

Perceptions and Challenges for Nursing Students related to Online Learning during COVID-19 in Guyana. Mixed Method Study*

Percepciones y desafíos para los estudiantes de enfermería en relación con el aprendizaje en línea durante COVID-19 en Guyana. Un estudio de método mixto

Percepções e desafios dos estudantes de enfermagem relacionados ao aprendizado on-line durante a COVID-19 na Guiana. Um estudo de método misto

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Abstract:

Objective: Exploring nursing students' perceptions and experiences of online learning during the COVID-19 Pandemic with a mixed method. **Methods:** A mixed method was used and obtained ethical approval from IRB. Quantitatively 419 nursing students' perceptions were assessed using a valid and reliable Likert scale of 37 items with a Google Forms survey. Qualitatively 5 focus group discussions (6 to 8 students each) of 60 to 90 minutes from 5 respective Nursing Schools were conducted via zoom and recorded. Codes were generated using MAXQDA analytics Pro 2022 version 22.2.1. **Results:** 276 (65.87 %) students agreed self-discipline is necessary for online learning, 267 (63.72 %) students strongly agree that online classes reduce travel expenses. Gender had no influence on perception. Younger students showed more positive perception than older students. Senior BSN students showed positive perception compared to RN students, and associations are statistically significant at <0.001. Thematic analysis led to the following themes. Some preferred online learning due to its "flexibility" "convenience" and "access to recorded sessions". Others preferred face to face: online learning is "good for theory only", but for practical sessions face to face interactions is necessary, "sense of isolation", "no student interaction", "less student- faculty interaction". Barriers identified were "internet connectivity issues", "electricity issues" and "technological issues". Facilitators were "convenience", "reduced cost in transportation", "saves time" and opportunity to become "tech savvy". **Conclusion:** Online classes are suitable for theoretical aspects but require face to face interaction for practical components.

Keywords: perceptions, online learning, nursing students.

Resumen:

Objetivo: explorar las percepciones y experiencias de los estudiantes de enfermería sobre el aprendizaje en línea durante la pandemia por COVID-19 con una metodología mixta. **Método:** se utilizó un método mixto y se obtuvo la aprobación ética del IRB. Cuantitativamente se evaluaron las percepciones de 419 estudiantes de enfermería utilizando una escala de Likert válida y fiable con 37 ítems a través de una encuesta en Google Forms. Desde el punto de vista cualitativo, se llevaron a cabo y se grabaron 5 debates de grupos focales (de 6 a 8 estudiantes cada uno) con una duración de 60 a 90 minutos en las 5 escuelas de enfermería respectivas. Los códigos se generaron utilizando MAXQDA analytics Pro 2022 versión 22.2.1. **Resultados:** 276 (65,87 %) estudiantes están de acuerdo en que la autodisciplina es necesaria para el aprendizaje en línea. 267 (63,72 %) estudiantes están totalmente de acuerdo en que las clases en línea reducen los gastos de desplazamiento. El género no influyó en la percepción. Los estudiantes más jóvenes mostraron una percepción más positiva que los de más edad, los estudiantes BSN senior mostraron una percepción positiva en comparación con los estudiantes RN; las asociaciones son estadísticamente significativas a <0,001. El análisis temático dio lugar a los siguientes temas. Algunos prefirieron el aprendizaje en línea por su "flexibilidad", "comodidad" y "acceso a sesiones grabadas". Otros prefirieron el aprendizaje presencial: el aprendizaje en línea es "bueno solo para la teoría", pero para las sesiones prácticas es necesaria la interacción presencial, "sensación de aislamiento", "no hay interacción entre estudiantes", "hay menos interacción entre estudiantes y profesores". Los obstáculos identificados fueron "problemas de conectividad a Internet", "problemas de electricidad" y "problemas tecnológicos". Los facilitadores fueron la "comodidad", el "menor coste de transporte", el "ahorro de tiempo" y la

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oportunidad de adquirir “conocimientos tecnológicos”. **Conclusiones:** Las clases en línea son adecuadas para los aspectos teóricos, pero requieren interacción presencial para los componentes prácticos.

Palabras clave: percepciones, aprendizaje en línea, estudiantes de enfermería.

Resumo:

Objetivo: explorar as percepções e experiências dos alunos de enfermagem sobre o aprendizado on-line durante a pandemia da COVID-19 - um método misto. **Métodos:** foi usado um método misto e obteve-se aprovação ética do IRB. Quantitativamente, as percepções de 419 estudantes de enfermagem foram avaliadas usando uma escala Likert válida e confiável com 37 itens por meio de uma pesquisa no Google Forms. Qualitativamente, 5 discussões de grupos focais (6 a 8 alunos cada) com duração de 60 a 90 minutos das respectivas 5 escolas de enfermagem foram conduzidas via zoom e gravadas. Os códigos foram gerados usando o MAXQDA analytics Pro 2022 versão 22.2.1. **Resultados:** 276 (65,87 %) alunos concordaram que a autodisciplina é necessária para o aprendizado on-line. 267 (63,72 %) alunos concordam fortemente que as aulas on-line reduzem as despesas de viagem. O gênero não influenciou a percepção. Os alunos mais jovens demonstraram uma percepção mais positiva do que os alunos mais velhos, os alunos de BSN sênior demonstraram uma percepção positiva em comparação com os alunos de RN, e as associações são estatisticamente significativas em $<0,001$. A análise temática levou aos seguintes temas. Alguns preferiram o aprendizado on-line devido à sua “flexibilidade”, “conveniência” e “acesso a sessões gravadas”, enquanto outros preferiram o presencial: o aprendizado on-line é “bom apenas para a teoria”, mas para as sessões práticas são necessárias interações presenciais, “sensação de isolamento”, “falta de interação com os alunos”, “menos interação entre alunos e professores”. As barreiras identificadas foram “problemas de conectividade com a Internet”, “problemas de eletricidade” e “problemas tecnológicos”. Os facilitadores foram: “conveniência”, “custo reduzido de transporte”, “economia de tempo” e oportunidade de se tornar “conhecedor de tecnologia”. **Conclusão:** As aulas on-line são adequadas para os aspectos teóricos, mas exigem interação presencial para os componentes práticos.

Palavras-chave: percepções, aprendizado on-line, estudantes de enfermagem.

Introduction

COVID-19 Pandemic has changed all sectors of society including education. An interest in online education has increased overwhelmingly. Nursing schools around the world turned to online classes. The demand for nursing care increased due to COVID-19, which resulted in decreased attention to clinical practice of nursing students. In online learning, classroom learning and clinical practice is limited. In order to facilitate interaction between students and teachers a virtual classroom was proposed.

Nursing education in the Caribbean

Many institutions of higher learning in the Caribbean and other developing countries in order to continue teaching and learning during the COVID-19 pandemic, while complying with the COVID-19 prevention protocols have switched from traditional face to face teaching and learning to virtual mode during the Pandemic.

Significance

In online learning nursing students faced a lot of challenges such as internet connectivity and electricity supply, lack of appropriate electronic devices, lack of one-to-one interaction, lack of peer interaction, lack of adequate technology skills and difficulty in concentrating on the online lectures just to name a few.

Majority of nursing students access online classes through a smart phone with a data plan rather than a laptop or a computer with a stable internet connection. This affects the effectiveness of online learning and limits the use of technology to the maximum.

COVID-19 Pandemic affected Guyana since March 2020. All public and private Schools of Nursing in Guyana and School of Nursing at University of Guyana transited to online learning. There are several

exploratory studies done to assess the perceptions of nursing students towards online learning in other countries like India, Nepal, China, US and other European countries.

In Guyana Nursing schools, online learning started in March 2020. More than a year has passed by. Now it is time for evaluating the perceptions, benefits, challenges and effectiveness of online learning and teaching nursing students at various schools of nursing in Guyana.

The majority of university students reported discomfort spending several hours in front of mobiles or computers and expressed dislike to online learning as there was no enhancement of knowledge in online platforms. Students preferred online learning for a brief period during COVID-19 citing that high quality learning is not possible without face-to-face interaction. (1)

Majority of students perceived online learning allowed flexibility, opportunity to learn use of technology in education and interaction with peers at University of West Indies. (2)

The top 5 beneficial factors for Chinese students are clarity of online course objectives, playback support for online courses, the capability of independent study, the quality of course resources, and easy use of course resources whereas for students outside of China, the top 5 facilitators are adequate frequency to access the internet for online learning, adequate support and help from school during the online learning process, adequate self-discipline, adequate use of the course resources and good administration of the online courses. (3)

Purpose of the study

The purpose of this study was to investigate nursing students' perceptions and experiences of online learning during the COVID-19 Pandemic and to identify the academic challenges (barriers and facilitators) to online nursing education in Guyana.

Methods

A mixed method was utilized to investigate nursing students' perceptions of online learning during the Pandemic and to identify the academic challenges of nursing students in online learning during the pandemic.

Quantitative approach

Quantitative research relies on the collection and analysis of numerical data to describe, explain, predict or control variables and phenomena of interest. When conducting quantitative research studies, researchers seek to describe the current situations, establish relationships between variables, and sometimes attempts to explain the causal relationship between variables. This type of research truly focused on describing and explaining the phenomenon under investigation.

Design

Under quantitative, a descriptive cross-sectional design was used to collect and analyse numerical data to describe, explain, predict or control variables and phenomena of interest at one point in time.

Population

The study was conducted among Registered Nurse (RN) / Diploma nursing and RN to Bachelor of Science in Nursing (BSN) program students.

Sampling technique

Non-probability - purposeful sampling technique was used to draw required sample size.

Inclusion criteria

For nursing students

1. Diploma nursing students at schools of nursing who had experience of attending online classes.
2. Undergraduate nursing students (BSN students) who had experience of attending online classes at School of Nursing, University of Guyana.
3. Those who are agreed to participate in the study.

Instrument

An online questionnaire was developed based on literature review and created a Google form survey along with consent form. A standard Likert scale measuring the attitude of students regarding e-learning was developed. Score ranges from strongly disagree = 1 to strongly agree = 5. For student's questionnaire there are 50 items, with 37 positive items and 13 negative items. The total score ranges from 50 to 250. The mean score of the five-point Likert scale was considered to assess overall attitude.

