The Impact of E-Learning on Pharmacy Education: Pharmacy Students' Perspective during COVID-19 Pandemic

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ABSTRACT

Objectives: E-learning has jumped from an adjuvant tool to a crucial educational protocol during COVID-19 pandemic. This has a particular value for Pharmacy Students as the Pharmacy Education necessitates unique requirements. Consequently, this mixture of requirements needs to be fully understood by educators to offer a better education for their students. Accordingly, the authors conducted this study herein in, to facilitate the understanding of E-learning correlated with Pharmacy Education in Iraqi Pharmacy Students' perspective.

Methods: The study design was designated to questionnaire of 540 pharmacy students in three different Iraqi Universities. This involved two types of questions. The first with multiple choice questions and the second with agreement question. The statistics utilized were performed with GraphPad Prism version 8.4.3 (686).

Results: The results were observed with the employment of D'Agostino-Pearson omnibus (K2) and the P value was recorded as 0.0106.

Conclusion: The authors find that the opinion of the pharmacy students could highly affect the education outcome in according to their perspective during the COVID-19 pandemic.

Keywords: Iraqi Pharmacy Students, Pharmacy Education, COVID-19 Pandemic.

INTRODUCTION

Although the computer-generated learning has been an interest in the education scheme besides the inherent supervision on learning organizations previously, in the situation of the contagion caused by the COVID-19 pandemic, virtual education progresses a contest not only for the education structure but for humanity as a whole. It is understandable that every member of the education system needs to be continuously informed about the new trends in E-learning so that the schooling organization can retain up with new learners, born in a digital age. There have been universal concerns about remote education since the 1900s; thus, distance learning by radio appeared in 1920; in 1945, remote education by television started; and after the internet revolution, so beyond 1995, E-learning also appeared. In the period 2010–2020, the efficiency of simulated education has grasped inspiring attitudes [1]. It is recognized that virtual teaching was another designation used for E-learning but stating more to electronically supported learning piloted without any face-to-face modules. Now, in the context of the COVID-19 pandemic, the entire education system has shifted from a classical to an online education system built on E-learning.

Although advanced countries have made important gaits near assimilating e-learning podiums in higher Education, developed ones have not yet efficiently implemented such skills[2-6]. Unambiguously, there is a noticeable postponement in E-learning implementation within most scholastic organizations in the Middle East region[7]. Revisions diagnose thoughtful contests that hinder the operative assimilation of E-learning in Higher Education [8]. Per se, though considering the profits of E-learning as a mean to improve the transfer of instructions, fences to agreeing E-learning should similarly be adopted; particularly in countries like Iraq, meanwhile corresponding study has been remarkably limited.

Predictably, Iraq is the latter country in the Middle East to enroll E-learning inventions[9] despite 52% of the Iraqi people had internet access till April 2020[10]. Consequently, Iraq positioned behind the countless uprising of Information and communication technologies (ICTs) in Higher Education. Lately, the Iraqi Ministry of Higher Education and Scientific Research (MHESR) developed responsible steps to revitalize this part especially as a response to COVID-19 Pandemic, even though in relevance to the ordinarily education methods; policies for E-learning assumption have been limited. Accordingly, further research into E-learning use in Iraq is essential in order to cover this gap of studies.

Recent researches regarding (Iraq) exhibited that the universities were attentive for incorporating E-learning schemes as a fragment of its agendas[11]. Yet, there was a shortage in practice plus actual scheduling for E-learning programs by utmost Iraqi colleges. El-Ameer et al. underlined the chief welfares E-learning can carry for Iraqi academies. E-learning can plug several vacancies existed in the education system like ; overwhelming inabilities of the staff members of universities for generating on-line

resources to drive of perfecting of class- theater teaching, augmenting student- dependent learning, nomination the deficiency of modern constituents and improving the learning knowledge of student via the most recent(ICTs) for Iraqi scholars be counted a qualified educated one related to learners of the rest world [12].

However, little of the readings examined the probabilities and tasks of adopting E-learning regimens in Iraqi colleges based on students' attitudes during COVID-19 Pandemic. While the opinions of specialists in the field are significant and can surely afford vital assessments, learners are the final consumers of system resultants. Hence, considering scholars' thoughts was fundamental. There was a dearth of research on Iraqi university graduates view toward E-learning for realizing the ideas in the profits, prospective, reputation and usage of E-learning at the colleges with the encounters opposite the efficacious application to replace the classical teaching behavior. There are numerous issues that can touch students' aims concerning the use of E-learning [13]. Earlier revisions established that the magic element for the effective employment of E-learning methods is the existence of loyal beliefs by E-learning amongst scholars [14]. Meanwhile the successful proposal of an E-learning structure is extremely reliant on students' awareness headed for it, thoughtful what they consider of E-learning scheme usage at the college and the participation to the fruitful operation was essential in COVID-19 era.

