

Satisfaction and Learning Obstacles of Online Education among Maternity Nursing Students during COVID -19 Outbreak

¹Ghada Mosaad Mohammed Elghabbour, ²Tahany El_sayed El_Sayed Amr, ³Rania Reafaat Abdelkader Atia, ⁴Noura Elgharib Mohamed Mostafa Eldiasty

¹Lecturer of Nursing Administration, Faculty of Nursing, Port Said University

²Assistant Professor of Maternal and Newborn Health Nursing, Faculty of Nursing, Menoufia University, Egypt.

³⁻¹. Assistant Professor of Physiology department Faculty of Medicine Zagazig University

³⁻². Assistant Professor of Basic Medical Science Faculty of Applied Medical Science, AlBaha University

⁴Lecturer of Nursing Administration, Faculty of Nursing, Port Said University

Abstract

Background: During the COVID-19 outbreak, maternity nursing students face many obstacles as a result of online learning which was the greatest disruption of learning in history and had a global impact on learners and teachers. **The study aimed to** assess satisfaction and learning obstacles of online education among maternity nursing students during COVID-19 outbreak. **Subjects and Methods: Design:** A correlational descriptive research design was utilized to conduct this study. **Setting:** The study was applied in the Faculty of Nursing, Port Said University. **Sample:** A convenient sample of 180 including all the maternity nursing students. **Four tools of data collection: (I)** an online questionnaire was used. It consisted of two parts; (1) demographic characteristics of maternity nursing students, (2) educational platforms used, (II) learner satisfaction with online – learning, and (III) online learning obstacles faced by academic students. **Results:** The revealed that the most used platform among maternity nursing students was the Microsoft platform for online learning. Most obstacles faced by the students during online learning concern the Learners' characteristics dimension, as well as less than two-thirds of the studied academic nursing students, face a high level of obstacles. Also, about two-thirds of maternity students were unsatisfied with their online learning experience. **Conclusion:** It was discovered that maternity nursing students were dissatisfied with continuing their online education throughout COVID-19 and that they had numerous obstacles during their studies. **Recommendations:** Teaching maternity nursing students how to use online learning platforms would help them transition into the future by exposing them to a variety of media and faculties, which will help them gain knowledge and skills.

Keywords: COVID-19 outbreak, Maternity nursing students, Online learning, obstacles.

Introduction

Beginning in China, the Coronavirus Disease 2019 (COVID-19) pandemic was contained there until February 2020, at which point it suddenly spread to become a global pandemic on March 11, 2020 (Koirala et al., 2020; Lu et al., 2020; WHO, 2020). The restraining measures used to stop and contain the outbreak have had an influence on people's lifestyles, financial markets, businesses, and educational systems all around the world (Verma et al., 2020; Gautam & Sharma, 2020). In response to the broad spread of COVID-19, the government has taken several steps to

prevent or slow the spread of the disease, particularly in education to protect students (Bedford et al., 2020). The closing of schools and instructional education is affecting more than 80% of the world's student population in at least 150 countries (UNESCO, 2020). Colleges had to switch from their entire traditional instructional style to an alternate online distance learning methodology as a result of the COVID-19 epidemic in particular (Liguori & Winkler, 2020).

With approximately 212,348,831 confirmed cases and 4,441,210 fatalities from the start of the outbreak until August 22, 2021, the COVID-19 outbreak had a huge

impact on schools, teachers, students, and all educational facilities around the world (**Adnan & Anwar, 2020; Almanthari et al., 2020**). There were 16,663 fatalities in Egypt between 14 February 2020 and 22 August 2021, with 286,168 verified cases. Because of the outbreak, schools, colleges, and universities had to close their campuses from March to July 2020 to hold final exams. The epidemic year's start was subsequently delayed until October 2020 (**WHO Health Emergency Dashboard, 2021**).

When the second wave of the outbreak began, the research was put on hold for two months, from January 2021 to February 2021, to allow students to follow social distancing policies (**Toquero, 2020**) and to encourage outbreak experts to think about distance learning as a viable alternative to traditional face-to-face learning to get around the issue and finish courses that should be taught all academic year (**Kaur, 2020**).

Since students' training durations in hospitals were cut back, diminished, and subsequently eliminated due to the outbreak, it affected practical training. The university teaching campuses, which include 73 governmental and non-governmental universities and institutes (**Egypt Ranking Web of Universities-Web metrics, 2021**), made up for it by increasing practical laboratory time and developing case studies, which affected the graduates' level of fluency and recognized the existence of learning and educational barriers. Some students favor online learning because it saves them from having to travel, while others prefer traditional learning because it is the more prevalent form of instruction (**World Health Organization, 2021**).