Data collection process

The link for the google form survey was shared with nursing students via email and WhatsApp messages with help of a contact Tutor at selected Schools of Nursing. Data was collected from January to March 2022. A total of 419 nursing students have responded to google form survey. The response rate was 86.2 %.

Student's questionnaire was tested for validity and reliability and Cronbach's alpha was 0.92.

Data analysis plan

Quantitative data were downloaded as Microsoft Excel and basic descriptive tests were carried out. Then data were transferred to SPSS IBM version 28.0.1.1 (15). Data were analysed using descriptive statistics such as Mean, Median, Mode, Percentages, Standard deviation, Inter-quartile range, Standard Error and inferential statistics such as Chi-square to find out association between Perceptions and Personal characteristics.

Qualitative approach and design

Qualitative phenomenological approach was used to investigate the experiences of online learning of nursing students. A phenomenological approach to qualitative research focuses on the essence of a lived experience, or phenomenon, which can be observed or felt by people who have different viewpoints.

Sampling: A group of 6 to 8 nursing students, 2 from first, second, third year and outgoing batch were invited to participate in the discussion.

Qualitative data collection

For qualitative part of the study a semi-structured interview guide with open ended questions was used. The semi-structured interview is normally based on a script, where the subject matter and part of the questions have been planned before starting, but it also offers the possibility of changing or adding new questions as the interview and/or the research study moves forward, with new interviews conducted.

Discussions were carried out on zoom and the entire session was recorded. Investigator acted as a moderator. All the five focus group discussions were conducted during the months of January to March 2022. Each session lasted approximately 60 minutes to 90 minutes including introduction, closing remarks etc.

Participants were explained the purpose of discussion, the investigator facilitated discussion with a few questions which were planned earlier like semi structured interviews.

Data production strategies

Each focus group discussion was recorded in both video and audio format. The entire discussion was transcribed using a dictation tool in Microsoft Windows and Virtual audio cable from VB-Audio free software. Data from focus group discussions was transcribed from audio file to text file.

Data analysis and rigor criteria

The verbatim went through following phases.

1. Familiarising with data. 2. Generating initial codes. 3. Searching for themes. 4. Reviewing themes. 5. Defining and naming themes. 6. Producing report.

- Codes were generated using MAXQDA analytics Pro 2022 version 22.2.1.

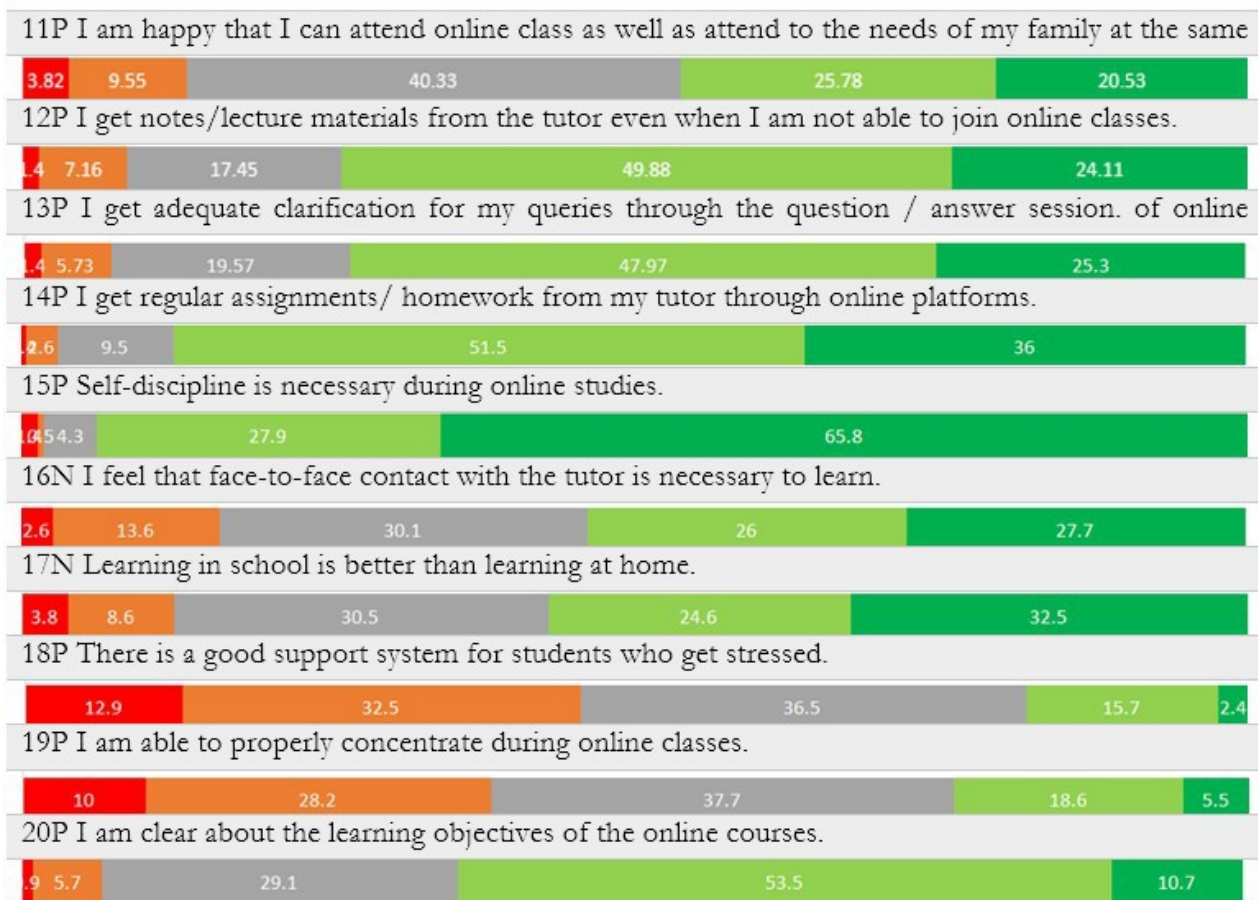
Ethical considerations of the study were as follows:

