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E – Learning Barriers as Perceived by Students in the Faculty of Nursing at Tanta University

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Abstract
*Ba**ckground:** With the increase in number of courses being offered online, there is an increase in the need for professional development support for nursing students to learn online. Most nursing students face the same sources of e – learning barriers and many challenges.*
***Aim:** of this study is to examine e – learning barriers as perceived by students in Faculty of Nursing at Tanta University*
***Design:** descriptive explorative study was used in the study.*
Subject:** consisted of 400 undergraduates nursing students were selected randomly from each four academic year. **Tools**: Two tools; used to collect data, namely: **Tool 1** : barriers of electronic learning questionnaire: **Tool II**: Students' attitude evaluation questionnaire toward e- learning **.
***Results** revealed that more than half of nursing students had high level of attitude regarding e- learning related to their abilities & time management followed by motivation & study habities. In addition, about third of nursing student had high level of barriers.*
***Conclusion:** nursing student at the Faculty of Nursing, Tanta University experienced multiple cateacories of e-learning barriers includes social & interaction, time & support for studies, it concluded that when the level of barriers increased, the nursing students' attitude toward e-learning become high. Also, there was significant statistical differences between four academic years nursing students & total barriers levels.*
***Recommendation:** Fundamental courses for undergraduate nursing students is essential to reduce their perceived e- learning barriers & to increase students' attitude level to it.*
***Key words**: E – Learning barriers, nursing education & students' attitude*

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I. Introduction

Today's educational institutions are expected to create learning opportunities independent of time and place, to offer easily accessible learning environments and interpersonal communication opportunities. e-learning (electronic learning) has started to emerge in many countries where it has the potential to help meet an increasing demand for education and address the growing decline of trained teacher [(1)]. E – Learning defined as the delivery of a learning, training or education program by electronic means [(2)]. It involves the use of a computer or electronic device such as mobile phone in some way to provide training, education or learning materials [(3)]. It has several advantages including temporal and spatial flexibility, fast and convenient access to interactive contents included into the educational process. In addition to engagement of students in different activities, which encourage critical thinking. [(4)]

The introduction of information and communication technology (ICT) in nursing education is a challenging process both for instructors and for students. However, result of some studies conducted among nursing students have indicated a lack of computer literacy and preference for traditional models for creating and disseminating knowledge [(5)].

A several studies conducted by researchers in many universities, indicated that there is a low presence of health informatics in the many programs being used through the college of nursing & for online learning of health sciences. Other challenges surrounding the use of technology include slow internet connections, an insufficient number of computers and insufficient training on how to use computers and internet as educational tools among undergraduate nursing students [(6,7)]. In addition, in the education of health professionals, the use of ICT is receiving special attention, particularly in nursing education and the computer and internet being the entry point to ICT, are considered to be essential tools for teaching and learning in higher education [(8,9)].

Many factors may influence student's attitudes towards e-learning and they are often connected with it's implementation [(10)] In addition to the problems which can arise if e-learning are not compatible with the student personal characteristics e.g., gender , nationalities and learning styles, if student motivation is too low and their knowledge of technology level is insufficient . Beside, student's level of access to technologies and their willingness to use it, the availability of reliable ICT, and convenience of accessing these technologies also plays a role [(11, 12)]. Intern, positive student attitudes and behaviors towards e- learning are critical to their e-learning willingness and acceptance. Therefore, it is important to evaluate e-learning readiness before the implementation of it to [(13)].

Significance of the study: The implementation of e- learning curriculum is a necessity for any higher education organization & university that seeks accreditation by century [(21)]. Clearly, the future lies in e- learning because, it become an integral part of health care provision. Nursing student are expected to have competences in this filed. [(14)] However, the use of e- learning in nursing education can enhance teaching and improve the learning experience. Thus, identify student's their barriers & attitudes, from their own perspectives would facilitate effective e-learning delivery by addressing the underlying issues and obstacles and provide necessary support to the learners.

Aim of the study:
Identifying barriers & attitude about utilization of e- learning among nursing students as perceived by them.

Research questions
1-What are the barriers that facing nursing students when utilizing e- learning from their own perspective?
2- What are the nursing students' attitudes towards e – learning at Faculty of Nursing at Tanta University?

Subjects and Method
Research design: A descriptive research design was utilized.
Setting: The present study was carried out at the faculty of nursing at Tanta University.
Subjects: The study subjects consisted of 400 undergraduate nursing students were selected randomly, 100 students were taken from each academic year at the first semester of the study (2018- 1019).
Tool: Two tools were used for data collection:

Tool 1: Barriers of electronic learning: This tool was developed by the **Muilenburg and Berge (2001)** [(15)] to identify barriers to utilization of e -learning. It compromised two parts:
Part 1: Sociodemographic characteristics: It includes age, sex, academic years, department, the level of computer specialty and access to computer.
Part 2: **Nursing students' barriers to utilization of electronic learning:** It was designed and adopted from **Cho. Berge &Muhlenberg in** (2001). [(15,16)] and was used by the researcher to identify barriers to e- learning. The items in the tool was phrased to elicit usual from their own perspectives barriers. The tool composed of 48 items. The barriers scale covered seven subscale categories of questions, which was included of the following items:

1. Institutional administrative support & instructors barriers1-15 items (15) items.
2. Social & interaction barriers 16-20 items (5) items.
3. Academic skills barriers 21-26 items. (6) Items.
4. Technical skills & Technical problems barriers 27-35 items. (9) Items.
5. Learner motivation barriers 36- 41 items. (6) Items.
6. Times & support for studies barriers 42-46 items. (5) Items.
7. Cost & access to internet barriers 47 -48 items. (2) Items.

