Perceptions and Challenges of Medical Students Towards E-Learning in Medical Education

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ABSTRACT

Objective: To assess the Perceptions and Challenges of medical students towards E-Learning in medical education.

Method: It was a descriptive cross-sectional survey that was conducted among the medical students of Bahria University Health Sciences from Jun 2022 – Sep 2022, after securing ethical approval. Google forms were used to get responses from the participants and the data was stored and analyzed using SPSS version 23.

Results: Our study showed that during lockdown, academic performance suffered when learning was done online. Univariate and multivariate study shows a connection between screen time and feeling restless, exercising less, and having lower academic achievement, although online instruction fosters a sense of connection with others.

Conclusion: More faculty and students' developmental programs should be introduced to make using gadgets and online devices and applications easier. Universities and educational institutions should develop roadmaps to deal with similar situations in future.

Keywords: Medical Education, E-learning, Perception, Screen Time.

INTRODUCTION:

From December 2019, the COVID-19 epidemic has significantly altered every person's life. On March 11, 2020, the World Health Organization (WHO) classified the New Corona Virus Disease (COVID-19) outbreak to be a pandemic, which caused dread and terror all across the world. While no sector remained untouched, the global educational system saw well over a billion children barred from traditional classroom settings [1]. This resulted in an abrupt change in the way that medical education was delivered, moving away from a focus on in-person lectures, tutorials, skill building, and clinical encounters and towards a range of online learning modes. E-learning, which is defined as the transmission of learning experiences over the internet, has been examined as a useful teaching method for the medical field for more than 20 years [2, 3]. E-learning technology's proponents have talked about how it provides students control over the course's content, pace, and flexibility to customize it to their interests [4]. The development of self-directed, lifelong learners, which is essential for medical professionals, has been considered to depend on this [5]. Others claim that familiarity and comfort with this form of learning will also help future practitioners feel more at ease with electronic health records and will better prepare them for providing medical treatment through telehealth [4]. A well-thought-out, integrated e-learning program, however, needs time and preparation [6]. Due to the sudden beginning of the Covid emergency, the majority of schools only uploaded a collection of teaching materials to an online platform [7, 8]. Studying the situation and effects of online instruction on the learning of medical students is important for this reason. Concerns about the availability of technology resources, privacy concerns, competent skilled manpower, and technical challenges arose as a result of this significant shift from traditional classrooms to virtual ones [8]. In the past, excessive use of electronics and electronic devices have been linked to higher levels of stress and burnout [9]. Stress is described as an emotional, bodily, or mental reaction that causes tension [2]. The lockdown-related rise in screen time turns out to be a significant cause of stress and exhaustion for most individuals. Researchers from all around the world are now interested in the link between burnout and stress and increased screen usage [7].

The objectives of this study were to examine the effectiveness of various e-learning modalities as well as the possibilities and limitations that medical students saw in their personal and professional lives during the COVID-19 Pandemic. Institutions did not have time during the epidemic to

establish professors, plan strategies, or spend money on infrastructure. Insights from this study will be used to improve medical education in Pakistan and crisis management in the future. This is critical in light of the relative resource shortages in low-income and middle-income nations, including Pakistan.

MATERIAL AND METHODS:

It was a descriptive cross-sectional study design, this epidemiological investigation was carried out among the MBBS and BDS students studying at Bahria University Health Sciences Campus, Karachi for the duration of four months (June 2022 to September 2022). Using the OpenEpi online calculator, the sample size of 210 was determined in accordance with the prior literature [(2)]. The Bahria University Health Sciences' Ethical Review Committee provided its ethical approval. Students enrolling in the third and fourth years of MBBS and the third year of BDS at Bahria University of Health Sciences were given structured questionnaires created using Google Forms after receiving informed permission from the participants and using inclusion and exclusion criteria. A total of 210 students who participated in online learning activities for at least one year (3rd-year MBBS, 4th-year MBBS, and 3rd-year BDS) using online learning applications (Microsoft Teams, WhatsApp, Skype, and FaceTime) were included in the study; students who did not engage in online learning activities, did so for less than one year, or who refused to participate were not included.

Data was stored and processed using IBM-SPSS version 23.0. The baseline characteristics of the study samples, such as class, specialty, length of online class, frequency of electronic devices used to participate in online classes, period of screen time, and variables that could influence both mental and physical well-being because of prolonged screen time during online teaching, were reported as counts and percentages. The association was investigated using the Pearson Chi-Square test. A binary logistic regression model was used to calculate the risk of risk variables linked to excessive usage of screens during online education. Univariate and multivariate analyses were performed on class, specialty, and covariates that showed a significant connection in the Pearson chi-square test with a p-value less than 0.05. The odds ratio and 95% confidence interval were also presented. P-values less than 0.05 were used to determine statistical significance.

