Knowledge, Attitude and Practice in Electronic Learning Among Students in Medical Faculties – Babylon Province

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Abstract

E-learning is a contemporary and elastic method of education that is being utilized as a substitution to traditional education methods. Despite its widespread usage in Iraq's medical faculty system, the students' utilization of experiences for online learning is unclear.This study aims to explore medical students' knowledge, attitude, and practice (KAP) regarding online learning. It was a cross-sectional online questionnaire was distributed through email as Google forms to assess KAP regarding online teaching and learning among Hammurabi College of Medicine and College of Nursing Students of Babylon university in Iraq. The survey requested socio-demographic information, as well as information related to electronic devices and e-learning knowledge, attitudes and practices.A total of 234 valid questionnaire were retrieved, 60.3% of respondents were female and 39.7% were male. Most respondents 29.5% disagree that e-learning could be implanted in Iraq, also 43.6% of the respondents disagreed that e-learning could be used for clinical aspects, as compared with 8.2% who agreed with this statement and 15.8% who were neutral, while 28.2% from respondents were neutral response on the veracity of certificate attained through e-learning must be acknowledged. Finally, 43.2% were good proficiency in using electronic devices.Medical students demonstrated adequate levels of knowledge and practice related to e-learning, but there are some unfavorable attitudes surrounded e-learning that continuous feedback from students will require to make e-learning efficient. To increase the viability of e-learning for medical students in Iraq, information and communication must be improved. Greater

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student and teacher training, improved e-course design, more engagement, motivation and blended learning are all advised.

Keywords: First E-learning; Attitude; Education; Knowledge; practice.

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1Introduction

The COVID-19 pandemic forced the suspension of traditional academic activities, paving the way for E-learning as an alternative technique over the world (UNESCO, 2020) (Alavudeen, Easwaran and Aseeri, 2021). The WHO has classified Covid-19 as a widespread pandemic of a particular illness. The global population, from the young to the old, is stressed as a result of the crisis. The COVID-19 epidemic has caused havoc in medical education across the world (Yekefalah et al, 2021).

E-learning is a relatively recent notion in education. Online learning is less common in medical education in underdeveloped nations due to a lack of infrastructure, competence and practicality. During the COVID crisis, however, e-learning has appeared as the sole conceivable way of education for school and college students. Medical education is more difficult and demanding, because it includes bedside and soft skills training that cannot be fully exemplified by E-learning(Gupta et al, 2021).

Online learning is a useful solution for medical students to apply the educational process, reducing academic calendar backlogs and minimizing massive learning losses. It has the potential to serve as a stimulant for active learning in medical and health sciences university programs. Because teaching hospitals and clinics have halted practical elements of students' study as a tactic to combat the pandemic in health facilities, theoretical courses may only be taken via remote learning (Neupane, Sharma and Joshi, 2020). Organizing and researching practical medical education is very difficult during pandemics. However, ignoring what is occurring in health professional education during difficult times may damage students' professional growth and future patient nursing (Puljak et al, 2020).

Globally, educational facilities and students have adopted and valued the online learning platforms. Despite its numerous benefits, e-learning has a number of drawbacks, including social isolation, face-to-face connection between instructor and student, communication challenges, and so on (Khan et al, 2020). As a result, the purpose of this study was to offer an assessment of digital medical education knowledge, attitudes, and behaviors.

2Methods

Study Design

Provide An online descriptive, cross-sectional survey has made from April to June, 2022. The survey used a questionnaire that was disseminated online by means of email for two medical college , to Hammurabi College of Medicine and College of Nursing , University of Babylon, Iraq.

which have 934 student for Second , Third , Fourth stage where Second stage 286 , Third stage 225 student and 102 student Fourth stage for Hammurabi College of Medicine , whereas College of Nursing Second stage 127 student , 90 student for Third stage and Fourth stage 77 student.

To guarantee the right choice of the research subjects, a Google Form containing the study questionnaire was disseminated around personalized messages and emails were sent to them. To achieve the maximum potential answer rate, a pleasant reminder was given to potential respondents.