Its unobvious that he fundamental purpose of pharmacy education is to provide pharmacy students with the theoretical knowledge, practical laboratory skills, hospital training programs and pharmaceutical care abilities to become pharmacists, and then to enable pharmacists to continue their profession. The classical pedagogy encompassing face-to-face directives has progressed with the integration of the worldwide web and highly recommended social distancing behavior in response to COVID-19 outbreak. Progressively, pharmacy students, pharmacists, and pharmacy educators all together, facing learning facilities behind the traditional classroom with grater contents to be delivered straight away via the online techniques.

A number of reviews have assessed the usefulness of E-learning on Health Professions [15-18]. Nevertheless, there are limited researches of the efficacy of E-learning in pharmacy education toward the pharmacy students during the current pandemic. The aim of this study is to estimate the prospection of Pharmacy Students toward pharmacy education employing E-learning during COVID-19 Pandemic in Iraq.

STUDY DESIGN AND METHODS

The sample collection encompasses the undergraduate students collected from different pharmacy faculties in three different universities in Iraq. These are; the University of Alkafeel (Najaf), Ahlulbait University (Karbala), and Al Zahrawi University College (Karbala). These colleges adopted partial E-learning for 3 years ago which has been shifted completely to E-learning in response to COVID-19 outbreak to justify social distancing. The electronic educational gate used by each university is shown in table (1). The survey was conducted by sending 540 questionnaires using suitable sampling exploiting google document forms via the below link: https://docs.google.com/forms/d/1aZbRRy1_QAkchTzSr9u AOO8ENwSjEg2E9zkPgB1SZDo/edit.

The survey involved questions of two categories. The first category was multiple choice closed-ended questions with orderly choices require the respondent to inspect each conceivable answer independent of the other selections according to "Salant and Dillman" platform [19]. The Second type of questions were "agreement continua" questions which are simple inquiries that entail the respondent to agree or disagree with given statements as shown in table (2)

Such measures are matter to variances in explanation. Fowler illustrated that less-educated respondents incline to agree to such questions more easily than do respondents having more education [20]. Each student was asked to choose the appropriate answer according to his /her opinion relevant to the experience gained from E-learning facilities usage.

The answers to these questions were analyzed using GraphPad Prism version 8.4.3 (686) employing D'Agostino-Pearson omnibus (K2) P value 0.0106

RESULTS AND DISCUSSION

Ten different questions were utilized. The first two question were multiple chose questions. The answers to these two questions were analyzed employing D'Agostino-Pearson omnibus (K2) P value 0.0106. These questions are listed below and the students' answers were as shown in table (3) and table (4).

The other eight questions are agreement questions and are clarified in the figure (1), while figure (2) shows the ultimate and concised representation of the observed versus expected obtained data sets for the five "agreement continua" selections (i.e. 1= Extremely disagree, 2= Disagree, 3= Nor agree neither disagree, 4= Agree, and 5= Extremely agree).

Table 1: This table reveals the University and the education gate utilized in.

University	Educational Gate
University of Alkafeel	University Information Management System (UIMS)
Ahlulbait University	Google Classroom
Al Zahrawi University College	Google Classroom

Table 2: This table shows the utilized text and the assigned numeral.

Text	Assigned numerals
Extremely disagree	1
Disagree	2
Nor agree neither disagree	3

Agree	4
Extremely agree	5

Table 3: The question is "The advantages of E-learning, in your opinion, are (is):"

#	Question response	Number selected	Percentage
1	Can offer a flexible time frame	60	21.4%
2	Everything is reachable and accessible	45	16.2%
3	Freedom of repetition if necessary	42	15%
4	Learning from own home	68	24.2%
5	Lower cost of studying materials	65	23.2%
	summation	280	100%

Table 4: The question is "The disadvantages of E-learning, in your opinion, are (is):"