Lack of technology access, the addition of new supplies to students' school supply lists as a result of the growth of online learning, difficulties learning to use new technology, difficulties concentrating, difficulties managing time, and isolation are some of the common challenges that students encounter when learning online (**Egypt**

Ranking Web of Universities-Web metrics, 2021).

Online learning changes the educational process from one that is teacher-centered to one that is student-centered by making students more accountable for their learning. Most now place more of an emphasis on delivering educational content to the digital realm than on online teaching and conventional delivery methods, making the quick move to online learning into a gauge of organizational agility (**Hanafy et al., 2021**).

Online learning uses the Internet to distribute course materials. Online education typically has a student-centered focus and calls for engagement. By independently evaluating the content, asking questions, and requesting clarification from the teacher, students determine the classroom dynamics in student-centered or active learning. In this type of learning, it is the teacher who is doing the listening, formulating, and responding, not the students (**Paul & Jefferson, 2019; Smith & Brame, 2020**).

Whether, synchronously or asynchronously, online learning can be offered. When learning is done synchronously, online and offline components occur simultaneously and real-time interactions between students and teachers take place in video conferences and online chats, for example. The asynchronous method does not occur concurrently with the synchronous method; rather, it leverages electronic media such as emails, discussion boards, and text messaging to enhance online learning (**Brashear, 2020**).

Significance of the study:

Due to the pandemic's nature, the lengthy closure brought on by the COVID-19 outbreak converted traditional classroom instruction into online learning. To facilitate online learning for undergraduate nursing students during the pandemic, educational institutions are looking into a variety of instructional technologies (**Nassoura, 2020**).

It's crucial to understand the challenges maternity nursing students face when learning online because online learning has both benefits and drawbacks. After the COVID-19 epidemic, their comments may assist educational institutions to develop courses and online learning programs more effectively, especially because online learning may eventually replace traditional classroom instruction. Hence, the researchers conducted this study to assess satisfaction and learning obstacles of online education among maternity nursing students during the COVID-19 outbreak.

Aim of the Study

The study aimed to assess satisfaction and learning obstacles of online education among maternity nursing students during COVID-19 outbreak through:

- Assess the educational platforms used in online learning among maternity nursing students during the COVID-19 outbreak.
- Identify online learning obstacles faced by maternity nursing students during the COVID-19 outbreak
- Assess maternity nursing student satisfaction with online learning during the COVID-19 outbreak.
- Determine the correlation between maternity nursing students' satisfaction with online learning and the obstacles they confront.

Research question:

- 1- What are types of educational platforms were used in online learning during the COVID-19 outbreak among maternity nursing students?
- 2- What are the online learning obstacles faced by maternity nursing students during the COVID-19 outbreak?
- 3- Are maternity nursing students satisfied with online learning during the COVID-19 outbreak?

- 4- Is there a correlation between obstacles faced by maternity nursing students and their satisfaction with online learning?

Subjects & Methods

Research design:

This study was carried out using a correlational descriptive research design. A community's characteristics can be described using this type of investigation. This method is widely employed to reach conclusions regarding probable links or to gather basic data to inspire future research (Chikaodili et al., 2020).

Setting:

The study was applied in the Faculty of Nursing, Port Said University, Egypt.

Subjects:

A convenient sample of **180** was used in the current study including all the maternity nursing students in the third year in the Faculty of Nursing, Port Said University during the academic year 2020/2021, through Google form spreadsheet, it included all male and female, and agree to participate in this study.

Tools for data collection:

Tool 1: The researchers created an online questionnaire after conducting a literature review and basing it on the most recent data from the most recent accessible data from the study to collect data relevant to the study (World Health Organization, 2020 and Rajab et al., 2020). It had questions that addressed the goals of the study and were (yes/no, multiple-choice, and open-ended). It had the following four sections:

Part I: Three components were included in this section that dealt with the age, gender, and place of residence of maternity nursing students.

Part II: was composed of five elements, and it discussed the educational platforms employed, including Zoom, What App, emails, Google, and Microsoft platforms.

Tool (II): Online learning obstacles faced by maternity students; It is used to assess online learning obstacles faced by maternity nursing students. It was adopted by (Diab & Elgahsh, 2020). To determine the challenges faced by university nursing students adopting distance learning during the COVID-19 outbreak, 35 questions were included in the survey. Utilizing Cronbach's alpha coefficient to assess the tool's internal consistency allowed for a reliability test. Five dimensions are present.