RESULTS:

Our study involves two hundred and ten medial students with one hundred fifty and fifty students from MBBS and BDS respectively. The majority of participants in our study attend online classes for the duration of 6 months (36.7%) and most of the students in our survey sit for 2 – hours in front of the screen as shown in table 1.

Table 1: Baseline Characteristics of Studied samples (n=210)

Characteristics		n	%
Class	***3rd year***	97	46.2
	4th year	113	53.8
Specialty	***MBBS***	160	76.2
	BDS	50	23.8
For how long you attended online classes?	***6 Months***	77	36.7
	1 Year	64	30.5
	1.5 years	53	25.2
	Other	16	7.6
Which electronic device did you frequently use to attend online classes?	***Mobile phone***	129	61.4
	Tablet	5	2.4
	Laptop	73	34.8
	Desktop	3	1.4
	Other	0	0.0
Did you use a proper computer table, chair to attend online classes?	***Yes***	41	19.5
	No	169	80.5
For how long you usually sit in front of the screen at one stretch of time?	***20 minutes***	23	11.0
	30 minutes	14	6.7
	1 hour	75	35.7
	2 hours	98	46.7

As it is presented in Chart 1, The majority of the students used mobile phones (61.4%) followed by laptops, tablets, and desktop for E – learning. When we ask students about their academic performance most of the students agreed that their academic performance declines Via E – learning in times of COVID – 19 as shown in Chart 2 and Chart 3 shows the effect of screen time on physical and mental well-being of the participants.

Chart 1:

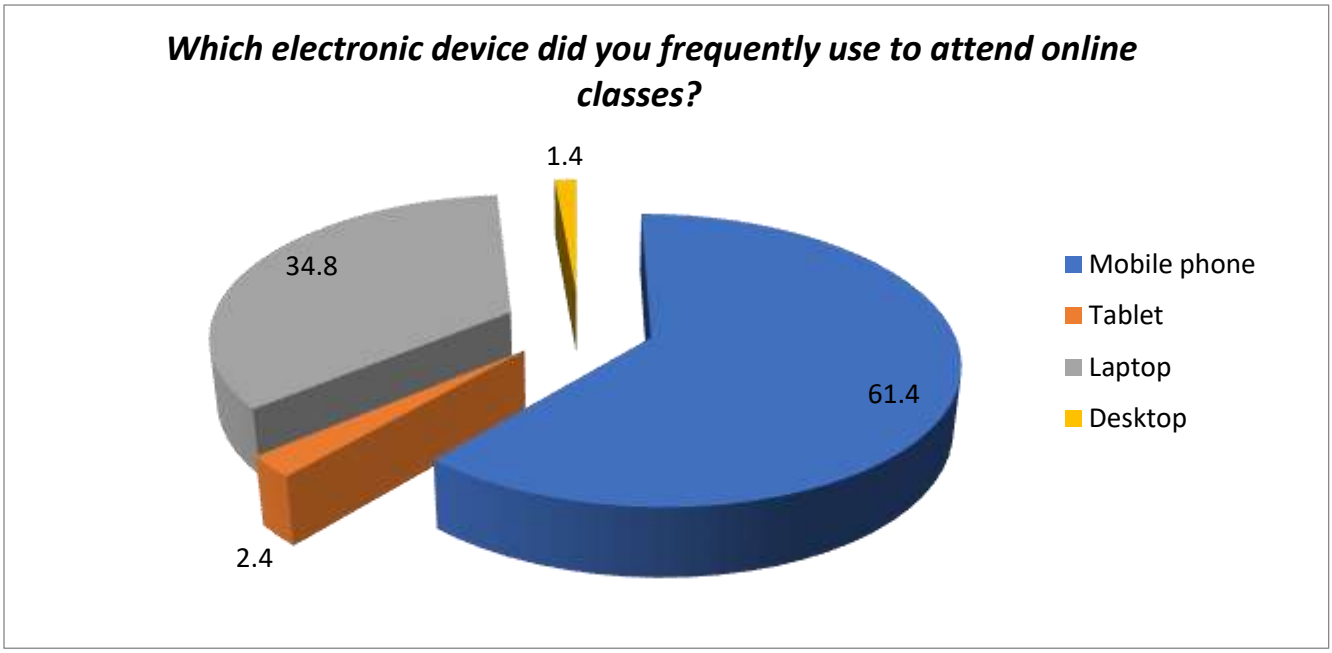


Chart 2:

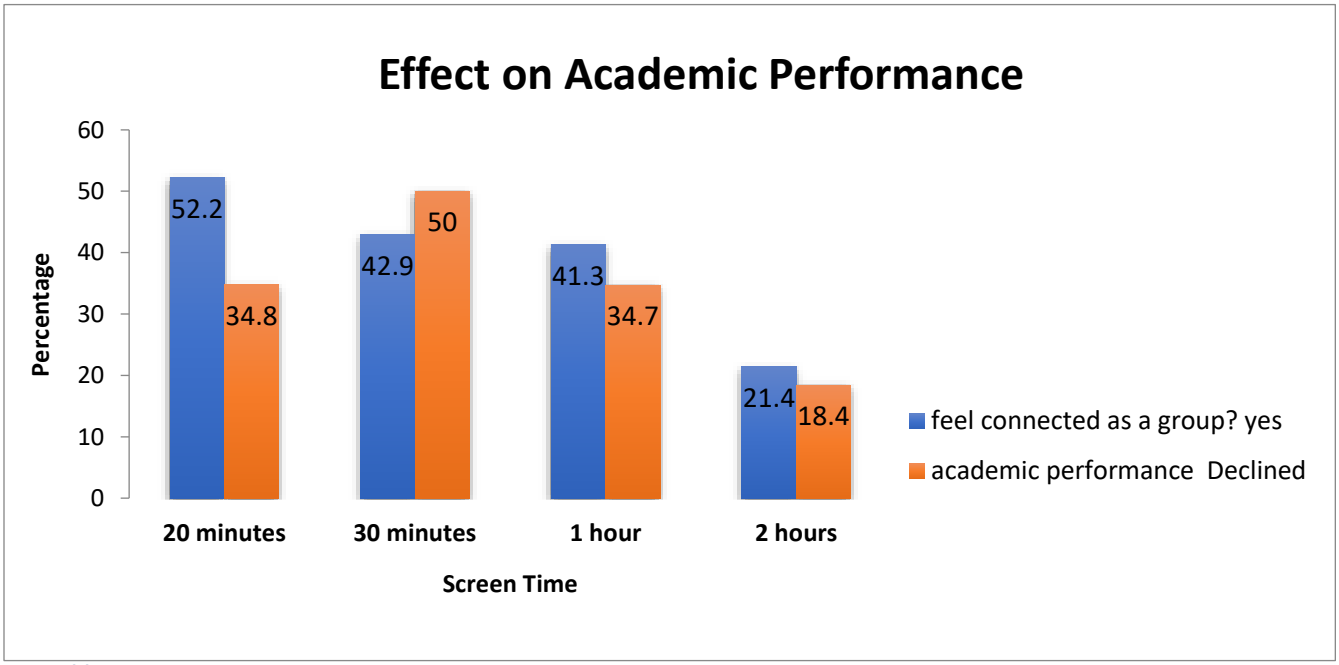
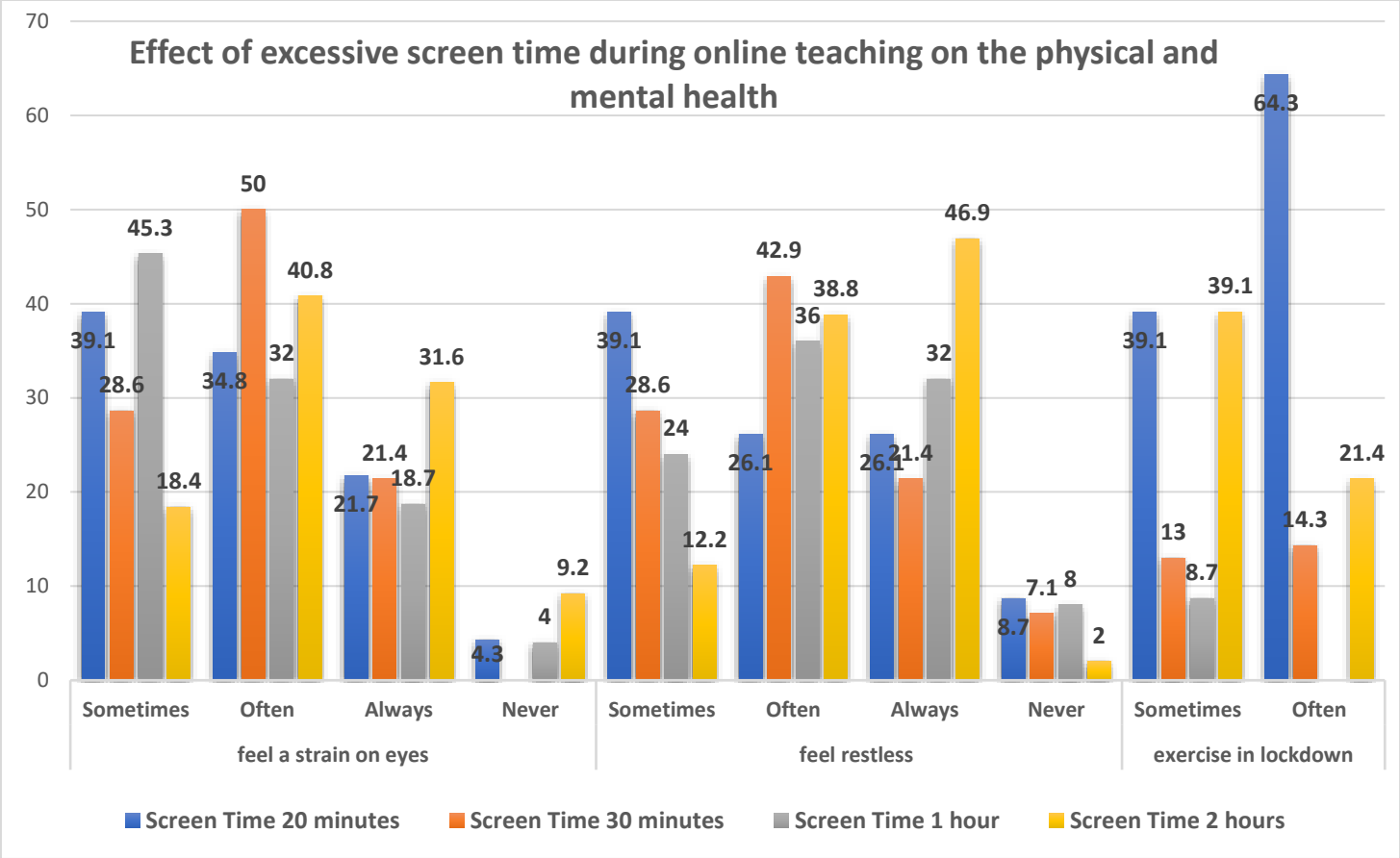


