

A Study on E-learning in Relation to Mental Health among College Students in the Pandemic Situation

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ABSTRACT

Background: Due to the COVID-19 breakdown, all the educational institutions are switching their teaching mode from traditional learning methods to e-learning. In this situation, e-learning is the best option for students to continue their education. This unexpected change in learning will affect their physical and psychological state. **Aim:** The present study aims to study the relationship between mental health and quality of sleep on e-learning among college students. **Methodology:** Data were collected through online survey (google form) from 111 college students, both Undergraduate and Postgraduate students from various disciplines in colleges as well as University. Brief symptom inventory-18 (BSI-18) measures somatic distress, anxiety, and depression among college students. Quality of sleep questions are given in the demographic factors. The statistical method for this study is Pearson's product-moment correlation to find out the relationship among variables. It is hypothesized that there is a significant relationship between mental health and quality of sleep on e-learning among college students. Also, there is a significant difference in demographic variables on mental health, quality of sleep, and e-learning. **Result:** The study indicates that there is no relationship between somatization and anxiety dimensions of psychological distress and e-learning among college students. And, there is a negative relation between depression and e-learning among college students.

Keywords: *E-Learning, Mental Health, Quality of Sleep, College Students*

The worldwide pandemic of coronavirus disease 2019 (COVID -19) is caused by a virus called severe acute respiratory syndrome coronavirus 2 (SARS – Cov 2). The first case of infection was reported in the country of China on 29th December 2019. In India, the first case was discovered on 30th January 2020 in the state of Kerala. Soon the numbers multiplied across the globe, and on 11 March 2020, the World Health Organization declared the outbreak a Public Health Emergency of International Concern and a pandemic. The health crisis across the world soon converted into a socioeconomic crisis, affecting

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diverse parts of the industries and livelihood of people, as the whole world came to a standstill with people cooped up inside their homes and frontline healthcare workers struggling to offer aid to the sick. Among all the sectors of life that were impacted, the education system in India was no exception. As India grappled to control multiple waves of the pandemic across a period of more than a year, students graduating, writing their high school public examinations were postponed on an indefinite basis, while all educational systems wrestled with the idea of finding an alternate platform for education. Schools, colleges, and Universities were forced to switch their teaching platforms to online using software and tools such as Google Meet, Zoom, Microsoft Teams, and students required access to electronic devices like laptops, smartphones, and tablets. This sudden change of teaching method was found difficult to accept because of social isolation, loneliness, and social distance. Traditionally in a classroom setup, we follow an education system that affords direct interactions with their teachers/mentors, whereas in the e-learning mode of education, the advantages are replaced in terms of convenience, flexibility, and recording of the sessions and replay whenever necessary, where physical space is not an issue. While e-learning offers students and teachers the benefit of flexible timing, most of the students were observed not to enjoy it when compared to face-to-face learning (conventional teaching method) for reasons such as poor internet connection [1]. Adding to the woes of e-learning, increased usage of digital tools has been found to affect day-to-day life routines, and studies report that it interferes with sleep cycles due to continuous exposure to radiation from electronic devices. Moreover, academic distractions have been found to increase in e-learning. Students are affected by psychological factors such as stress, anxiety, stress, frustration, and tension. Mental health is often closely related to a student's academic performance and success [2]. At the beginning of the country-wide lockdown to control the spread of the disease, many people exhibited symptoms of mental distress and emotional problem, and several cases of child abuse and domestic violence were filed during this period (India Today 31st March 2021). Mental illness is not widely discussed because of the stigma associated with it, but mental health programs, helplines, yoga, spirituality, physical exercises, counselling are available to overcome the problems [3]. A huge number of studies have been taken up in many countries to assess the impact of e-learning on the lives of students using varying parameters such as mental health, academic performance, and demographic factors. Several studies report that more than 90% of the students are negatively affected in their psychological well-being by e-learning because of the absence of physical activity, social interaction, most hours engaged in academic activities, boredom, difficulties in interacting with their mentors, cancellation or postponement of exams and online exams, have also created substantial stress and anxiety among college students [4,5,6]. It was also identified that developed countries easily switched their education system to online while, developing countries struggled due to these disadvantages such as insufficient internet connectivity, access to appropriately configured electronic devices, hardware, and software update. It takes investment of time and money to help the students and teachers learned the intricacies of the online learning mode [7]. science- and medical-based students from an Italian university, was found to adapt easily to the e-learning process than engineering and arts-based students [8]. More than one-third of students in Bangladesh and Malaysia, especially those from lower-income families were observed to be highly affected by depression, anxiety and stress, and one of the main causative factors seemed to be economic uncertainty due to loss of jobs, unavailability of part-time jobs, decrease in scholarships, and loans [9]. Meanwhile, teaching faculty also faced varying levels of problems from explaining the instructions clearly and their unfamiliarity to the new online system of teaching [11, 23, 27]. Sleep patterns of college students were also found to have changed, with a reported