Dimension I was concerned about the characteristics of the students, so it included a list of seven questions (7 items) that included questions about having the necessary knowledge and skills, learning tools, lack of self-assurance and shyness, lack of an internet connection, lack of time management skills to keep up with the pace of the course, among other things, inability to communicate with classmates via the distance-learning platform, and lack of language and typing skills for distance learning.

The seven items in Dimension II, which dealt with technical and managerial support, were: system errors, network lag while learning, a lack of tutoring services, a system that is frequently unavailable, technical support from the college for using distance learning, compatibility of university textbooks with distance learning, and a lack of technical assistance to deal with technological issues.

Dimension III, which dealt with infrastructure and technology, included (7 items) inquiries about problematic bandwidth connections, appropriate training before using a distance-learning platform, the cost of internet charges, counseling while taking courses, the adaptability of system design to use, unstable power supply at home, and the difficulty of rules and program directions when using a distance-learning platform.

Dimension IV, which dealt with curriculum content, including seven items: questions about the alignment of available learning resources with the curriculum, the ability to access distance resources at the

platform while at home, the capacity to learn the contents of subjects using distance learning, the capacity to comprehend the contents of subjects using distance learning, the disproportion of distance learning with curriculum content, and worries about the practical nature of the curriculum (flash animations, simulations, videos, audios, etc.).

The characteristics of the instructors are covered by Dimension V, which consists of seven items, including sufficient knowledge and skills for using distance learning; confidence in using distance learning; clear instructions from the teacher; prompt feedback from teachers; teachers' preference for traditional methods of learning and research; teacher's lateness in submitting distance learning courses and its impact on student's performance; and difficulty reaching academic staff when a problem arises.

A five-point Likert scale was used to score the maternity nursing students' opinions; with 1 being the strongest disagreement and 5 being the strongest agreement (strongly agree). The mean score for each dimension of online learning difficulties was calculated by adding the item scores together and dividing the result by the number of items. 35.00 and 175.00 were the lowest and highest scores, respectively. The percentage representing these numbers was then calculated. When employing distance learning, low hurdles were those with a score of less than 60%, moderate hurdles were those with a score of 60% to 80%, and high hurdles were those with a score of more than 80%.

Tool (III) Learner satisfaction with online – learning, Two (2) items about academic nursing students' satisfaction with online learning made up this survey. To gauge learners' satisfaction with online learning, Arbaugh, (2000) developed the survey. There are nine questions in it, and there are five different ways you can respond: strongly disagree, disagree, disagree, uncertain, and agree. Positive items were given a score ranging from one

(strongly disagree) to five (strongly agree), while negative ones were given a score ranging from one (strongly disagree) to five (strongly agree). On the online learning satisfaction scale, satisfied students scored 60% of the total score, whereas dissatisfied students received 60%.

Validity and reliability:

Face and content validity of the tools for clarity, comprehensiveness, and appropriateness was tested by a board of five expert professors, three professors from maternal and newborn health nursing department and two professors from the nursing administration department. The internal reliability of the tool was tested using Cronbach's alpha coefficient was 0.82.

Pilot study:

A pilot study was carried out on 18 maternity nursing students (10% of the sample). Clarification and estimation of the time needed for filling the study tools, and testing the feasibility of the research process and no modifications were carried out. The pilot study was included in the study.

Data collection:

Administrative approval from those in charge of the setting was obtained before this study could begin. Approximately 15 to 20 minutes were needed on average for each student to complete the questionnaire. In the second semester of the school year 2020–2021, the study was carried out. With the help of an online Arabic questionnaire, the information was gathered for 25 days from the beginning of February 2021 to the end. The study's methodology was developed by the researchers using an online Google form spreadsheet. Arabic was used to translate the English-designed online questionnaire. As a result of students receiving the link to the online survey through electronic communication channels, the researchers were able to get their consent to participate in the study by MS message (Email or

WhatsApp groups), through their educational electronic communication groups.

On the first page of the online survey, there was an introduction that gave the students information on the background and goals of the study. The researchers' names and phone numbers are included in a subsequent statement; along with a WhatsApp contact form, so that students can get in touch with them if they have any questions about the questionnaire.

All maternity nursing students this academic year took all of their courses online, whether they were theory-or practice-based. The difficulties they encountered with distance learning as well as their experience with the online learning approach were evaluated.