Scoring system: The subject's response to each barrier was rated on 1-3 point Likert scale **(Hegge, 2008)** [(17,18)]. Ranging from agree (3), neutral (2), and disagree (1) the score was classified into three levels ≥**72 High level** , **48-71 Moderate level& Low level <48**
Tool l1: Students' attitude evaluation questionnaire toward e- learning sheet: [(13, 19 ,14 20, 21)] . It contained 25 questions to collect data from nursing students of different study year level about their attitudes about e-learning, it consist of four subscales as follows:
1-Study habits items 1:9 (9) Items.
2- Abilities items 10:14(5) Items.
3-Motivation 15:19 (5) Items.
4-Time management 20 -25 (6) Items.

Scoring system

The subjects responses were rated by three points Likert Scale ranging from Always =3, usually 2= & never =1, the score is classified into three levels ≥3**7 High level , from 29-36 Moderate level & Low level ≤28 .**

Method

1- Ethical & administration considerations:-

- An official permission to carry out the study was obtained from responsible authorities at faculty of nursing, Tanta University
- Informed consent was obtained from each student who were participated in the study.
- The purpose of the study was explained and made clear to the students of study setting to get their co-operation and acceptance & their right to withdraw from the study at any time.

2- Tools validity: Tools of the study were developed after review of related literature, tested for relevance, comprehensiveness, appropriateness& revised by five experts in the field of nursing from different specialty.

3- Reliability of tools: was tested using Cronbach Alfa was =0.81. **Tool 1:** the internal consistency reliability of the CCFNI were .88 and **Tool 2:** the NMI was .92.[22,23]

4- Pilot study: Pilot study was conducted on (5%) of nursing students to test feasibility, applicability of the study tools. Based on the results of the pilot study, modifications were done & identify the obstacles and problems that may be encountered in data collection. Data obtained from the piloting was excluded from the main results study.

5- Field work: The purpose of the study was explained to each students in rolled in the study and their informed consent to participate was taken.

6- All the study tools were explained to the study subjects and they reassured that all information will be confidential and used only for research purpose. Students w ere then asked to respond in privacy& return it back to the researcher to assured of their anonymity and the confidentiality of their responses.

7- The questionnaires were distributed to nursing students (n = 400). Responding times to all questions in the tool taken (20) minute.

8-The data collection were completed during the period of 3 months (September to December, 2018).

9-The data reported by students were summarized coded & computerized to identify the e – learning barriers & attitude from their own perspectives .

10 - **Statistical analysis**: Data was coded & transformed into specially designed form to be suitable for computer entry process. Data was entered & analyzed by using SPSS. Descriptive measures included; number, percentage, and mean and stander deviation. Chi-square test (χ^2) was used to base line data, comparison between 4 academic years and more was done. A significance was adopted at P<0.05 for interpretation of results of tests of significance.[24]

II. Result

Table (1): Displays the percentage distribution of the nursing students according to their sociodemographic characteristics of different academic years. This table revealed that, the subjects were compromised of 400 undergraduate nursing students in four academic year at faculty of nursing. The table showed that 3rd year nursing students' age ranged from 18-22 years old, had a higher mean score 20.91±0.954 & all of them were female, while (92%, 82%, & 60%) of nursing students from 4 th, 2nd & 1st year respectively were female. As for residence, most of them (97%, 77 %60 % & 56 %,) 1st year , 3rd year , 2nd & 4 th year were lived in village respectively. In relation to level of computer specialty, the study revealed that, one third & more than one third (33% &35%) from nursing students at different academic years had under training & semiskilled level of computer specialty respectively.

Regarding to internet types the majority of students (81%, 79% , 71%,& 65%) of the1st , 2nd , 4 th & 3rd year students respectively have able to access to computer to internet at home ,while (15.5%) from all of them of four academic years had access to it at the faculty lab. Finally, there was statistically significant differences between nursing students & their sociodemographic characteristics at P< 0.05.

Table (2): illustrates distribution of nursing student according to level of attitude about e-learning. The table shows that 50.8% of students have low level of attitude toward e-learning as general. Majority (64.2%, 57.2 and 55.8%) respectively of nursing students had low level regarding to motivation, abilities and time management as a domain of attitude toward e–learning. More than one third (36.8%) of nursing student showed moderate level of attitude e-learning in retention to study habits domain. Only considerable equable percentage (29.5%) of them had high level regarding the abilities and time management domain

Table (3): show distribution of studied subjects according to levels of barriers of e-learning from their own perspectives. This table revealed that more than half (59.8%, 54% and 51.8%) of nursing students, had low level of barriers related to social, interaction and academic skill and time support for studies barriers domain

respectively. In addition to (31.2%, 29.8%) of them had moderate level of barriers related to institutional administrative support and instructors and learner motivator barriers respectively. While about one third (32.8%, 32.2%)of nursing student had high level of barriers related to social and interaction and time of support for studies barrier domain respectively.

Table (4): Illustrates mean scores of barriers domains from the nursing students perspectives at different academic years. There was significant differences of total mean scores among nursing students at different academic years regarding to domains of e- learning barrier perceived by them. Also, it was found that the most frequently identified e – learning barrier facing studied students described by them as institutional administrative support & instructors barriers followed by technical skills & technical problems barriers. While higher total barriers level scores was observed among nursing students of 2nd & 4 th academic years followed by third years as regard to e- learning .

Figure 1: Distribution of ranking of total e – learning barrier from perspectives of nursing students at different academic year. It was noticed that highest rank of barriers was perceived by 2nd years students followed by 4 th year of nursing students , while the third rank was for the 3rd year nursing students & the least rank was for the 1st year nursing students .