- Approval for the study first was granted by the School of Nursing, College of Medical Sciences and Appointment committee of University of Guyana.
- Research proposal was submitted to IRB, Ministry of Health for Ethical approval and obtained.
- Written permission was obtained from all Directors of Schools of Nursing in Guyana.
- The purpose of the research was explained, participation is voluntary, and guaranteed privacy, confidentiality and anonymity to participants in online consent form. And an informed consent was obtained from participants prior to data collection.

Results

- Majority of nursing students were females, between the age group of 21 - 25 years and have not attended online classes before COVID- 19. Nursing students used mostly mobile phones and laptops to attend lectures online. The types of internet connection used were data plan, GT&T blaze and DSL, more than half of nursing students expressed that internet connection was reliable.
- Though most of the nursing students opined that online learning should be continued during the Pandemic, majority preferred blended learning over complete online classes.
- The common online learning platforms used by nursing students were zoom, WhatsApp, Google classroom, Google meet, email and Moodle.

TABLE 1
Student's perceptions towards online learning N= 419



Abbreviations: P - Positive questions, N - Negative questions

Colour Convention: ■ Strongly Disagree ■ Disagree ■ Neutral ■ Agree ■ Strongly Agree

TABLE 2
Student's perceptions towards online learning N=419

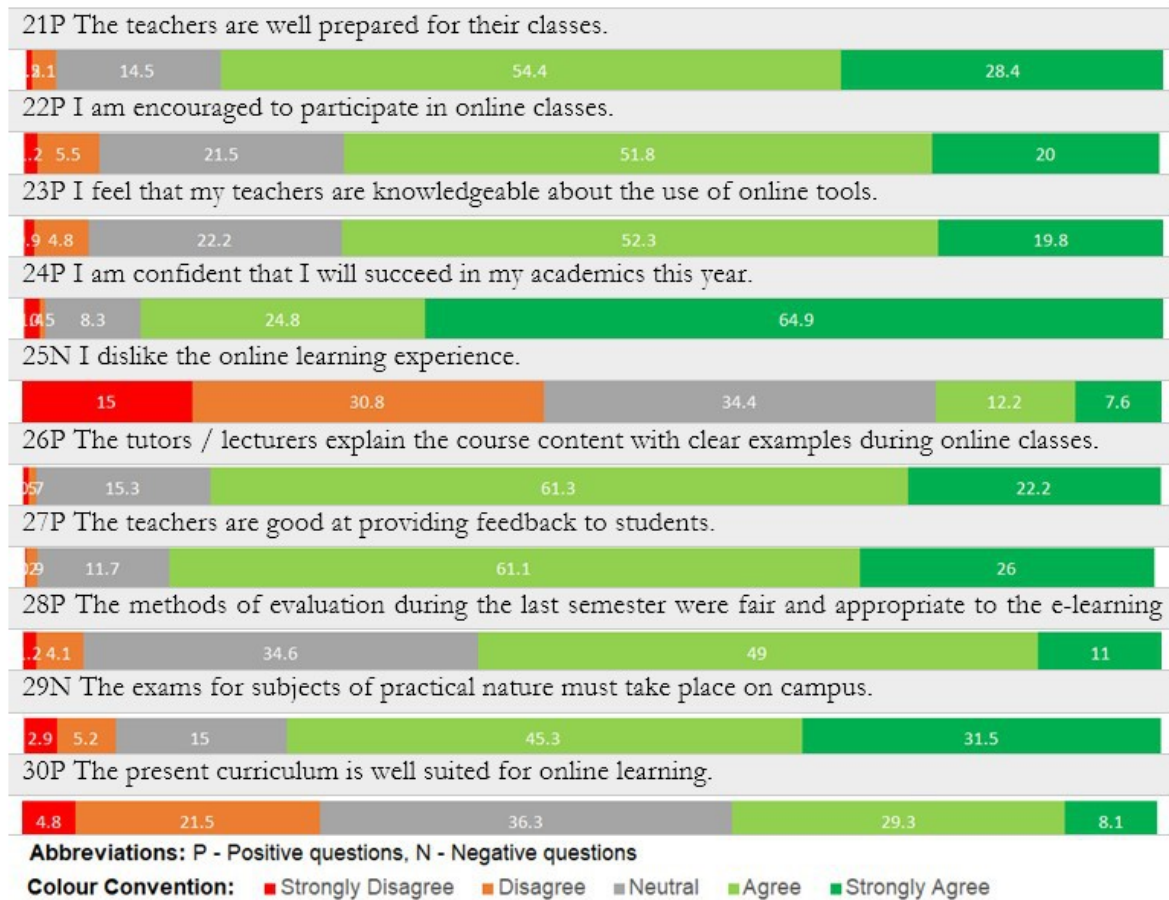


TABLE 3
Online learning advantages N=419

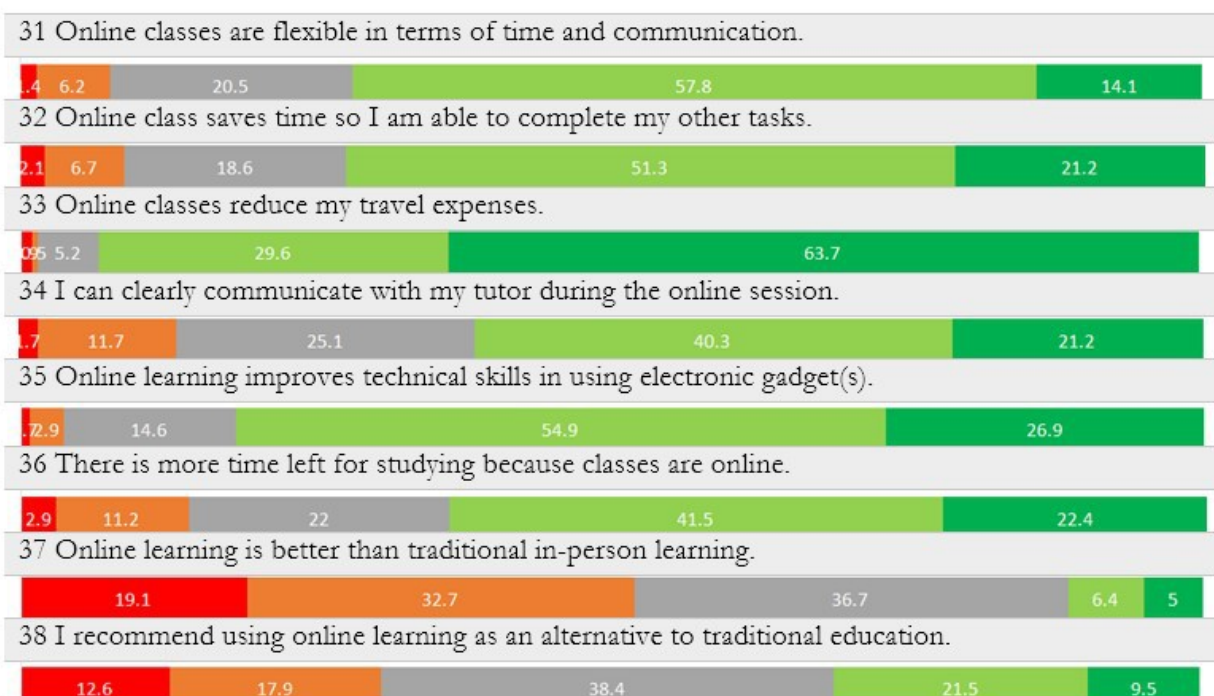


TABLE 4
Online learning challenges N=419

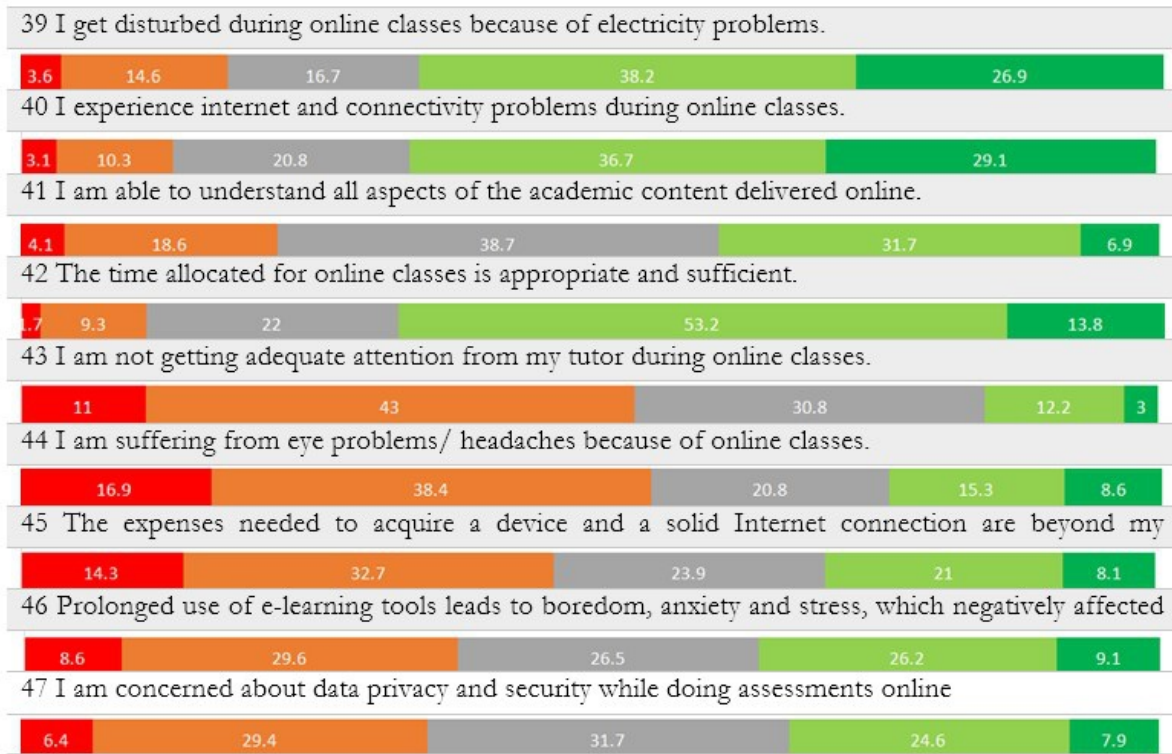


TABLE 5
Association between baseline variables and perceptions N=419

Variables	Perception		χ^2 value	p - value
	Positive Number (%)	Negative Number (%)		
Gender				
Male	21 (52.5)	19 (47.5)	0.291	0.59
Female	182 (48.0)	197 (52.0)		