Ethical consideration:

The study's purpose and advantages were explained to each student. Each maternity nursing student reminded them that participation in the study was voluntary, that they might leave at any time before completing the questionnaire without repercussions and without providing a reason, and that their answers would be kept private. The maternity nursing students who were participating in this study provided verbal consent before the study began. All study participants had access to the researchers' emails, WhatsApp account, and phone number in addition to their electronic professional emails.

Statistical analysis:

The researchers' computer was used to tabulate the data after it had been acquired, coded, and tabulated. The Statistical Package for Social Science (version 21) was used for the statistical analysis. In the form of mean and standard deviation (XSD), quantitative data were expressed. In qualitative data, percentages and numbers were used as indicators. A t-test was used to make a comparison. Using the Pearson correlation coefficient (r) to assess the relationship

between the variables, the significance threshold was set at 0.05.

Results:

Table 1 showed that the average age of maternity nursing students was $18.7 \pm .45$ and that 57.3% of them were female and 55.6% lived in metropolitan regions. 61.1% of people had access to the internet at home and 62.3% utilized their mobiles for online learning activities.

According to **Figure 1**, the platforms used the most frequently by maternity nursing students for online learning were Microsoft platforms (28%) and WhatsApp groups was (24%).

Table 2 showed the Mean SD of the difficulties encountered by maternity nursing students when learning online, showing a significant amount of difficulties. The first barrier that maternity nursing students had to

overcome was related to the learner characteristics dimension, followed by the infrastructure and technology dimension, the technical and management support dimension, the curriculum content dimension, the fourth barrier, and the fifth and final barrier, which was related to the instructor characteristics dimension.

Figure 2 showed that 62% of the maternity nursing students under investigation confront high levels of difficulties, whereas 26% of the students encountered moderate levels of obstacles.

Figure 3 shows how satisfied the maternity nursing students in the study were. As was seen, only 37% of them reported being content with their online learning experience, while about (63%) of them expressed dissatisfaction.

When maternity nursing students were evaluated for their online learning experiences, **Table 4** showed a statistically significant association between their overall satisfaction and their overall obstacle.

Table (1): Distribution of studied maternity nursing students regarding their demographic characteristics (N=180).

Items	No	%
Age		
Mean \pm SD	$18.7 \pm .45$	
Gender		
Male	77	42.7
Female	103	57.3
Residence		
Rural	80	44.4
Urban	100	55.6
Devices used for distance learning activities:		
Computer	40	22.3
Mobile	112	62.3
Laptop	20	11.0
Tablet	8	4.4
The facility of the internet at home:		
No	70	38.9
Yes	110	61.1

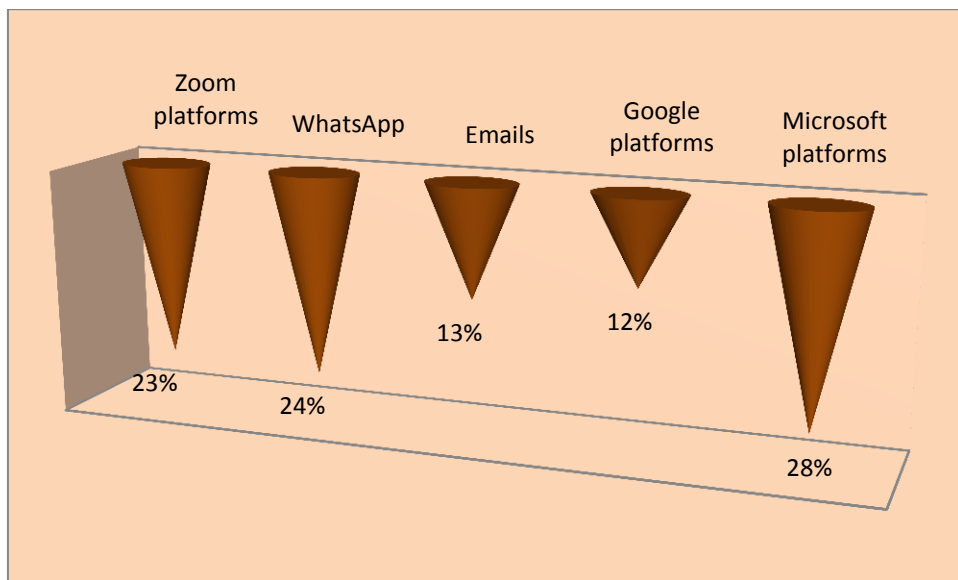


Figure 1 Distribution of studied maternity nursing students regarding their use of online platforms

Table (2): Obstacles among the maternity nursing students regarding online learning (N=180).