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increase in daytime nap, along with late-night bed and late wake up in the morning. Post- and undergraduate students felt excessive sleepiness and physical pain because of less activity and wrong sitting posture during work or class times. Online classes, searching the news about the outbreak, and games also contributed to increase the screen time of mobile phones than a laptop [17]. E-learning does contribute to the improvement of the quality of education and saves time but it needs to be used along with the conventional educational settings, such as videos, pictures, and images, especially for medical education [18]. Self-efficacy and motivational strategies might provide help to enhance online learning [20]. In this current study, we determine the impact of e-learning on mental health and the quality of sleep among students enrolled in a few colleges in the state of Tamil Nadu, India.

METHODS

Participants

Cross-sectional survey with snowball sampling technique was used in this study. The self-reported e-questionnaire was formulated using the online survey tool, Google forms, and distributed to various colleges and universities via mail and other online social networking platforms such as WhatsApp from July - August 2021 (N=111). Participation in the study was voluntary, and the consent of the participant was gathered at the beginning of the survey. Demographic factors such as the participant's age, sex, degree, department, were collected. And quality of sleep measured along with the demographic factors. The participants of the study include 43 males and 57 females, and their mean age range from 17-26 years.

Materials

E-Learning: To assess the quality and accessibility of e-learning among students, An E-learning questionnaire was developed by the researcher and a pilot study was administered with the questionnaire with 37 college students. The Cronbach's alpha reliability of the instrument was 0.815. The responses were collected on a 5-point Likert scale. Factors such as effectiveness of e-learning and in terms of interaction were measured.

Mental Health: Mental health was measured using the modified version of Brief symptom inventory-18 (BSI-18), which provides questions to determine levels of somatic distress, anxiety, and depression on a 5-point scale. Score range from 0 to 4. High scores refer to high levels of anxiety, depression, somatic distress. Cronbach's alpha for the overall scale was 0.94. (0.89, 0.89, 0.84 – depression, anxiety, somatic distress, respectively). (28,29).

Data analysis

Statistical Package for Social Sciences, SPSS- 22.0 (IBM) used for statistical analysis. Mean, Standard Deviation, and Pearson's product-moment correlation used to determine the significant relationships among factors.

Objectives

To study the influence of psychological distress on e-learning among college students.

To study the influence of quality of sleep on e-learning among college students.

Hypothesis

H1: There would be a significant relationship between somatization dimension of psychological distress and e-learning.

H2: There would be a significant relationship between depression dimension of psychological distress and e-learning.

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H3: There would be a significant relationship between anxiety dimension of psychological distress and e-learning.

H4: There would be a significant relationship between psychological distress and e-learning.

H5: There would be a significant relationship between quality of sleep and e-learning

H6: There would be a significant relationship between quality of sleep and psychological distress.

RESULTS

Table– 1 Shows the Relationship between Somatization dimension of psychological distress and E-learning among college students.

Variables	N	Mean	SD	r
Somatization	111	4.47	4.66	
E-learning	111	21.85	6.69	0.039
				NS

NS- Not significant

Based on the correlations, from table 1, it is indicating, there is no significant relationship between the somatization dimension of psychological distress and e-learning among college students ($r = 0.039$, $p > 0.05$, $M = 4.5, 21.9$, $SD = 4.7, 6.7$) at the 0.05 level of significance (2 - tailed). From the result, it is found that the somatization dimension of psychological distress does not influence e-learning. Hence, the hypothesis stated that the somatization dimension of psychological distress is related to e-learning is not accepted(H1).

Table – 2 Relationship between Depression dimension of psychological distress and e-learning among college students.

Variables	N	Mean	SD	r
Depression	111	7.23	5.77	
E-learning	111	21.85	6.69	-0.219*

*Correlation is significant at 0.05 level (2-tailed test)

Table 2 indicates that there is a significant negative relationship between the depression dimension of psychological distress and e-learning among college students ($r = -0.219$, $p < 0.05$, $M = 7.23, 21.9$, $SD = 5.8, 6.7$) at the 0.05 level of significance (2 - tailed). From the result, it is found that the depression dimension of psychological distress is related to e-learning and it shows that e-learning process is decrease when depression is high. E-learning is high when depression level is low. Hence, the hypothesis stated that the depression dimension of psychological distress is related to e-learning is accepted(H2).