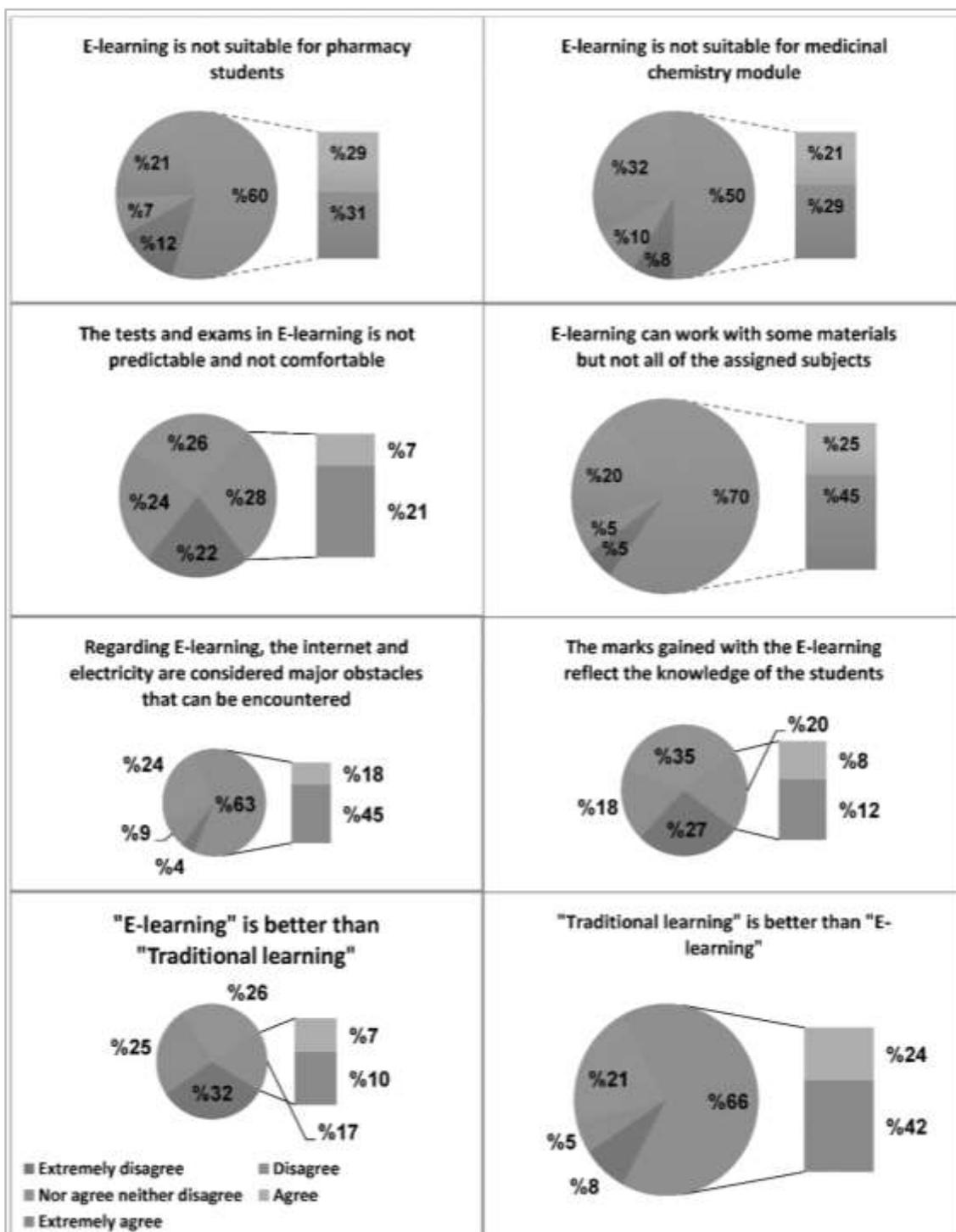| #	Question response	Number selected	Percentage
1	Bad feelings of loneliness and depression	46	16.5%
2	No direct interaction among student	37	13.4%
3	No direct interaction with lecturers	80	28.8%
4	No enforcement for learning	44	15.8%
5	Not truly differentiate the scientific levels of students	71	25.5%
	summation	278	100%

Figure 1: This figure reveals the eight "agreement continua" questions with the assigned percentages for the key allocated at the extreme lower left of the figure.

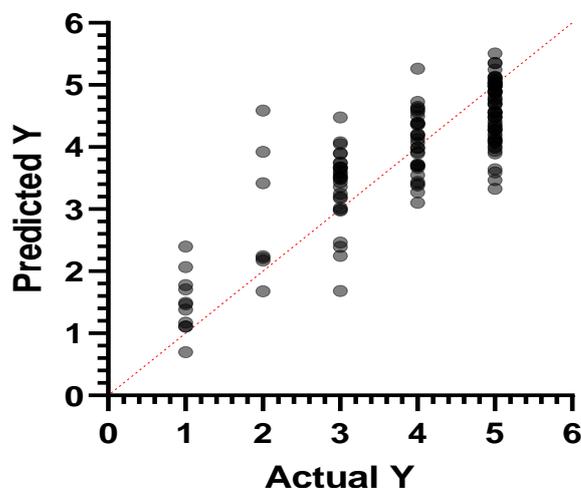# Actual vs Predicted plot: Multiple linear regression

Figure 2: This figure shows the overall actual (observed) versus predicted (expected) plot for the five "agreement continua" options (1= Extremely disagree, 2= Disagree, 3= Nor agree neither disagree, 4= Agree, and 5= Extremely agree).

CONCLUSION

The authors conclude that the opinion of the Pharmacy Students will highly affect the Pharmacy Education and thus the students' perspective should be considered by the Pharmacy Educators and stakeholders to offer a better educational environment.

ETHICAL ISSUES

This study was viewed and approved by the Ethical Scientific Committee, College of Pharmacy, University of Alkafeel, Iraq.

CONFLICT OF INTEREST

"None are declared".

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