Chart 3:



DISCUSSION:

Our findings indicate a strong association between increasing class length and symptoms of visual fatigue and restlessness. Even before the epidemic, there have been reports in the literature about the physical difficulties of online learning [10]. Yet, the lock-additional down's effects of decreased physical activity and increasing non-academic screen time had a negative impact on the students' physical health.

In our survey, a statistically significant proportion of the students admitted that they did not workout throughout the epidemic. The kids' lack of physical exercise and isolation turned out to be the main causes of restlessness [7, 11]. Both teachers and students find it difficult to adapt to new teaching approaches [12]. Yet the unexpected outbreak presented never-before-seen difficulties. There wasn't enough time to arrange the infrastructure, acquaint the stakeholders, or prepare for it. This increased the tension and worry that the students felt while taking classes online. Due to

concerns about their wellbeing, social isolation, financial difficulties, and the general atmosphere of uncertainty, students' mental health generally declined throughout the lockdown [2,7].

Yet, a key result from our study was how many students saw online classrooms as a useful tool for creating a sense of community. An essential element of the theory of self-determination (SDT) is relatedness [13]. Academic success may be attained, in accordance with the SDT theory, after inherent demands for autonomy, competence, and relatedness are satisfied. Maintaining relatedness was anticipated to be the most difficult task when there was no longer physical contact [13, 14]. Nonetheless, our findings demonstrate that connectivity was effectively maintained owing to teacher readiness and student engagement.

Universities must develop a strategy for dealing with COVID-19 outbreak-related challenges in the future so as to place the least amount of strain on students' physical and mental wellbeing. This strategy must take into account the current difficulties in managing teaching and evaluation during the outbreak [15, 16].

With the help of our study, we have attempted to pinpoint the causes of the higher physical and mental strain that online instruction causes in medical and dentistry students. The adoption of the flipped classroom in medical education as well as the enhancement of teaching and learning methods will be made possible with the aid of this study. In general, it is advised that students be given electronic devices to access the internet, that internet speed be improved, that lower priced or perhaps even free internet packages be provided, that professional training be provided for lecturers, and that communication between students and teachers be improved in order to improve online learning. The economy, work position, living circumstances, commodities and/or resources, and other factors should all be taken into account in future study on this issue.

The present study's single-centered design, limited sample size, and brief duration are its limitations.

CONCLUSIONS:

These findings lead to the conclusion that additional faculty development programs are needed in developing nations like Pakistan to prepare faculty for future online modes of instruction for such events. Universities must have backup plans prepared to handle scenarios like this in the future because of the intensifying monsoon season, floods, and dengue outbreak.

Authors Contribution:

SR; conceived, designed, review and manuscript writing, Final Approval of version.

SS; designed and wrote manuscript, data analysis, proof reading & Revisiting Critically.

SI; Data collection, manuscript writing and editing.

SA; Data collection, manuscript writing and editing.

FR; literature search, data collection and analysis.

RS; literature search, data collection & drafting.

Conflict of Interest: Each author declares that he or she has no conflict of interest in connection with the submitted article.

Disclaimer: None.

Source of Funding: None.

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