Table (5) Illustrates Frequency distribution of total barrier levels scores from nursing student perspectives. There was significant differences between the four academic years & total barriers levels. The table showed that, (50.0% & 40.0%) of 4th & 2nd years students had high level of barriers respectively. While (81.0 % & 60.0 %) of the 2nd & 3rd year students had moderate level of total barrier levels score.

Table (6) Relation between students characteristics and level of barriers from their own perspectives. The table show that there were significant statistical differences between nursing students perspectives about e-learning barriers and their characteristics at p (< 0.05%). It revealed that the young ≤ 20(71%) of nursing student had low level of their perspectives about e-learning barriers. The female students (88.9%, 88.2%) had moderate and high level of their perception of e-learning barriers than male patient. High percent level of (86.3%) of them lived in a village had high level perspectives about e-learning barriers. Regarding to the level of computer specialty of semiskilled nursing students had moderate level of perspectives about barriers to e-learning. While the majority (74.7%) of students who had internet at home had low barriers facing e- learning form their own perspectives.

Table (7) : The table show that there was significant statistically difference between nursing students attitude of e-learning and their characteristics at p<0.05, in relation to their age, level of computer specially and internet type only. Regarding to nursing students age, about (69%)of student who aged ≤ 20 years, approximately an equal percentage (53.8% and 53.1%) had high and moderate level of attitude of e- learning. In addition, an equal percentage 36% of them who under training or semiskilled in computer specially had low level of attitude toward e-learning. Nursing student (78%) whom possess internet at home had moderate level of attitude toward e- learning

Table (8) Shows frequency distribution of student according to total attitude scores. There was significant difference between the four academic years & total attitudes levels. The table showed that, percentage (52.0% &44.0%) of the 2nd & 4th year of had moderate level of total attitude toward e-learning. While the 1st years students (87.0%) had low level of total attitude toward e-learning.

Table (9): Comparison between nursing students total barriers score and total attitude scores from their own perspectives. This table show that there was significant statistical differences between the1st year & 3 rd. year nursing students at level P< 0.05. This means that when the level of barriers increased, the nursing students attitude toward e-learning become high. Also, this table showed that, 72% of 1st year nursing students who had low & moderate attitude level toward e-learning had low levels of barriers .While the 3rd year students 81% had moderate level of barriers from own their perspectives.

Table (10): There was a highly positive correlation between nursing students total attitude scores of e-learning and their total barriers score of e-learning at p=0.508. This means that when the level of barriers increased the attitude toward e-learning become high.

Table (11): Correlation between total barriers score and sociodemographic data among studied nursing student: There was a highly positive correlation between total barriers level score and the ages of third years nursing students at p=0.00**. Also, the 1st years nursing students had positive correlation between the total barriers scores and there level of computer specialty at p=0.017*. While there was negative correlation between a total barriers scores & level of computer specialty regarding the 2nd & 3rd years students at p= 0.028* & p=0.00**respectively.

Table (12): Correlation between total attitude score and sociodemographic characteristics among studied nursing students. There was a highly positive correlation between total attitudes of e-learning score and the ages of third years nursing students at p=0.000**, while there was highly negative correlation between the total attitudes of e-learning score and their level of computer specialty regarding the same year nursing students at p=0.000**.

Table (1): Distribution of the studied nursing students according to their sociodemographic characteristics (n=400):

Sociodemographic		Academic year								χ^2 P
		1st Year (n=100)		2nd Year (n=100)		3rd Year (n=100)		4th Year (n=100)		
		N	%	N	%	N	%	N	%	
Age (years)	≤ 20	100	100	59	59.0	14	14.0	59	59.0	**151.97 0.00***
	> 20	0	0	41	41.0	86	86.0	41	41.0	
	Range Mean ± SD	18-20 19.03±0.264		20-22 20.52±0.689		18-22 20.91±0.954		20-23 20.70±0.927		
Gender	Male	40	40.0	18	18.0	0	0.0	8	8.0	**65.25 0.00***
	Female	60	60.0	82	82.0	100	100	92	92.0	
Residence	city	3	3.0	40	40.0	23	23.0	44	44.0	**52.61 0.00***
	village	97	97.0	60	60.0	77	77.0	56	56.0	
level of computer specialty	under training	58	58.0	16	16.0	41	41.0	18	18.0	**73.50 0.00***
	beginner	17	17.0	32	32.0	6	6.0	28	28.0	
	semiskilled	22	22.0	35	35.0	43	43.0	39	39.0	
	skilled	3	3.0	17	17.0	10	10.0	15	15.0	
Access to computer	yes	83	83.0	90	90.0	94	94.0	86	86.0	6.630 0.085
	no	17	17.0	10	10.0	6	6.0	14	14.0	
Site of internet	home	81	81.0	79	79.0	65	65.0	71	71.0	**28.39 0.001***
	faculty lab	15	15.0	12	12.0	23	23.0	12	12.0	
	Public network	4	4.0	9	9.0	5	5.0	14	14.0	
	e-learning lab	0	0.0	0	0.0	7	7.0	3	3.0	

* Significant at level P< 0.05

Table (2): Percentage distribution of nursing students according to level of attitude about e-learning.

Attitudes domains	Nursing students (n = 400)					
	Low level		Moderate level		High level	
	N	%	N	%	N	%
1. Study habits items	197	49.2	147	36.8	56	14.0
2. Abilities items	229	57.2	53	13.2	118	29.5
3. Motivation	257	64.2	76	19.0	67	16.8
4. Time management	223	55.8	60	15.0	117	29.2
Total	**203**	**50.8**	**145**	**36.2**	**52**	**13.0**

Table (3): Percentage distribution of nursing students according to level of barriers of e-learning from their own perspectives.