To limit the danger of bias, subjects were unaware of the study's purpose or results. The study only covered medical incoming students at Babylon Medical College. To maintain anonymity, the questionnaire was self-administered without involvement from the researchers or any other particular individual,

and it did not involve any identifiable information about the subjects.

Study Tool

The questionnaire embraced from (Alsoufi et al, 2020) contained subjects' basic personal data, such as gender, age, and marital status, as well as region, college, and degree of medical education. The questionnaire also inquired about their expertise with medical education, included questions on electronic device competency and skill in online learning.

Finally, the study contained numerous questions about e-learning, a teaching style focused on remote learning that employs e-resources. This element of the questionnaire was split into three sections: six items on respondents' awareness of e-learning, twenty items on respondents' opinions toward e-learning, and twelve items on respondents' perspectives on the effectiveness and usefulness of e-learning for medical education.

We supplied the questionnaire in Arabic and English to satisfy respondents' choices, despite the fact that English is the official language of education at Iraqi Medical College. Cronbach's alpha scores of 0.879 and 0.83 for the English and Arabic versions, accordingly, indicated that the "expertise, beliefs, and behaviors" questionnaire had a strong internal reliability.

Ethical consideration

Ethical consent is gained. from the Hammurabi College of Medicine and College of Nursing , University of Babylon, Iraq.

Prior to participation in the research, all subjects submitted written informed permission with no identifying data. The study was carried out in accordance with the Helsinki Declaration, and all individuals supplied full electronic approval before the involvement.

Data Analysis

SPSS version 27 was used for statistical analysis. Frequencies and percentages were used to express different variables.

3 Results

Figure 1and Figure 2 shows distribution of students according to socio-demographic characteristics including (age and gender). Majority of students presented with age of 20 years (N=73, 31.2%) and majority of students were female (N=141, 60.3%).

Table 1 depicts the proportion of students based on the study variables including (marital status, residence, college and academic year). Majority of students were single (N=214, 91.5%), majority of them from Babylon governorate (N=179, 76.5%), more than half of them from Hammurabi College of Medicine (N=135, 57.7%) and majority of them in second academic year (N=105, 44.9%).

Table 2 shows distribution of students according to their opinion regarding Medical Tele-Education including (How would you describe your internet service, What is your degree of experience with various technological gadgets (computers, smart phones, ...etc), your skills using the Google meet platform, your skills using the Google zoom program, your skills using the FCC program.

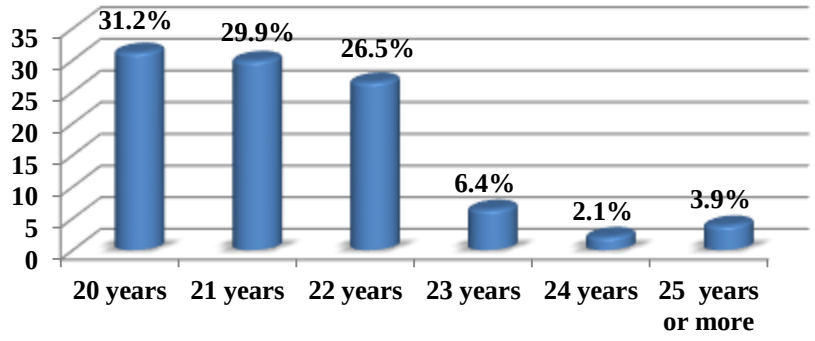

Figure 1: Distribution of Students According to Age (N=234)

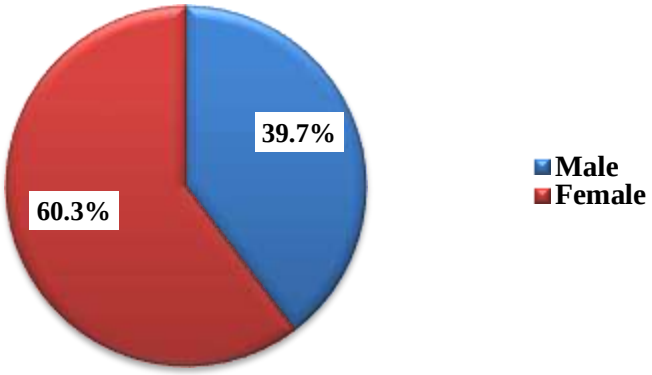

Figure 2: Distribution of Students According to Gender (N=234)