Items	Mean ± SD
Learners' characteristics dimension	23.54±4.64
Technical and Management support dimension	22.16±4.62
Infrastructure and technology dimension	23.43±4.55
Curriculum content dimension	21.48±4.43
Instructors' characteristics dimension	18.04±6.47

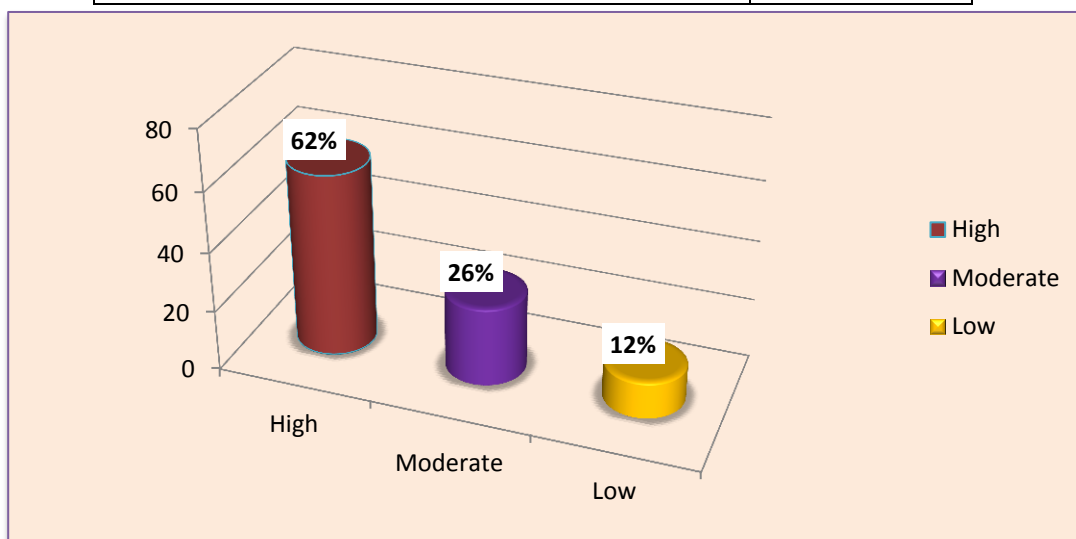


Figure (2): Distribution of the studied maternity nursing students regarding total online learning obstacles (N=180).

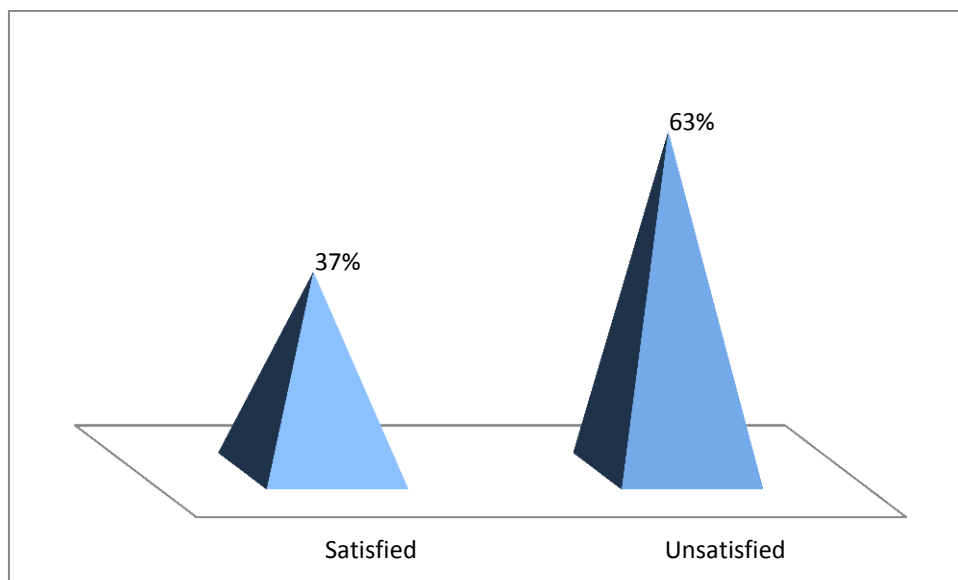


Figure (3): Satisfaction levels among the studied maternity nursing students regarding online Learning (N=180).