Barriers domains	Nursing students (n = 400)					
	Low level		Moderate level		High level	
	N	%	N	%	N	%
1. Institutional administrative support & instructors barriers	156	39.0	125	31.2	119	29.8
2. Social & interaction barriers	239	59.8	30	7.5	131	32.8
3. Academic skills barriers	216	57.0	71	17.8	113	28.2
4. Technical skills & technical problems barriers	179	44.8	102	25.5	119	29.8
5. Learner motivation barriers	184	46.0	119	29.8	97	24.2
6. Times & support for studies barriers	207	51.8	63	15.8	130	32.5
Total	**203**	**50.8**	**145**	**36.2**	**52**	**13.0**

Table (4): Mean scores of barrier domains and total e – learning barrier level score from by the nursing students' perspective at different academic years.

Barriers domains	Academic year				F P
	1st Year (n=100)	2nd Year (n=100)	3rd Year (n=100)	4th Year (n=100)	
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	
A. Institutional Administrative support &	17.64±2.509	21.39±4.002	19.71±3.517	21.15±4.159	**22.842 0.00***

instructors barriers					
B. Social & interaction barriers	3.96±0.984	7.03±2.190	6.06±2.178	7.28±2.021	**62.478 0.00***
C. Academic skills barriers	5.24±0.878	9.08±2.312	7.72±2.466	8.97±2.258	**73.668 0.00***
D. Technical skills& technical problems barriers	6.52±1.480	13.39±2.810	11.32±3.228	13.37±3.290	**133.675 0.00***
E. Learner motivation barriers	5.70±1.283	9.03±1.977	7.18±2.524	8.94±2.178	**60.599 0.00***
F. Times & support for studies barriers	5.11±0.764	7.30±1.840	7.14±1.596	7.24±2.046	**42.044 0.00***
G. Cost & access to internet barriers	2.02±0.200	3.08±0.929	2.47±1.176	3.14±1.054	**33.416 0.00***
Total Barrier levels scores	**46.19±4.792**	**70.30±9.385**	**61.60±10.894**	**70.09±10.527**	**150.528 0.00***

* Significant at level P< 0.05

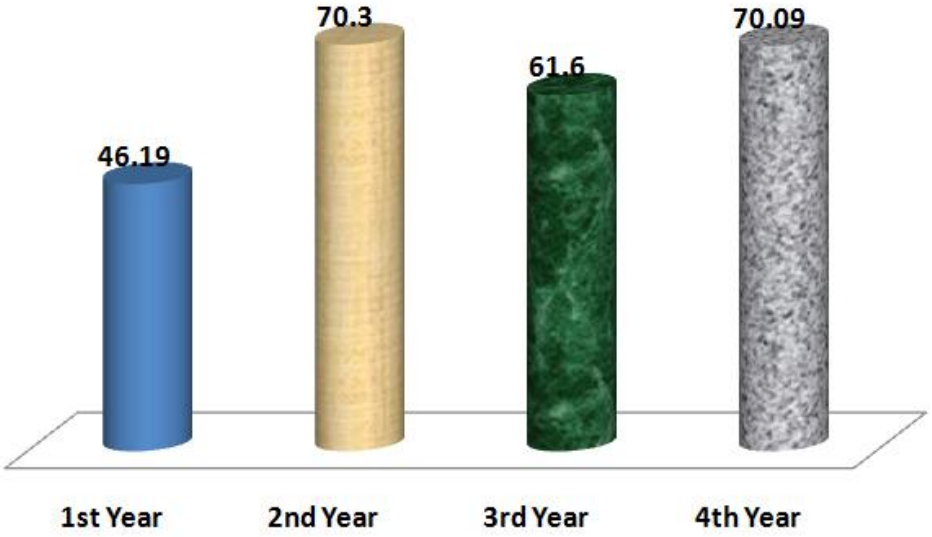

Fig. 1: Distribution of ranking of total e-learning barriers from nursing students perspectives at different academic years.

Table (5): Frequency distribution of total barrier levels scores from nursing students perspectives.

Total barrier score	Academic year								χ^2 P
	1st Year (n=100)		2nd Year (n=100)		3rd Year (n=100)		4th Year (n=100)		
	N	%	N	%	N	%	N	%	
<48 Low level	72	72.0	0	0.0	0	0.0	1	1.0	**291.4 0.00***
48-71 Moderate level	27	27.0	60	60.0	81	81.0	49	49.0	
≥72 High level	1	1.0	40	40.0	19	19.0	50	50.0	

* Significant at level P< 0.05

Table (6): Relation between students' characteristics and level of barriers from their own perspectives,

Student Characteristics		Total barrier score						X_2 P
		Low level (n = 170)		Moderate level (n = 135)		High level (n = 95)		
		N	%	N	%	N	%	
Age	≤20	121	71.2	62	45.9	49	51.6	21.803 0.00*
	>20	49	28.8	73	54.1	46	48.4	
sex	Male	40	23.5	15	11.1	11	11.6	10.612 0.00*
	Female	130	76.5	120	88.9	84	88.4	
Residence	City	24	14.1	73	54.1	13	13.7	72.182 0.00*
	Village	146	85.9	62	45.9	82	86.3	
Level of computer specialty	Under training	78	45.9	19	14.1	36	37.9	71.682 0.00*
	Beginner	27	15.9	22	16.3	34	35.8	
	Semiskilled	51	30.0	64	47.4	24	25.3	

	Skilled	14	8.2	30	22.2	1	1.1	
Level of computer	Yes	148	87.1	127	94.1	78	82.1	8.108 0.017*
	no	22	12.9	8	5.9	17	17.9	
Internet type	Home	127	74.7	99	73.3	70	73.7	0.004*
	Faculty lab	29	17.1	17.1	8.9	21	22.1	
	Public network	11	6.5	17	12.6	4	4.2	
	e-learning lab	3	1.8	7	5.25	0	0.0	

Table (7): Relation between nursing student's characteristics and level of attitude from their own perspectives.