Table 1: The Distribution of Students According to Study Variables (N=234)

Study variables	Number	%
Marital status		
Single	214	91.5%
Married	20	8.5%
Total	234	100.0%
Residence		
Babylon	179	76.5%
Baghdad	20	8.5%
Najaf	3	1.3%
Karbala	13	5.6%
Qadisiyah	11	4.6%
Wasit	3	1.3%
Diyala	2	0.9%
Anbar	0	0.0%
Salahaddin	0	0.0%
Kirkuk	0	0.0%
Mosul	0	0.0%
Maysan	0	0.4%
ALmuthana	1	0.0%
Dhiqar	2	0.9%
Basra	0	0.0%
Total	234	100.0%
College		
Hammurabi College of Medicine	135	57.7%
Faculty of Nursing	99	42.3%
Total	234	100.0%
Academic year		
Second Year	105	44.9%

Third Year	90	38.5%
Fourth Year	39	16.6%
Total	234	100.0%

Table 2: The Distribution of students according to their opinion regarding Medical Tele-Education (N=234)

Questions	Inadequate	Acceptable	Good	Very good	Excellent	Total
How would you describe your internet service?	93 (39.7)	55 (23.5)	73 (31.2)	10 (4.3)	3 (1.3)	234 (100.0)
What is your degree of experience with various technological gadgets (computers, smart phones, ...etc)?	8 (3.4)	49 (20.9)	101 (43.2)	53 (22.6)	23 (9.9)	234 (100.0)
Your skills using the Google meet platform,	12 (5.1)	47 (20.1)	97 (41.5)	56 (23.9)	22 (9.4)	234 (100.0)
Your skills using the Google zoom program	69 (29.5)	68 (29.1)	68 (29.1)	19 (8.1)	10 (4.2)	234 (100.0)
Your skills using the FCC program	102 (43.6)	59 (25.2)	51 (21.8)	17 (7.3)	5 (2.1)	234 (100.0)

Table 3 presents the dissemination of participants' comprehension of E-Learning, which includes 72.6 percent E-learning is based on an extensive digital electronic environment showing education program through digital communications, 80.8 percent E-Learning is an excellent feature that offers a chance for learning and via Data and Communication Technologies, and 81.2 percent E-Learning offers digital multimedia content (written text, audio, video, and graphics).

Table 4 demonstrates the variation of participants based on their attitude toward E-Learning, including In Iraq, 29.5 percent of E-learning is relevant. 36.8 percent E-Learning might be used in place of traditional medical education. 31.2 percent E-learning is simple to implement in Iraq, It is feasible to generate instructional content that addresses the practical aspects of the curriculum and courses you are presently studying, 42.4 percent, 41.9 percent Material for medical education may be obtained over the internet, 32.1 percent Interaction between students and lecturers is feasible using E-learning technology, and the legitimacy of certificates obtained via E-learning must be accepted.

Table 3: The Distribution of Students According to their Knowledge About E-Learning

Knowledge about E-Learning	True	False	I don't know	Total
E-Learning is based on a full digital electronic ecosystem that displays instructional content over digital communications.	170 (72.6)	18 (7.7)	46 (19.7)	234 (100.0)
E-Learning is an integrated system that gives an option for education using Knowledge and Communication Technologies.	189 (80.8)	28 (12.0)	17 (7.2)	234 (100.0)

In the medical profession, e-learning is not deemed less costly than traditional learning.	76 (32.5)	106 (45.3)	52 (22.2)	234 (100.0)
E-learning makes use of electronic media data (written text, audio, video and images).	190 (81.2)	29 (12.4)	15 (6.4)	234 (100.0)
One advantage of E-learning with live material is that the student receives immediate response from the teacher.	105 (44.8)	68 (29.1)	61 (26.1)	234 (100.0)
E-learning is a subset of tele-education.	209 (89.3)	18 (7.7)	7 (3.0)	234 (100.0)