Table – 3 Relationship between anxiety dimension of psychological distress and e-learning among college students.

Variables	N	Mean	SD	r
Anxiety	111	6.51	5.77	
E-learning	111	21.85	6.69	-0.122
				NS

NS – Not significant

Table 3 indicates that, there is a no significant relationship between the anxiety dimension of psychological distress and e-learning ($r = -0.122$, $p > 0.05$, $M = 6.5, 21.9$, $SD = 5.8, 6.7$) at the

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0.05 level of significance (2 - tailed). From the result, it is found that the anxiety dimension of psychological distress does not influence e-learning. Hence, the hypothesis stated that the anxiety dimension of psychological distress is related to e-learning is not accepted(H3).

Table– 4 Relationship between Psychological distress and e-learning among college students.

Variables	N	Mean	SD	R
Psychological distress	111	18.20	14.83	
E-learning	111	21.85	6.69	-0.100
				NS

NS – Not significant

Table 4 shows that, there is no significant relationship between psychological distress and e-learning learning ($r = -0.100$, $p > 0.05$, $M = 18.2$, 21.9 $SD = 14.8, 6.7$) at the 0.05 level of significance (2 - tailed). From the result, it is found that psychological distress does not influence e-learning. Hence, the hypothesis stated that psychological distress is related to e-learning is not accepted. (H4).

Table – 5 Relationship between Quality of sleep and e-learning among college students.

Variables	N	Mean	SD	R
Quality of sleep	111	2.04	0.73	
E-learning	111	21.85	6.69	0.134
				NS

NS – Not significant

Table 5 indicates that there is no significant relation between Quality of sleep and e-learning learning ($r = 0.134$, $p > 0.05$, $M = 2.04$, 21.9 $SD = 0.73, 6.7$) at the 0.05 level of significance (2 - tailed). From the result, it is found that quality of sleep does not influence e-learning. Hence, the hypothesis stated that quality of sleep is related to e-learning is not accepted(H5).

Table – 6 Relationship between Quality of sleep and psychological distress among college students.

Variables	N	Mean	SD	R
Quality of sleep	111	2.04	0.73	
Psychological distress	111	18.20	14.83	-0.342**

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

Table 6 indicates that there is a significant negative relation between Quality of sleep and psychological distress ($r = -0.342$, $p < 0.05$, $M = 2.04$, 18.20 $SD = 0.73, 14.83$) at the 0.05 level of significance (2 - tailed). From the result, it is found that quality of sleep is negatively related to psychological distress. Quality of sleep influence the psychological distress. If quality of sleep increase automatically psychological distress will reduce. If Psychological stress is increased quality of sleep will decrease. Hence, the hypothesis stated that quality of sleep is related to psychological distress is accepted(H6).

DISCUSSION

Mental health plays a vital role in our life, and mental health issues definitely reflect on our daily routines. After the COVID-19 pandemic, there have been a lot of changes in our lives especially in the case of students as their way of learning has completely changed from the traditional method to e-learning. This sudden change may either enhance their skill or put the students under a lot of psychological pressure. So, the current study focused on the effect of mental health and quality of sleep on e-learning among college students. Mental health is measured by using the psychological distress scale in this study. Result findings of the study indicate there is no relationship between somatization and anxiety dimensions of psychological distress and e-learning among college students. Whereas the depression dimension of psychological distress is negatively related to e-learning. It influences the learning process. Even though 74.8% of students were informed of the negative reply for online mode of teaching in future. 68.5% of students were informed that the online mode of learning makes the stress and pressure, and 67.6% of students did not enjoy this learning method. But Overall results indicate that there is no significant relationship between psychological distress and e-learning. Sleep also plays a vital role in mental health and overall health. The results indicate there is no significant relationship between quality of sleep and e-learning. So, e-learning is not influenced by the quality of sleep. Whereas the quality of sleep is negatively related to psychological distress it shows that there is a relation but the relationship and influence a mental health. Demographic factors do not have any effect on the variables. Further study with more factors recommended.

CONCLUSION

In contrary to the hypothesis formulated, results indicate that mental health and quality of sleep have no significant impact on e-learning. And, there is a significant negative relation between depression dimension of psychological distress and e-learning. Also, there is a significant negative relationship between quality of sleep and psychological distress. So, it is concluded that e-learning is negatively influenced by depression and sleep quality.

Limitations

1. The sample size was small
2. The study was restricted to very few colleges
3. Need to explore more factors.

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Conflict of Interest

Authors declared there is no conflict of interests.

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