Students Characteristics		Levels of attitude						X^2 P
		Low level (n = 203)		Moderate level (n=145)		High level (n=52)		
		N	%	N	%	N	%	
Age	≤20	140	69.0	68	46.9	24	46.2	20.354 0.00*
	>20	63	31.0	77	53.1	28	53.8	
Sex	Male	34	16.7	27	18.6	5	9.6	2.271 0.321
	Female	169	83.3	118	81.4	47	90.4	
Residence	City	52	25.6	37	25.5	21	40.4	4.977 0.83
	Village	151	74.4	108	74.5	31	59.6	
Level of computer specialty	Under training	73	36.0	50	34.5	10	19.2	34.164 0.00*
	Beginner	34	16.7	41	28.3	8	15.4	
	Semiskilled	73	36.0	48	33.1	18	34.6	
	Skilled	23	11.3	6	4.1	16	30.8	
Level of computer	Yes	183	90.1	126	86.9	44	84.6	1.624 0.444
	No	20	9.9	19	13.1	8	15.4	
Internet type	Home	146	71.9	114	78.6	36	69.2	37.525 0.00*
	Faculty lab	20	9.9	26	17.9	16	30.8	
	Public network	29	14.3	3	2.1	0	0.0	
	e-learning lab	8	3.9	2	1.4	0	0.0	

* Significant at level P < 0.05

Table (8): Frequency distribution of student according to total attitude scores

Total attitude	Academic year								χ^2 P
	1st Year (n=100)		2nd Year (n=100)		3rd Year (n=100)		4th Year (n=100)		
	N	%	N	%	N	%	N	%	
≤28 Low level	87	87.0	30	30.0	50	50.0	36	36.0	**80.858 0.00***
29-36 Moderate level	13	13.0	52	52.0	36	36.0	44	44.0	
≥37 High level	0	0.0	18	18.0	14	14.0	20	20.0	

* Significant at level P< 0.05

Table (9): Comparison between nursing student total perceived barriers score and total attitude scores from their own perspectives.

Total attitude		Total barriers score						Total		χ^2 P
		<48 Low level		48-71 Moderate level		≥72 High level				
		N	%	N	%	N	%	N	%	
1st year	≤28 Low level	62	62.0	25	25.0	0	0.0	87	87.0	**7.489 0.024***
	29-36 Moderate level	10	10.0	2	2.0	1	1.0	13	13.0	
Total		**72**	**72.0**	**27**	**27.0**	**1**	**1.0**	**100**	**100.0**	
2nd year	≤28 Low level	0	0.0	22	22.0	8	8.0	30	30.0	3.360 0.186
	29-36 Moderate level	0	0.0	29	29.0	23	23.0	52	52.0	
	≥37 High level	0	0.0	9	9.0	9	9.0	18	18.0	
Total		0	0.0	60	60.0	40	40.0	100	100.0	

3rd year	≤28 Low level	0	0.0	50	50.0	0	0.0	50	50.0	**25.276 0.00***
	29-36 Moderate level	0	0.0	24	24.0	12	12.0	36	36.0	
	≥37 High level	0	0.0	7	7.0	7	7.0	14	14.0	
Total		0	0.0		81.0	19	19.0	100	100.0	
4th year	≤28 Low level	1	1.0	19	19.0	16	16.0	36	36.0	5.636 0.228
	29-36 Moderate level	0	0.0	24	24.0	20	20.0	44	44.0	
	≥37 High level	0	0.0	6	6.0	14	14.0	20	20.0	
Total		1	1.0	49	49.0	50	50.0	100	100.0	

Significant at level P< 0.05

Table (10): Correlation between of nursing students' total attitude of e- learning and their total barriers score of e- learning.

Total	Attitude of e- learning
Barrier score of e-learning	p.508****** R.000

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

Table (11): Correlation between total barriers score and sociodemographic data among nursing student:

Sociodemographic Data		**Total barrier score**			
		1st year	**2nd year**	**3rd year**	**4th year**
1. age	**R**	0.071	-0.068	**0.386**	-0.005
	P	0.481	0.500	**0.00****	0.960
2. level of computer specialty	**R**	**0.239**	**-0.219**	**-0.450**	-0.187
	P	**0.017***	**0.028***	**0.00****	0.063

* Significant at level P< 0.05 * * Significant at level P< 0.01

Table (12): Correlation between total attitude score and sociodemographic characteristics nursing student.

Sociodemographic data		**Total attitude for the different academic years**			
		1st year	**2nd year**	**3rd year**	**4th year**
1. age	**R**	0.128	-0.040	**0.564**	-0.175
	P	0.204	0.696	**0.000****	0.082
2. level of computer specialty	**R**	-0.183	-0.019	**-0.454**	0.002
	P	0.068	0.853	**0.000****	0.984

* Significant at level P< 0.05 * * Significant at level P< 0.01

III. Discussion:

Electronic learning might be creating subconscious barriers with students who studies though e-learning courses. They clams to be less confident &less computer literate. Intensive researches study illustrate that students in the nursing program are more vulnrarable to e- learning barriers than those with others challenges [(22)]. Students in a highly competitive environment such as found in medical specialty. Nursing program are more overloaded in their curriculum and exposed to many problems barriers as social, interaction , academic skill and time support barriers , institutional administrative support , instructors and learner motivator barriers & cost access to internet barriers . So the aim of the study was to identifying barriers & attitude about utilization of e-learning among nursing students as perceived by them.