Age (in years)				
<= 30	57 (73.1)	21 (26.9)	23.276	<0.001*
> 30	146 (42.8)	195 (57.2)		
Institution				
Georgetown School of Nursing	53 (37.3)	89 (62.7)	42.725	<0.001*
New Amsterdam School of Nursing	36 (41.9)	50 (58.1)		
Charles Roza School of Nursing, Linden	32 (53.3)	28 (46.7)		
St Joseph Mercy School of Nursing	14 (32.6)	29 (67.4)		
School of Nursing, University of Guyana	68 (77.3)	20 (22.7)		
Prior online exposure				
No	153 (48.9)	160 (51.1)	0.093	0.760
Yes	50 (47.2)	56 (52.8)		
Has reliable internet connection				
No	52 (31.7)	112 (68.3)	30.24	<0.001*
Yes	151 (59.2)	104 (40.8)		
Current qualification				
First year RN	67 (47.2)	75 (52.8)	42.484	<0.001*
Second year RN	13 (52.0)	12 (48.0)		
Third year RN	50 (35.2)	92 (64.8)		
Third year BSN	22 (64.7)	12 (35.3)		
Fourth year BSN	29 (90.6)	3 (9.4)		
RN completed, graduating soon	6 (30.0)	14 (70.0)		
BSN completed, graduating soon	16 (66.7)	8 (33.3)		

Themes emerged after careful analyses were: 1. Perceptions, 2. Challenges/ Barriers, 3. Advantages/ Facilitators, and 4. Recommendations

Subthemes were under each main theme and students' responses were as follows.

A.1: Preferred online learning

Some students prefer online learning because it is convenient, flexible, and comfortable as they stay at home taking care of family, do other chores as well as attend online classes. Students felt online learning was a more productive, bold step to advance their career especially during COVID-19, Pandemic. Students were able to access recorded lessons in online learning.

“[...] because of the activities I’m involved in and I move on a daily basis sometime every month every week I’m in another region of the country, it will make it difficult for me as a student to come to physical class.” P12

“[...] it is convenient for me. Currently I am placed in Bartica, where I am from. Being at work and an online program gives me the opportunity to work and to further my studies which is very good.” P14

A.2: Preferred Face to Face Learning