Table 4: The Distribution of Students According to Their Attitude of E-Learning

Attitude about E-learning	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Total**
E-learning is useful in Iraq.	27 (11.5)	69 (29.5)	67 (28.6)	46 (19.7)	25 (10.7)	234 (100.0)
E-Learning might be used in place of traditional medical education.	86 (36.8)	82 (35.0)	32 (13.7)	19 (8.1)	15 (6.4)	234 (100.0)
In Iraq, e-learning is simple to implement.	45 (19.2)	73 (31.2)	50 (21.4)	45 (19.2)	21 (9.0)	234 (100.0)
My University's E-Learning instructional content will meet all of my educational requirements.	84 (35.9)	42 (17.9)	58 (24.8)	33 (14.1)	17 (7.3)	234 (100.0)
Downloadable E-learning content outperforms live content.	38 (16.2)	60 (25.6)	53 (22.5)	55 (23.5)	28 (12.0)	234 (100.0)
Students' commitment to work schedule for internet-based educational content must be comparable to their obligation to direct learning content.	47 (20.1)	80 (34.2)	36 (15.4)	45 (19.2)	26 (11.1)	234 (100.0)
Similar to traditional schooling, interactive electronic information (allowing you to make questions and engage with the professor) is possible.	21 (9.0)	47 (20.1)	47 (20.1)	83 (35.5)	36 (15.3)	234 (100.0)
The majority of your learners can access live online learning resources.	9 (3.8)	31 (13.2)	71 (30.3)	91 (38.9)	32 (13.8)	234 (100.0)
Clinical parts of medical sciences can benefit from e-learning.	102 (43.6)	62 (26.5)	37 (15.8)	20 (8.5)	13 (5.6)	234 (100.0)
It is feasible to provide private classes via e-learning.	16 (6.8)	16 (6.8)	60 (25.6)	99 (42.4)	43 (18.4)	234 (100.0)
It is feasible to generate academic content that addresses the practical aspects of your present curriculum and classes.	44 (18.8)	55 (23.5)	62 (26.5)	53 (22.7)	20 (8.5)	234 (100.0)
E-testing has the potential to	30 (12.9)	41 (17.5)	54 (23.1)	67 (28.6)	42 (17.9)	234 (100.0)

replace traditional assessment techniques in medical colleges.						
Medical E-Learning is more practical and adaptable than traditional education.	39 (16.6)	57 (24.4)	52 (22.2)	64 (27.4)	22 (9.4)	234 (100.0)
Iraq's internet quality of service can accommodate e-learning technology.	87 (37.2)	67 (28.6)	40 (17.1)	31 (13.2)	9 (3.9)	234 (100.0)
The internet may be used to get medical educational materials.	20 (8.5)	22 (9.4)	60 (25.6)	98 (41.9)	34 (14.6)	234 (100.0)
E-learning technology allows for interaction between students and professors.	23 (9.8)	39 (16.6)	72 (30.8)	75 (32.1)	25 (10.7)	234 (100.0)
The legitimacy of certificates obtained through e-learning must be recognized.	33 (14.1)	33 (14.1)	66 (28.2)	61 (26.1)	41 (17.5)	234 (100.0)

Table 5 depicts the distribution of students based on their E-Learning practice, including 74.8 percent were you granted certifications through online training courses relevant to the medical area, 94 percent Did you utilize the internet to attend classes, get information, or comprehend concepts across many platforms? Do you acquire educational information linked to your medical education on a regular basis? 91.5 percent Do you utilize internet applications and platforms for medical education? 80.3 percent Did you download electronic information instead of buying paper format to save money? 85.9 percent Do you utilize the internet often in your research?