Based on the results of the data analysis it can be seen that more than half of nursing students had high level of attitude regarding e- learning related to their abilities & time management followed by motivation & study habities. In addition, third year nursing student had high level of barriers related to social & interaction, time & support for studies. Followed by cost & access to internet barriers, institutional administrative technical skills barriers most of them who lived in village had high level of e- learning barriers & had internet at home. In addition more than one third of them who untrained or semiskilled in computer specialty had low level of attitude toward e- learning finally, it can be concluded that when the level of barriers increased, the nursing students' attitude toward e-learning become high.

Moreover, the results of the current study revealed that 3rd year nursing students' age ranged from 18-22 years old, had a higher mean score & all of them were female, also majority of nursing students from 4 th, 2nd & 1st year respectively are female. This is in the line with **Akimanimpaye & Fakude (2015) [(25)]** who stated that, undergraduate nursing student participated in study were 91% were female & 8.8%were male and with the majority of them 67.6 % being their ages between 19-25years .

In relation to level of computer specialty, the study revealed that, one third & more than one third from nursing students as different academic years had under training & semiskilled level of computer specialty respectively. This due to limited time & inadequate or inappropriate training& instruction at the e- learning laboratories also, inadequate nursing training courses as e- learning education. This would added to address several major barriers identified individually in the current study. This is supported by **Mahmoud et al (2015) [(26)]** stated that three-quarter of academic staff did not attained any e-learning courses or trained to use it.

In addition, majority of students of the current study have able to access to computer to internet at home, while minority from all of them of four academic years had access to it at faculty lab. This may be attributed to faculty who had the least experience with online education perceived the barriers as who had the most experience with e -learning education. Actually, any type of experience led to duction in perceived barriers when compared to that faculty with no online experience. Therefore**, Darwazeh (2009) [(27)]** identified that, the average of internet usages by students is about half & he recommend that training the faculty members how to put their courses on the internet for learning students. Also, **Bello et al (2017) [(22)]** stated that the challenges facing nursing students in utilizing ICT include slow/poor internet, lack of ICT facilities especially in the rural communities, difficulty in accessing the required information and expensive internet subscription. In addition, **Hallila (2014) [(28)]** added that 68% of nursing students had internet connection at home.

Regarding level of attitude toward e-learning, half of students have low level of attitude as general. Majority of nursing students had low level regarding to motivation, abilities and time management as a domain of attitude toward e–learning. In addition, more than one third of nursing student showed moderate level of attitude regard e- learning in relation to study habits domain. Finally**,** equable percentage less one third of them had high level regarding the abilities and time management domain

In relation to level of barriers, more than half of nursing students had low level of barriers related to social, interaction and academic skill and time support for studies barriers domain. In addition, less than one third of them had moderate level of barriers related to institutional administrative support and instructors and learner motivator barriers respectively. This supported by **OECD (2005) [(29)]** stated that certain barriers prevent students making impact in the classroom this include lack of infrastructure & structure. In addition **Scott (2004)& Gupta (2004) [(30)]** they revealed that, the most issues was lack of enthusiasm from academic staff .While in this study, about one third of nursing student had high level of barriers related to social and interaction and time of support for studies barrier domain respectively. This is in agreement with **Mahmoud (2015) [(26)]** emphasized that , the most common barriers identified by staff included lack of technical support , inadequate equipments &increased amount of preparation time required . Similar the students agreed that the slowness of network is obstacles to the e- learning online & slowness of network decrease the level of effectiveness of e- learning on campus.

There was significant differences of total mean scores among nursing students at different academic years regarding seven categories of e- learning barrier perceived by them. In addition, it was found that the most frequently identified e – learning barrier facing studied students described by them as institutional administrative support & instructors' barriers followed by technical skills & technical problems barriers. The findings from this study are in line with **Maguire, (2005) [(31)]** stated that the barriers that have been previously documented, which include intrinsic and extrinsic barriers as well as institutional inhibitors to online teaching. Also **Allen & Seaman, (2011) [(32)]** , indicated that A major problem with this perspective is that the institutional demand for online education comes, in part, as a result of its economic benefits. While in the present study, illustrates that higher total barrier levels scores was observed among nursing students of 2nd & 4 th academic years followed by third years as regard e- learning. Finally, the study shows that the second year student had the highest mean score for institutional administrative support and instructor's barriers domain.

Approximately an equal and highest mean score was founded for fourth and second year student regarding the social and interaction barriers domain. In this respect, **Weller et al (2014) [(33)]** noticed that, nursing communication & skills as the tope topics of interest. So, **Xing et al (2018) [(34)]** suggest that the design of e-learning programs focusing on communication skills. The highest mean score was observed for the second year nursing student regarding technical skills and technical problems barrier. In addition, this results show that as total of the second year nursing student had highest mean score of total barrier level score, followed by fourth year student and third year student and the least mean score was from the first year academic year of nursing student. Finally, it was noticed the highest rank of barriers was perceived by second years students followed by fourth year of nursing students , while the third rank was for the third year nursing students & the least rank was for the first year nursing students . Also half & less half of fourth & second years students had

high level of perceived barriers respectively .While majority & less two third of second & third students had moderate of total barrier levels score .This finding is because of the activation of the e- learning courses for the second years medical surgical nursing& critical course & third year pediatric & obstetric nursing course then the nursing administration &geriatric courses at fourth years , Tanta It was found that the skills of the students increase with the year of the study and the number of years of using computers.