Table (4): Correlation between total satisfaction and total obstacle among studied maternity nursing students for online learning

Items	Total satisfaction	
	R	p-value
Total obstacle	0.735	0.017*

*Statistically significant at $p < 0.001$

Discussion

Online learning works well and is frequently used in nations with modern technology. Lack of funding in educational institutions, however, limited students' access to electronic online learning due to inadequate internet connectivity and a lack of cutting-edge technologies. The university conversation includes responses to study questions concerning how maternity nursing students perceive online learning, the challenges they encounter, and the relationship between these issues and how they perceive online learning (Basilaia and Kvavadze, 2020).

Education institutions around the world were compelled to implement and develop online learning with students from all academic subjects as the COVID-19 pandemic develops by March 2020 with no means of knowing when it would be over

(Kaur, 2020). The pandemic's multiple difficulties have accelerated the transition to online learning, but its implementation has run into several problems (Crawford, et al., 2020).

The findings of the current study showed that the age of maternity nursing students was 18.745 years, on average. The researchers concluded that the young age of the students may be the root of their discontent with online learning.

According to the findings of the current study, more than one-third of maternity nursing students used their mobile devices for online learning activities. According to the study, the majority of maternity nursing students having access to mobile phones with advanced services and being able to use such services more quickly

may be related to using personal mobile phones for online learning.

Mohammed et al., (2021) study, "Challenges towards Online Classes during COVID-19 Pandemic," which examined this issue, showed that the majority of the students under investigation used mobile phones for online learning.

Similar to this, a study in Egypt by **Diab and Elgahsh, (2020)** titled "The Obstacles Faced with E-learning During COVID-19 Pandemic and its Effect on Students' Attitudes" found that more than three-fifths of the students used their mobile devices for their online learning and had access to the Internet at home.

The Microsoft platform and Zoom platforms were found to be the most often used platforms among maternity nursing students, according to the study's findings. These findings differ from those reported by **Mohammed et al., (2021)** in India "Challenges towards Online Classes during COVID-19 Pandemic" and observed that Google meets followed by WhatsApp groups.

According to the results of the current study, the learners' characteristics dimension was identified as the top challenge that maternity nursing students faced when learning online. These results may be attributed to students' inadequate preparation as well as staff's preparation for using these programs and staff's training in their application with instructions to prepare courses and curricula electronically before the start of the academic year, giving educational staff enough time to prepare.

This finding is consistent with research by **Vershitskaya et al., (2020)** entitled "Present-day Management of Universities in Russia: Prospects and Challenges of E-Learning," which found that the biggest obstacles to online education are a lack of infrastructure and poverty. Furthermore, **Aljaraideh and Al Bataineh, (2019)** study on "Barriers to Utilizing Online

Learning among Jordanian Students" revealed that a significant obstacle to online learning is a lack of adequate infrastructure.

Similar findings were made by **Ali, et al. (2018)** in their study titled "A conceptual framework highlighting e-learning implementation constraints," which discovered that network issues, ineffective computer systems, and a lack of technical support are the main obstacles to online learning. Additionally, it was discovered by **Mohammad et al., (2017)** who studied "Critical Success Factors for Electronic Learning from the Perspectives of Faculty Members and Experts in Tehran University" that technical support services can either encourage or deter the continuation of e-learning depending on their effectiveness.

More than three-fifths of the maternity nursing students in this study experience significant challenges, according to study results. These results may be attributed to students' inadequate training in the use of the models and programs required for the application of online learning.

The results of this study showed that more than two-thirds of students were not happy with their online learning environment. The reason for this, according to the researchers, may be that the learner is more isolated from other students in the virtual learning environment. The chance for students to interact physically with their peers is limited. Without face-to-face interaction, students could feel isolated, therefore they need to ask questions and get prompt answers from their teachers. Challenges of time and effort are also prevalent concerns for many online students.

This finding is consistent with a study by **Singleton et al. (2016)** entitled "Online learning: Perceptions of useful and challenging characteristics," which found that students appeared to prefer taking the course in person rather than online because they are more accustomed to the traditional teaching and learning environment. In his study on "Factors Affecting Nursing Students'

Satisfaction with E-Learning Experience," **Ali (2017)** discovered that more than half of students were dissatisfied with their online learning experience.

Another study in Egypt on 450 maternity students by (**Kumar et al., 2020**), explores the attitudes and challenges faced by students in online learning throughout the COVID-19 pandemic; and found that more than three-fifths of the maternity students from the schools of business in three different universities in Egypt believed that learning in class was not the same as learning at home on the internet and they cannot complete an online course without difficulties.

Over three-fifths of the maternity students from the business schools at three different universities in Egypt believed that learning in class was not the same as learning at home on the internet and that they could not complete an online course.