Table 5: The Distribution of Students According to Their Practice for E-Learning

Practice for E-learning	**Yes**	**No**	**Total**
Were you granted credentials for medical-related online training courses?	59 (25.2)	175 (74.8)	234 (100.0)
Did you enroll in any online medical education program established by your school of medicine throughout this time period that was based on the medical educational curriculum at the faculty? (Lectures or educational sessions using applications for online learning such as Zoom)	78 (33.3)	156 (66.7)	234 (100.0)
Did you employ the internet to attend classes, get information, or comprehend concepts across several platforms?	220 (94.0)	14 (6.0)	234 (100.0)
Do you often download academic information relating to your medical education?	214 (91.5)	20 (8.5)	234 (100.0)
Did you employ application forms or platforms for medical education?	211 (90.2)	23 (9.8)	234 (100.0)

Did you discuss medical educational materials with your classmates?	172 (73.5)	62 (26.5)	234 (100.0)
Did you study with a colleague or a group of colleagues using the internet and online meetings?	181 (77.4)	53 (22.6)	234 (100.0)
Did you employ the internet to take a problem-based learning course?	108 (46.2)	126 (53.8)	234 (100.0)
Do you study online using your personal computer?	136 (58.1)	98 (41.9)	234 (100.0)
Do you benefit from being able for research purposes on a frequent basis?	201 (85.9)	33 (14.1)	234 (100.0)
Did you save money by downloading electronic materials instead of buying paper?	188 (80.3)	46 (19.7)	234 (100.0)

4Discussions

This study aimed to explore KAP among the two Faculty included in the study Hammurabi College of Medicine and College of Nursing students of Babylon university in Iraq. Regarding E-learning which is serving as a platform for providing medical education during the pandemic .The respondents who completed the questionnaires 234 students. The study found that lack of comparable studies at the national level as a major hindrance in drawing meaningful comparisons.

Before speaking into the findings, consider the socio-demographic description of the research individuals, as shown in table 1. In terms of age, more than half of the students were between the ages of 20 and 21, with the majority coming from the second and third academic years.

Demographic features revealed a roughly equal ratio among Hammurabi College of Medicine and College of Nursing students , majority from participants from Babylon followed Bagdad Province.

The majority was unmarried regarding gender. The substantial disparity in the number of girls and males participating in the study might be attributed to the fact that the majority of medical students in Iraq are females. A second explanation is that female students are more likely than males to take part in this study to volunteer work.

39.7 percent of students rate internet service as poor. Furthermore, Al-Azawei et al. (Al-Azawi, Parslow and Lundqvist, 2016) discovered that the majority of students (62.5 percent) believed that a lack of internet capacity is one of the difficulties impeding the successful implementation of e-learning in Iraq. Furthermore, Vershitskaya et al. (Vershitskaya et al, 2020) discovered that poverty and a lack of ICT infrastructure are the primary issues cited as e-learning obstacles [10] with similar study by Sud et al. (Sud et al, 2020; Lahon et al, 2021).

Students' skills are very good that represent 41.5% in Google meet platform, were the most preferred Learning Management Systems by our medical students its formal platform uses.

The findings demonstrated an adequate degree of e-learning understanding and behaviors, demonstrating the use of e-learning through the COVID-19 pandemic.

Students' attitudes about e-learning were significantly unfavorable, seen as a kind of resistance and rejection from students for a quick shift from face-to-face instruction to electronic learning. Furthermore, the students are unprepared for the use of e-learning, which is a totally new experience for Nursing and Medicine students at Babylon University. Furthermore, the participants are not prepared for the use of e-learning since it is a new experience sample, and the bulk of the sample

from the second and third stages have never used the internet in their past studies.

Students show some kind of negative attitude related to applicability of E-learning in Iraq, and these results congruent with the study in Medical Faculties Khartoum State- Sudan, where E-learning is 72.8 percent, which recognizes the value of e-education, and 70.4 percent has access to electronic tools, but only 52.2 percent and 13 percent use it frequently, 34.5 percent use it sporadically, and 6.1 percent seldom use it (Alkanzi et al, 2014). In addition, a research in Egypt found that 61.6 percent of pupils had negative opinions regarding e-learning (Diab and Elgahsh, 2020).

That might be because they underestimate the relevance of e-learning, and colleges do not supply students with electronic equipment to cover gaps in the demand.

The majority of students (80.8 percent) were aware that e-learning is an amazing option that lets participants to learn using information and communication technology. About 81.2% were of the view that online learning helps in providing them the digital multimedia content which proves to be helpful for them, but at the same time, 44.8 % of students believed E-learning with live content is that the scholar receives instant feedback from the instructor.