Regarding to total attitudes score levels, there was significant differences between four academic years & total attitudes levels. The results showed that, more than & less than half of second & fourth year nursing students had moderate of total attitude toward e learning. While the most of first years students had low level of total attitude toward e learning this due to learner computer experience, previous e-learning courses, students practicability uses of computer technology, internet quality, instructor assessment & feedback for students & perceived interaction with other students .This in the line with **Rogers (2000)** [35] they revealed that there was statistical significant deference regard learner satisfaction for the three study – years. This was inconsistence with previous studies done by **Chong et al (2016)** [36] In addition **Swigart et al (2016)** [37] concluded that new information technology , social media & increase e- learning courses , these become popular in nursing education **.** However, **Macaden et al (2017**) [38], stated that their access to online learning is inhabited by geographic distance; high cost limited opportunities low instructor level & work commitments. Therefore, **WHO (2018)** [39] suggest that nurse educators must be provide high quality education to nurse students to produce effective & skilled nursing.

Previously this is in the same line with **Mahmoud (2015**) [26] who showed that the highest mean score in using e- learning , the students have a positive attitude towards e- learning & all of the e- learning domain among the studied nursing students had statistically significant differences because e- learning technology that used to cover different delivery modes –self –paced & it make new knowledge & skills available & reduce learning time . Also, students prefer face-to-face learning by internet [40]. In addition, **Mahmoud et al, (2015**)[26] showed that blended learning is the most preferred type of e- learning among the respondent of Helwan & Menofia University. Finally, a study done by **Weheida & abdalaziz, (2014)** [41] concluded that blended learning methods had proved to traditional approach that the strengths of both e-learning & lecture into nursing to improve knowledge & skills acquisition. However , students assume that the slowness of network & decrease the effectiveness of e- learning& lack the technical support necessary for the management of e-learning courses Also, the faculty member prefer traditional ways of teaching **[40]** .

In relation to nursing students perspectives about e-learning barriers and their characteristics it was found that majority of nursing student have age ≤20 years old had low level of e-learning barriers. Most of female students had moderate and high level of e-learning barriers than male student's .Also high percent level of whom lived in a village had high level of e-learning barriers from their own perceptives. Regarding to the level of computer specialty, nursing students were undertraining & semiskilled had low level of perception of barriers to e-learning. While the majority of students who had internet at home had low & high level of e-learning barriers facing them. In this context **Pollock, Hamann, & Wilson, (2005) [42]. Reilly, Gallagher-Lepak, and Killion (2012) [43]** emphasized that gender differences may affect of barriers and benefits of online teaching and learning. Therefore, they concluded that administrators might need to address group differences through specific training and resources to meet the needs of the target population. Further, **Aksal, (2011**) **[44]** Recommended that, evaluation tools for online teaching and learning may need to be customized to address institutional uniqueness and demographic variables of teachers and students .

Regarding to relation between students' attitude about e-learning and their characteristics there was significant statistically difference between nursing students, attitude toward e-learning and their characteristics at $p<0.05$. In relation to their age, residence, level of computer specially and internet type. Regarding to nursing students' age, more than two third of student whose aged ≤20 years, had low level of attitude. However approximately an equal percentage more than half of students had high and moderate level of attitude regarding e-learning. This may be due to that most nursing student of four levels exposed to e-learning courses for shorter period & decrease number of courses that student to expose for it. This study not corresponds with **Bello et al (2017) [22]** concluded that there was no statistical relationship between place of residence and all the challenges except for deficiency in easy access to the required information. On the other hand, **Arbaugh & Durary (2002) [45]** finding reveal that e- learning courses flexibility play an important role in perceived e-learners' satisfaction. Also in this study , majority of female student had high level of attitude toward e- learning than male, this agree with the study found that female students were to be more satisfied with e- learning than male student**[35]** .

As for residence, most of nursing students from first year, third year**,** second & fourth year were lived in village & majority of them who lived in village had low attitudes toward e- learning. This was inconsistent with **Xing et al (2018)** [34] they stated that rural nurses had more positive attitudes toward e- learning than urban nurses In addition, an equal percentage more than third of them who under training or semiskilled in computer specially had low level of attitude toward e-learning. While majority of nursing student, whom

possess internet at home had moderate level of attitude toward e- learning .In this respect [46] · who found that, male & female differed significantly in their level satisfaction, also significant differences for other demographic variables as age group , computer facility at home , computer training experience & experience in e- learning .Therefore , **Berman et al (2006)** [47] concluded that factors as students' characteristics as self-motivation, patience, self discipline, time management, computer software experience, communication & skills have a direct impact on students' attitude toward e- learning & the adopting of it

As regard to internet type there was no significant statistically difference between nursing students' attitude of e- learning and their using internet type most of them using home internet. This study disagree with **Xing et al (2018)**[34] who found that nurses who have access to computer & internet in their workplace reported more positive attitude This in contrast with **Wong & teo (2009)**[48] who stated that perceived ease of use by undergraduate nursing students is important & significant predictors of students teachers acceptance of computer technology &thus influenced their attitude about e- learning. In addition, this study shows that equal percentage more than one third of student under training or semiskilled in computer specialty had low level of attitude toward e- learning. These result was agreement with **Smart Cappel (2006)**[49] who explain that student had more technological exposure respond more positively to e- learning & who concluded that the prior user with computer affect undergraduate nursing students attitude about e- learning

As regard to the comparison between total barrier score and total attitude score among the nursing students, it was concluded that when the level of barriers increased, the nursing students attitude toward e-learning become high. In addition, this results displays that, majority of first year nursing students who had low & moderate level of attitude toward e-learning had low levels of perceived barriers .While the third years students majority had moderate level of perceived barriers. It concluded that highly positive correlation between nursing student total attitude of e-learning and their total barriers score of e-learning at p=0.508. This means that when the level of barrier increased the attitude toward e-learning become high.