The current study found that among the maternity nursing students who participated in online learning, there was a statistically significant association between the total satisfaction score and the total obstacle score. According to the experts, this shows that having a lot of obstacles causes people to be less satisfied.

Limitation of the study:

The researchers cannot interview the maternity nursing students face to face during the outbreak and used the online Google form spreadsheet to create the study research.

Conclusion:

In light of the study findings, it was concluded that maternity nursing students were dissatisfied with continuing their online education throughout COVID-19 and that they had numerous challenges during their study. The most used platform among maternity nursing students was the Microsoft

platform for online learning. The most obstacles faced by students during online learning concern the Learners' characteristics dimension. There is a positive statistically significant correlation between total satisfaction and obstacles to online learning.

Recommendations:

The following recommendations are suggested based on the results of the current study:

- Teaching maternity nursing students how to use online learning platforms would help them transition into the future by exposing them to a variety of media and faculties, which will help them gain knowledge and skills.
- Online learning should be methodically implemented by medical and nursing educational institutions.
- Future study on the effect of a combination of online and traditional learning on academic achievement among nursing students.

References:

- Adnan, M., & Anwar, K. (2020):** Online Learning amid the COVID-19 Pandemic: Students' Perspectives. *Online Submission*; 2(1): 45-51.
- Ali, G.M. (2017):** Factors Affecting Nursing Student's Satisfaction with E-Learning Experience in King Khalid University, Saudi Arabia, *International Journal of Learning & Development* ISSN 2164-4063, Vol. 2, No. 2.
- Ali, S., Gulliver, S., and Uppal, M. (2018):** A conceptual framework highlighting e-learning implementation barriers. *Info-Tech People*; 31 (1): 156–180.
- Aljaraideh, Y and Al Bataineh, K. (2019):** Jordanian Students' Barriers to Utilizing Online Learning: A Survey Study. *International Education Studies*; 12 (5): 99-108

- <http://www.ccsenet.org/journal/index.php/ies/article/view/0/39309>
- Almanthari, A., Maulina, S., and Bruce, S. (2020):** Secondary school mathematics teachers' views on E-learning implementation barriers during the COVID-19 pandemic: the case of Indonesia. *Eurasia Journal of Mathematics, Science and Technology Education*; 16(7): 1860.
- Arbaugh, J. B. (2002):** Managing the online classroom: a study of technological and behavioral characteristics of web-based MBA courses. *Journal of High Technology Management Research*, 13, 203–223.
- Basilala, G., & Kvavadze, D. (2020):** Transition to online education in schools during a SARS-CoV-2 coronavirus (Covid-19) pandemic in Georgia. *Pedagogical Research*; 5(4): 1-9
- Bedford, J., Enria, D., Giesecke, J., Heymann, D.L, Ihekweazu, C., Kobinger, G., et al. (2020):** Towards controlling of a pandemic. *Lancet*; 395 (10229): 1015-1018.
- Brashear, L., (2020):** *Face-To-Face, Blended, Hybrid, and Online Instructional Delivery Methods: A Comparative Study of English Language Learners' Grades in a Mathematics Course in a Higher Education Institution in the United Arab Emirate: Dissertation submitted in fulfillment of the requirements for the degree of Master of Education, The British University, Dubai, Pp. 1-112.*
- Chikaodili, N., Ihudiebube-Splendor, A., & Paulina, C. (2020):** A Descriptive Cross-Sectional Study: Practical and Feasible Design in Investigating Health Care-Seeking Behaviors of Undergraduates, SAGE Research Methods Cases: Medicine and Health, DOI: <https://dx.doi.org/10.4135/9781529742862>
- Crawford, J., Butler-Henderson, K., Rudolph, J., & Glowatz, M. (2020):** COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Teaching and Learning (JALT)*; 3(1), Pp. 9-15
- Diab, G.M.A and Elgahsh, N.F. (2020):** E-learning During COVID-19 Pandemic: Obstacles Faced Nursing Students and Its Effect on Their Attitudes While Applying It. *American Journal of Nursing Science*; 9(4): 295-309.
- Egypt \ Ranking Web of Universities-Webometrics (2021):** Retrieved on 15, May 2021, retrieved from <http://www.webometrics.info>
- Gautam, R., and Sharma, M. (2020):** 2019-nCoV pandemic: A disruptive and stressful atmosphere for Indian academic fraternity. *Brain Behav Immun.*; 88:948-949. DOI: [10.1016/j.bbi.2020.04.025](https://doi.org/10.1016/j.bbi.2020.04.025).
- Hanafy, S.M., Jumaa, M.I., and Arafa, M.A. (2021):** A comparative study of online learning in response to the coronavirus disease 2019 pandemic versus conventional learning. *Saudi Med J*; 42 (3): 324-331
- Kaur, G. (2020):** Digital Life: Boon or bane in teaching sector on COVID-19. *CLIO an Annual Interdisciplinary Journal of History*; 6(6): 416-427.
- Koirala, D., Silwal, M., Gurung, S., Bhattarai, M., Vikash Kumar, K.C. (2020):** Perception towards Online Classes during COVID-19 among Nursing Students of a Medical College of Kaski District, Nepal. *J Biomed Res Environ Sci*; 1(6): 249-255. DOI: [10.37871/jbres1151](https://doi.org/10.37871/jbres1151)
- Kumar, G., Singh, G., Bhatnagar, V., Gupta, R., Upadhyay, S.K. (2020):** Outcome of Online Teaching-Learning over Traditional Education during Covid-19 Pandemic. *International Journal of Advanced Trends in Computer Science and Engineering*; 9(5): 7704- 7711.
- Liguori, E. and Winkler, C. (2020):** From Offline to Online: Challenges and Opportunities for Entrepreneurship Education Following the COVID-19 Pandemic, *Entrepreneurship Education and Pedagogy*; 3: 346-351.