Some students felt there was a sense of isolation in online classes, no social interaction as it was in face-to-face classes and were able to express better in face-to-face classroom. They were unable to build rapport with their colleagues in online classes. Few others complained that prolonged screen time led to eye strain, back pain, headaches. Some students were unfamiliar with online tools, procedures, felt a financial burden to buy data plan to attend online classes using smartphone.

“[...] So, I was experiencing a lot of difficulties with online learning at first. Contributing to not being familiar with these apps, Internet service as well was poor. All of this made my experiences quite challenging.” P7

“[...] most times you have problems with GPL & GTT you have problems with Internet access.” P9

“Because being at home and being online there were so many distractions and also you do not get that peer interactions you don’t have to interact with peers and also your tutors so that was a bit difficult for me” P12

C. Online assessment

On the positive note, it was productive, got results quicker, saved paper, was able to express better, manage time well and improved grades. On the other hand, some students expressed unfamiliarity with online applications, challenges in submitting assignments online due to unstable internet, marking system, difficult to do group assignments online and room for dishonesty.

“[...] you had more time to think it wasn’t a hustle and you’re doing it in the comfort of your home so you’re more comfortable you get more you get to you know be more efficient in terms of the testing” P 61

“In online assessment, we were able to get our results almost right away, able to find out answers. In relation to assignments, it was cheaper. No need for printing.” P91

D. Curriculum Changes

Some students relayed that modifications are required to the present curriculum ex: health assessment course, some opined to add more videos, visual presentations.