About 23.5% , 26.5% did not agree with the thought that online learning can cover the clinical and practical aspects, respectively, which is in accordance with a study by Alsoufi et al. (Alsoufi et al, 2020) Only 34.2% were able to show Adherence of students to e-learning schedules, may be due to poor internet connectivity.

In addition, medical students indicated fairly high competence in the use of different technological devices (43.2 percent). These results may lend credence to the viability of implementing online learning programs for medical students.

Among all the students, 91.5 percent downloaded educational content related to medical education on a regular basis congruent with study that found out of all the students, 71 percent were self - assured in searching online and accessing along with using Microsoft word processor and 61 percent still want to study with text books because it is always popular and easily used (Grade, Unknown year).

Our study found that 34.2 percent of students disagree that students' adhesion to work schedules for internet-based educational content should be similar to their adherence to direct learning content because pursuing e-learning requires a high level of self-discipline or self-directed learning; individuals with low inspiration or bad learning styles may fall underneath (Omprakash et al, 2019).

43.6 percent of Medical Sciences experts disagree. Previous researches have also stressed similar viewpoints such as challenges with technology, little or no real-time engagement with instructors, feelings of isolation, and so forth. In underdeveloped nations, money to implement new technology, as well as a lack of proper faculty training, have been identified as barriers to e-learning (Omprakash et al, 2019). This might imply that students place a high value on practical education during their university courses.

Medical and health sciences students require patient interaction in order to obtain the required skills and get firsthand experience with patient care. Thus, cautions have been issued regarding the possible repercussions of the COVID-19 pandemic for medical education, stating that medical students may be severely disadvantaged owing to a lack of practical teaching and suggesting that medical students may even assist through the pandemic. The same principles apply to health science education. Although the surge of COVID-19 research, limited researches have been dedicated to the investigation of the profound changes that the pandemic enforced in medical and health sciences education (Puljak et al, 2020).

28.2 percent of the current study's participants were neutral to the legitimacy of certificates obtained via e-learning must be recognized.

Medical E-Learning is more practical and adaptable than traditional learning, according to 27.4 percent of respondents, whereas 24.4 percent disagree. Thus, group learning in health sciences, which combines face-to-face learning with e-learning and includes in-person practical education, may become the new standard, even after the COVID-19 outbreak [16]. It bears some resemblance to the results of a study conducted in which 46.8 percent of the participants mentioned dynamic time schedule, comprehensibility, and lack of monotony as benefits of e-learning, which is also consistent with the results of an Ogunnowo study in Nigeria in which 45 percent of respondents agreed that e-learning ensures schedule flexibility (Ogunnowo, 2016; Suryawanshi and Venugopal, 2020). E-learning provides adaptability and avoids congestion in classroom sessions, which is now a problem at the college of health sciences owing to the growing number of students enrolling (Olum et al, 2020; Krishnapatria, 2020).

90.2% use online applications and platforms for the purpose of medical education another studies also appear More than half of students (63%) agreed that online recorded video tutorials (e.g., YouTube) were the most effective form of online medical education (Mortagy et al, 2022).

The minimal sample size in this study may not accurately reflect the condition of e-learning among this community in Iraq.

Conclusion: Medical students demonstrated adequate levels of education and experience with e-learning, but certain unfavorable attitudes appeared in E-learning. To ensure that E-learning is effective, students must provide regular feedback. To increase the viability of E-learning for medical students in Iraq, information and communication must be improved. Greater student and tutor training, better designed E-courses, more engagement, inspiration, and cooperative learning are all advocated. Students should be sufficiently taught to keep up with the changing method of teaching. These initiatives require institutional and government support. Government must give particular financial and information technology assistance for students as well as institutions to assist in providing low-cost, rapid, and simple-to-use e-learning platforms, so that medical students and faculty can handle with these changes and maintain the educational process.

Limitation of study: The small sample size may be a limitation of the study.

4Conclusions

Medical students demonstrated adequate levels of knowledge and practice related to e-learning, but there are some unfavorable attitudes surrounded e-learning that continuous feedback from students will require to make e-learning efficient. To increase the viability of e-learning for medical students in Iraq, information and communication must be improved. Greater student and teacher training, improved e-course design, more engagement, motivation and blended learning are all advised.

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