.84 ± 4.2 for the poor, 34.79 ± 4.7 for average, 33.14 ± 5 for good income).

This result agrees with the result of another study in Denmark [31] and disagrees with this result in Turkey [32]. The explanation for this result could be due to the note that during the COVID-19 lockdown, low-income families had limited access to essentials, Due to the lockout and losing a job, the majority of families lose their daily income, making it difficult for them to provide their family with the needs such as lack 0f electricity, poor internet and their inability to buy advanced smart devices .

This current study also revealed that students' problems with e-learning were significant differences between academic stages, 2nd stage had more problems than 5th and also 4th stage was more problematic than the 5th, these results matched with other studies in Turkey [33]. Contrariwise this study was in Poland [34]. these results explain, That the initial stage has more problems with electronic learning because of a lack of prior experience, and practical and technical difficulties accessing materials online, additionally they participated in sports, which made them less anxious than the other colleges.

Our findings regarding the electronic problems with colleges showed that there was a significant difference between them, the college of physical education and Sport Science has more problems than the college of Medicine also the college of education for human sciences is more problematic than the college of medicine, these findings consistent with findings of other studies in northeast

China[35]. These differences between colleges may be due to their difference in knowledge and experiences, multifactor analysis found that the ability to learn cooperatively and the process of learning from others, whether it is high or low, can help the learning process for promoting.

This current study shows no significant difference between the mean of problems in the use of the electronic device with other variables, such as age, gender, place of living, family number, accommodation type, and living with parents.

In this current study, there is a significant association between college and perceived stress, this finding agrees with East China [17].

from the home environment, so the difference in students' anxiety between colleges was clarified by the high level of stress, where the College of Engineering department of civil showed the highest perceived stress among colleges about (24.1%), similar to this study in Oman [29]. Because lack of interaction between learner and student, thus the solution steps are not sequenced while solving mathematical problems, as in the traditional system. followed by the College of applied medical science department of analytic showed (20.7%) stress due to low acceptance of laboratory and clinical classes in form of e-learning, followed by the College of Medicine showed (20.1%) stress due to the lack of contact with real patients may result in an insufficient gain of practical skills, an inability to communicate with patients, more misunderstandings, and inappropriate treatment, similar to this study Poland [36] and contrast this study china [17], then the College of Human Sciences, Department of Psychology appeared the less stress about (18.6%), due to its main reliance on theoretical lectures. Finally, the College of physical education and sport sciences appeared (16.4%) because the students depend mainly on the practical application of exercise and physical activities.

In this current study, There is no significant association between stress level with other variables such as age, gender, and other demographic variables.

The current study stated there is a significant difference between the mean of the electronic problem according to stress classification, The high mean of electronic problems lead to high-stress level and the low mean of electronic problems lead to low-stress level. (29±4.6 for low,33.53±4.9 for moderate, 34.86±4.6 for high) . two third of electronic problems have moderate to high levels of stress (33.53), (and 34.86) respectively. that most students have moderate to high-stress levels of e-learning, these are also compatible with B. Lazarevica and D. Bentz who stated that most students have higher stress levels of e-learning than students who have conventional campus-based learning, this finding is consistent with other studies in the USA, New Zealand, Jordan and Greece [37],[38],[39],[40].

contrariwise this current study show about (13%) mild to moderate levels of e-learning stress in Egyptians [41], This variation could be explained by variations in the geographic location, the timing of the experiment, and the technologies that are present.

 Conclusion:

1-   More than half of our students had a. high-level 0f perceived stress and more than one-fourth had a. moderate level 0f perceived stress during the outbreak of COVID -19 undergraduate students at Kerbala Universities

2-   There is a significant association between stress level and college, with a high-stress level in candidates of engineering college, laboratory diagnosis college, medical college, sports college, and last college of education psychology respectively.

3-   There is a. significant difference between the mean of electronic problems according to stress classification. The high mean of electronic problems lead to high-stress level and the low mean of electronic problems lead to low-stress level.

Recommendations:

1.   The results of this study will encourage educators, learners; university administration, students, and parents better understand how the present online learning environment is affecting students' education today.

2.   To expand the study's scope, professionals will be able to gather more detailed information.

3.   The need for conducting educational courses and training for the students and their families to teach more critical stress-reduction techniques as well as precautions against acquiring a virus.

Acknowledgments

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