- Mohammad Zadeh, N., Ghalavandi, H., and Abbaszadeh, M. (2017):** Critical Success Factors for Electronic Learning from the Perspectives of Faculty Members and Experts of Tehran University of Medical Sciences, Tehran, Iran, Using Delphi Method and Analytic Hierarchy Process. *Future of medical education journal (FMEJ)*; 7 (3): 3-8.
- Mohammed, A.K., Tuba, K., Asheref, I., and Mohd, A. (2021):** School Students' Perception and Challenges towards Online Classes during COVID-19 Pandemic in India: An Econometric Analysis, 13, 4786. April, <https://www.researchgate.net/publication/351196875> DOI: 10.3390/su13094786
- Nassoura, A.B. (2020):** Measuring Students' Perceptions of Online Learning in Higher Education. *Int. J. Sci. Technol. Res*, 9, 1965–1970.
- Paul, J., and Jefferson F. (2019):** A Comparative Analysis of Student Performance in an Online vs. Face-to-Face Environmental Science Course from 2009 to 2016. *Frontiers in Computer Science*; 1 (7): 1 – 9.
- Rajab, M. H., Gazal, A. M., & Alkattan, K. (2020):** Challenges to Online Medical Education during the COVID-19 Pandemic. *Cureus*, 12 (7), e8966.
- Raman, A. V. (2019).** Reeder's Maternity Nursing. Wolters Kluwer India Pvt Ltd.
- Singleton, E., Song, L., Hill, J., Koh, M., Jones, F. & Barbour, M. (2016):** Online learning: Perceptions of useful and challenging characteristics. In G. Richards (Ed.). *Proceedings of World Conference on E-learning in Corporate, Government, Healthcare, and Higher Education* (pp. 946-950)
- Smith, B. and Brame, C. (2020):** "Blended and Online Learning". *Vanderbilt University* [online], [Accessed 7 Jan 2021], Available at: <https://cft.vanderbilt.edu/guides-sub-pages/blended-and-online-learning/>
- Toquero, C. M. (2020):** Challenges and opportunities for higher education amid the COVID-19 pandemic: The Philippine context. *Pedagogical Research*, 5(4). e-ISSN: 2468-4929.
- UNESCO. (2020):** COVID-19 Educational disruption and response. [Accessed 12 April 2021], Available from: <https://en.unesco.org/themes/education-emergencies/coronavirus-school-closures>.
- Verma, A., Verma, S., Garg, P., and Godara, R. (2020):** Online Teaching During COVID-19: Perception of Medical Undergraduate Students. *Indian J Surg*; 27:1-2. DOI: 10.1007/s12262-020-02487-2.
- Vershitskaya, R., Mikhaylova, V., Gilmanshina I., Dorozhkin, M., and Epaneshnikov, V. (2020):** Present-day management of universities in Russia: Prospects and challenges of e-learning. *Education and Information Technologies*; 25 (1): 611–621.
- World Health Organization (WHO) Health Emergency Dashboard (2021):** WHO Coronavirus Disease (COVID-19) Dashboard retrieved 22, May 2021, Retrieved from <https://covid19.who.int/>.
- World Health Organization (WHO) (2020):** WHO announces COVID-19 outbreak a pandemic, Available at: <https://bit.ly/35KytDL>