“It is suitable except for the fact with clinical skills, because face to face is a better option getting the experience to view how things are done to view the equipment and stuff like that and get a chance to stand in front of a lecturer to at least practice how the practical exam would be better. But in theory it’s fine, no problem.” P 108

2. Challenges/ Barriers of Online Learning

a. Internet Issues. “Online learning at nursing school at the moment we have been having some technical difficulties in a sense where the Internet connectivity is not really good right because the Internet in Guyana, you know, this system I don’t know if it’s overloaded or what but we keep just being bounced off and then we reconnected.” P18

b. Electricity Issues. “We have a very unreliable electricity company, who love to give black outs. You are in the middle of a test, boom, no current, internet gone. For those persons who don’t have a blaze, or back up battery, so, whole test is gone. You have connectivity problems where current cuts off and comes on back.” P 126

c. Poor Devices. “For me, my devices and my computer went bad like a couple months into our first year. I got tablets and I was between my phone and tablet. Certain stuff I couldn’t get to do with especially with the referencing and so on I couldn’t do that with the tablet. So, I had to send this stuff to my colleagues...” P 137

d. Health Problems. “I’ve noticed that for the nine months of online classes I would have had frequent back pains and eye pains so that was the only issue for me...” P 87

e. Technical Problems. “...it has to do with technical problems with my peers and tutors because not all services are that efficient especially when there is a blackout or connection is low.” P 55

3. Advantages/Facilitators of Online Learning

First and foremost was convenience followed by saving transportation cost and time.

“[...] it’s more convenient because wherever I am, I put in my data and if I am in region 9 I can still access online learning. If I’m in region one the Internet may be poor, but I can still access online learning.” P 89

“For me, it is more flexible. Especially like it felt like I did better online based on time management especially.” P 105

“I also found it much more affordable in the sense that you know transportation was kind of cut off.” P24

Recommendations

Firstly, most of the students expressed that Ministry of Health; Government of Guyana should provide electronic devices with online tools and applications to students as well as tutors, stable internet connection and backup generator system to manage blackouts at school of nursing. Purchase zoom licences for school of nursing so that tutors can teach students without interruptions. There should be a plan for training sessions for both students and tutors in Information Technology, online resources, tools.

“[...] students’ welfare, to help students with laptops. There are students from the hinterland they would like to join but they have challenges like money and so on.” P169

“[...] lobby with the government to give all my students devices, with a lot of storage capacity. If you are giving them a tablet, give them a flash drive.” P150

“[...] my only recommendation is that they work to get better Internet connection across Guyana.” P94

Discussion

Schools of Nursing in Guyana transitioned to online learning during COVID-19, the Pandemic since March 2020. Though other educational institutions have experience of distance learning in Guyana, online learning mode is quite a new concept especially for schools of nursing students in Guyana.

Nursing students had challenges in online learning mainly due to internet issues. Other challenges were lack of technical skills, active participation in learning and difficulty in interacting with lecturers and classmates.

Perceptions towards online learning

Student's perception regarding online classes or e-learning during lockdown is both positive as well as negative in the current study. Similarly, study in India (1) found that a little more than half of the students liked studying through online classes whereas less than half did not like e-learning. Whereas in Nepal (4) and in Pakistan (5) found that more than half of the students had negative perception towards online classes.

The present findings suggest that half of the students reported positive in overall perception and the other half negative perception. Nursing students reported that they can save time and money in transportation to and from to school of nursing. However, there is lack of free-flowing conversations/debates/discussions and lack of social interaction with the peers and tutor.

Majority of the nursing students in this study felt that self-discipline is necessary during online studies. Students reported of getting distracted in online class, gaps in learning because of missing a class. Students had to work hard to improve their performance for better results. Concentration is required in completing assignments, quizzes and submitting on time. Skills required for successful online learning are self-motivation, time management and good organization.

Most of the nursing students expressed that face-to-face contact with the Tutor is necessary to learn and learning at school is better than learning at home. Students expressed that interaction with teachers in a classroom is more effective and gives opportunity for active participation in debates and discussions. Such an interaction is limited in online classes. Teacher shares reading materials, resources to students in online classes, a kind of one-way communication, leaving less room for discussions. (6)

Majority of students are unable to concentrate during online classes. Challenges faced by students are distractions while attending classes at home due to phones, internet and social media etc.

Use of electronic devices for online learning can cause distractions like starting a conversation with a friend over the phone, texting a message, checking e-mails, checking social media for new messages. This can lead to less focus on actual study and learning. Students are tempted to watch a fun video or scroll through social media threads. One of the best ways to overcome this challenge is to put away phones/devices while attending online classes. This helps students to organize their studying, socializing, and free time. (7)

Half of the students opined that practical exam should take place in the campus as it requires tutor examining students' performance of clinical procedures.

Nurses have to complete practical log book with required clinical procedures prior to employment in hospital. Clinical instructors supervise students' performance of these procedures and evaluate competencies. Instructors use a checklist to evaluate each student's ability to perform the task. Proficiency in nursing procedures is a requirement for student to graduate from the program.

Advantages of online learning

Majority of students in this study expressed that online learning reduces travel expenses. Guyana has ten (10) administrative regions which are geographically spread across the area of 215,000 km² (83,000 sq mi). Nursing students usually use public transportation, taxi, or personal transportation to travel to and from school of nursing. With Pandemic and due to inflation, increased oil prices, transportation costs have increased.