As regard to the correlation between total barrier level score and sociodemographic data among studied groups, there was a highly positive correlation between total barriers level score and the ages of third years nursing students. Also, the first years nursing students had positive level of computer specialty & the total barriers scores. While there was negative correlation between a total barriers scores & level of computer specialty regarding the 2n &3 red years students .This is in the line with **Muilenberge & Berge(2001)** [15] who demonstrated that faculty age impacts perceived institutional barriers. Additionally, increased workload, time commitment, inadequate time for student/assignment grading and feedback, and inadequate compensation for instruction were all related to faculty status.

There was a highly positive correlation between nursing student total attitude of e-learning and total barriers score of e-learning at p=0.508. This means that when the level of e- learning barrier increased the attitude toward e-learning become high. This due to studying environment, students' computer experience, & frequently user of computer explore more aware of barrier & they were more likely accept e- learning & of its barriers. This is disagree with **Sabah (2013)**[50] revealed that a good correlation between students attitude of e-learning & technical abilities. However, student who use more computer technology are more likely to accept e-learning with a positive attitude. In addition, study revealed that the lack of students' interactivity & motivation toward the entire learning processes & their approach.Therfore, engaging students into deep interaction in the e-learning environment lead to increase attitude level toward it. **Carter(2013)**[19] concluded that Good quality instructors, were highly experienced and well qualified practitioners, capable of designing interactive, collaborative, reflective and critical e- learning environments, were aligned with student satisfaction.

Finally correlation between total attitude score and sociodemographic characteristics among nursing students revealed that there was a highly positive correlation between total attitudes of e-learning score and the ages of third years nursing students at p=0.000**, while there was highly negative correlation between a total attitudes of e-learning le level score and their level of computer specialty regarding the same year students at p=0.000**. As this regard, the study found that learner attitude was positively correlated with computer technology &perceived ease use [35] .

One of the most critical issues in new & advanced information & communication can applied in higher education. The higher education learner facing e- learning barriers &they are need of enriched content, interaction with the faculty. Furthermore the finding of this study are in the same line with **Newton (2003)**[51] who reported that , lack of incentives & rewards for staff involved in e- learning & lack of strategies & vision . The same finding was reported by **Suri & Sharma (2013)** [13] where the students reported that physical presence of teacher is essential for teaching / learning process. **Also, Weheida & abdalaziz, (2014)** [41] recommended that e- learning as a teaching methods provide the most efficient & effective instruction to overcoming the deficiency of limited skills & resources. Finally, **Harerimana et al 2019**[7] concluded that inadequate skills of nursing students to use applications of information and communication technology (ICT) is a fundamental to academic life & should be taken into consideration . Therefore, **Kaya (2011)** [20] indicated

that nurses regarded ICT as an important tool to their education & the progress of your society and this were impact on using computer technologies in the delivery of healthcare.

Given the increased institutional demands for online learning, together with potentially outdated technology, limited financial resources, increasing student admissions, faculty time commitments and workloads demands, faculty and administrators face the challenge of addressing these issues so that the students' needs and learning outcomes in online environments can be better met. The results of this study suggest that the barriers to e- learning vary according to faculty gender, experience, and rank. More research is needed to determine the critical intrinsic and extrinsic barriers and institutional [(31)]. However; **Naveed (2017)**[(52)] concluded that the influence of such barriers might vary from region to region depending upon the social, economic, and geographical conditions of a country.

IV. Conclusion:

Based on this study, it can be concluded that the most frequent barriers from students perspectives were varied levels of attitude & barriers for using e -learning courses.

-In this study, some items were designed to measure the nursing students' attitude toward e- learning. & several students perceived barriers as technical skills, academic skills & social & interaction barriers.

- Students perceived barriers had impact on students, attitude towards e- learning

- This study revealed that more than half of nursing students of four academic years, had low level of barriers related to social, interaction and academic skill and time support for studies barriers domain. While about one third of nursing student had high level of barriers related to social, interaction, and time of support for studies barrier domain respectively.

-There was significant statistical differences between nursing students &attitude of e-learning barriers & their characteristics in relation to age, level of computer specialty & internet type.

-In other hand there was significant statistical differences between nursing students' perception of e-learning barriers & their characteristics .Also, there was significant statistical differences between four academic years nursing students & total barriers levels. In addition with special attention to the 1st year students, as they have limited exposure to computers from high schools. Effective integration of ICT in the nursing curriculum would strengthen nursing students' skills in nursing informatics.

V. Recommendations :

1-To increase level of nursing student attitude, it is imperative for students to be equipped with knowledge & skills related about use of computer & internet.

2- Computer courses for undergraduate nursing students is essential to academic studying to reduce their own perspectives e- learning barriers.

3- Trained facilitator for illustrating to nursing students how to use e- learning methods is a must.

4- Design more flexible e- learning courses or modules for nursing students that enhance their learning & satisfaction.

5- On-going students' monitoring on the use of e- learning courses should be implemented for all modules.

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