More than half of the students in the present study reported online classes are flexible in terms of time and communication, online classes save time to complete other tasks and there is more time left for studying. The reason being the travel time to and from School of nursing is reduced. So, students got ample time in their hands to focus on studying, completing their assignments, projects etc.

In the current study less than half of the students disagreed and undecided that online learning is better than traditional in-person learning, neutral in recommending online learning as an alternative to traditional education. Nursing profession involves theory as well as practical courses. Theory classes can be done online but face to face classes are required for practical demonstrations. Students from India also strongly opined that online classes are the best option to teach theory, but physical classes are proposed for practical classes, clinical postings, and patient based interactive learning. (8)

Challenges of online learning

In the present study, less than half of students got disturbed during online classes because of electricity problems, and experienced internet and connectivity problems during online classes. Blackouts are usually frequent in Guyana and internet connectivity challenges are also very frequent. However, situation is improving recently as more oil funds are used to enhance infrastructure and facilities. Students in Nepal reported similar challenges of online learning such as getting disturbed in their online class because of electricity problem, disturbed because of internet problem. (9)

Medical and nursing students in India reported of poor accessibility to network, increasing cost of internet access, heavy dependence on mobile phones for attending e-classes. (8)

In another study from Nepal, nursing students reported similar challenges like internet problems, technical issues and less interaction. These students supported the idea of e-learning as a medium to reach students living in remote areas. Regarding e-learning to be adapted to allow married students to balance family and study demands and to allow working students to study from home (10)

Associations between perceptions and selected baseline characteristics

There is no statistically significant relationship between gender and level of perception. There is not enough evidence to reject that gender influences the level of perception. So, in this study both male and female students had both positive as well as negative perceptions towards online learning. Gender made no significant difference in their perceptions towards online learning. Consistent with the findings of (8) and (10) there was no statistically significant association between attitude regarding e-learning and selected socio-demographic variables like age, residence, college, year of study, and previous exposure to online learning.

There is a statistically significant association between age and level of perception. Age influences level of perception towards online learning. Younger students showed more negative perception compared to elder students who showed more positive perception towards online learning. This might be due to senior students got more experience and understand the concepts well compared to junior students.

Similarly, the overall satisfaction rate of first-year undergraduates was comparatively very low compared with senior undergraduate students i.e. second-, third-, and fourth-year students. This might be because first-year students are new to the curriculum, understanding new topics and comprehending the medical terminologies for the first time is a challenging task for them and the reason for overall dissatisfaction with the online mode of teaching.

The senior students were able to understand the topics better and were satisfied relatively more compared to first year students. However, seniors also opined that online classes were the best option to continue the teaching during COVID-19. (8)

There is a statistically significant association between year of study in Nursing program and level of perception towards online learning. RN program is three years and BSN program is two years (post RN) at University of Guyana. Year of study program influences the level of perception towards online learning.

Among nursing students in Nepal, there was a significant association of problems regarding E-learning with selected demographic variables such as age, residence, level of education and family income of students. (P-value <0.05) (9)

There is a statistically significant association between level of perception and institution where students are currently studying at. Perception level was influenced by the institution.

One private and one public school of nursing students showed negative perception towards online learning. Students of School of Nursing at the University showed more positive perceptions towards online learning. Almost all programs went online through Moodle as learning management system at University of Guyana. University of Guyana began staff development sessions and prepared students and staff for online learning and teaching as soon as Pandemic started in Guyana.

Approximately 65 % of the University's classes remained online for academic years 2020 to 2022 due to prevailing COVID-19 conditions as well as major building works arising from recent extreme weather conditions. The remaining 35 %, mostly consisting of laboratory and field exercises, were blended and face-to-face delivered at the various campuses for specific courses or parts of courses only in the first semester i.e October 2021 to January 2022.

There is a statistically significant association between reliability of internet connection and level of perception towards online learning. Internet reliability influences the level of perception towards online learning. Internet connectivity is a big challenge among students for their online learning. Mobile phones are well-liked by students and became one of the best tools for an educational institution to adopt. The study also found that a majority of students have smartphones. This possesses an opportunity for students to learn on an online basis. Mobile devices such as smartphones are a great help because of their multiple functions especially in learning. (11)

Limitations

1. Cross-sectional studies are observational studies that analyze data from a population at a single point in time. Perceptions could vary over the time.
2. Students' perceptions were self-reported. Collecting information through a self-report has limitations. People are often biased when they report on their own experiences.

Conclusion

In this study students expressed both positive and negative perceptions towards online learning almost equally. Most of the students reported that the online learning is convenient, be at home in relaxed way and reduces travel time and expenses as advantages. Students also pointed out that lack of interaction, distractions at home, electricity issues and poor internet connectivity as challenges of online learning. Online learning requires lot of self-discipline. Most of the students favored traditional face-to-face learning more than online learning. Students strongly opined that practical course need face-to-face interaction in physical classroom in order to acquire clinical skills. Online learning is better choice especially during COVID-19 outbreak.

Students recommended blended approach in teaching and learning rather than doing completely online. The blended approach of teaching and learning in nursing education has more advantages such as it provides a safer learning environment, increases student engagement, improves comprehension, students can have more autonomy over their learning and efficient use of instructor time.

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Notes

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