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An investigation of the knowledge, perception and impact of corona-virus disease on pharmacy students in a Public University

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ABSTRACT

Background: Coronavirus disease 2019 still remains a public health concern with new strains still emerging in 2023. Objectives of this research were to assess the knowledge, perception of corona-virus treatment and impact of the pandemic on the academic activities of pharmacy students in a Public University.

Method: A cross- sectional study of pharmacy undergraduate students was carried out at the University of Benin. Self-administered structured questionnaires were used to collect data and analysed with Microsoft Excel and SPSS version 21. Descriptive statistics was done; frequencies and proportions were used to summarize variables of interest. Ethical considerations were observed.

Results: One hundred and forty-three (143) questionnaires were completed and retrieved, indicating 89.34% response rate. This study had more females, 79 (55.2%) and majority of the respondents were between the ages of 21-25 years. Majority of the respondents were knowledgeable about the nature and mode of transmission of COVID-19 virus. There was a slightly varied perception among the respondents on corona-virus disease prevention and treatment. Majority believed that COVID-19 vaccines may help prevent infection. They reported that some courses were not easy to understand with the on-line method of learning.

Conclusion: This study reported a good knowledge of corona-virus among pharmacy students and major loss of school time leading to an abridged school calendar and other psychological issues. There is the need for inclusion of modern school structures and ICT equipment in Public Universities; integrated digital learning facilities, internet connections that can aid online education and virtual learning Programmes.

Keywords: COVID-19, pharmacy students, knowledge, impact, perception

1.INTRODUCTION

Coronavirus disease 2019 (COVID-19) which originated in Wuhan, China, in December 2019, was declared as a pandemic by World Health Organization (WHO) on 11th of March, 2020 after it had spread to many countries of the world [1,2]. After about three years of elaborate and novel scientific research into treatment of this disease, WHO declared an end to Covid as a global health emergency on the 5th of May, 2023 but still a disease that is here to stay [3]. COVID-19 is an infection caused by the Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2) and is clearly a serious disease of international concern [4,5]. It has a higher reproductive number and about 7 million people were officially reported to have died from it [6]. Similar to SARS-CoV and MERS-CoV, disrupting the chain of transmission is considered key to stopping the spread of the disease. The novel corona-virus was initially named 2019-nCoV and officially as severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). According to recent research, similar to SARS-CoV and Middle East respiratory syndrome corona virus (MERS-CoV), SARS-CoV-2 is zootoxic, with Chinese horseshoe bats (*Rhinolophus sinicus*) being the most probable origin [7,8]. Current estimates of the incubation period - the time between infection and the onset of symptoms ranging from one to 14 days. Most infected people show symptoms within five to six days. However, infected patients can also be asymptomatic. All over the world, most countries temporarily closed nursery, primary, secondary schools and universities to control the

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spread of the COVID-19 pandemic but this spanned several months in different parts of the world. UNESCO reported that over 1.5 billion students in 195 countries were out of school during the pandemic [9,10]. Where Information and Communication Technology (ICT) infrastructure allowed, there was a switch of academic activities to online learning but appropriate skills including effective communication streams between staff and students were lacking in some places. The impact of COVID-19 on education and its funding was unprecedented in history, over a billion students from across the globe including Nigeria were sent home as precaution against the spread of this novel virus. Education is "a fundamental human right, a global common good and a primary driver of progress across all the 17 Sustainable Development Goals (SDG) in Nigeria as bedrock of just, equal, inclusive, peaceful societies". The COVID-19 pandemic, labeled as a "black swan" event, "catastrophic calamity" and compared to the World War II in terms of economic and societal consequences, has caused the largest disruption of education in history [11]. Most students in developing and underdeveloped countries were more disadvantaged because most of their educational institutions still followed the traditional set-up of physical lectures in the normal classroom settings [12]. This study highlights the knowledge, perception and impact of COVID-19 disease on academic activities of pharmacy students in University of Benin, Benin-City Edo state, Nigeria.

Objectives of the study:

The study specifically sought to;

1. To determine the knowledge of Corona-virus infection, mode of transmission and symptoms of COVID-19
2. To assess the students' perception of prevention and treatment of COVID-19 disease
3. To determine the impact of COVID-19 pandemic on academic activities of pharmacy students.

2. MATERIALS AND METHODS

2.1. Materials

2.1.1. Equipment- Research Instrument

The research instrument for this study consists of a structured questionnaire consisting of three sections. Section A: socio- demographic-data of respondents, Section B: knowledge of corona-virus among pharmacy students, Section C: perception of Corona-virus among pharmacy students, Section D: To determine the impact of Covid-19 on the academic activities. Reliability test was done on the questionnaire and Cronbach's Alpha of 0.818 was obtained.

2.2. METHODS

This study used a cross sectional descriptive method to investigate the knowledge of corona virus infection, mode of transmission, symptoms and the impact of the COVID-19 pandemic on academic activities of pharmacy students in University of Benin between January – July 2021. This study was conducted in Faculty of Pharmacy, University of Benin, Benin City, Edo State, Nigeria This is one of the first faculties of the first Public Federal University in the South-South geopolitical region of Nigeria. The University has two Campuses; Ugbowo and Ekehuan. The study population for the clinical levels of 2020/2021 academic session was approximately 365. The inclusion criteria were registered male and female penultimate and final year undergraduate students. Clinical students who did not give their informed consent and post-graduate students were excluded from the study.A sample size of 160 was recruited and simple random sampling was employed for this study.

Approval to carry out this study was obtained from the University of Benin Management. Informed consent was obtained from the respondents. They were made to understand that participation was voluntary and there was no consequence for non-participation. All information obtained were kept confidential

2.3. Statistical analysis

Data were collated and organized using Microsoft Excel and analyzed using SPSS (Statistical package for social sciences) version 21. Descriptive statistics were carried out on all variables, and the results were presented as frequency of responses and the proportion (in percentage) of the overall population.

4. RESULTS

A total of one hundred and sixty (160) questionnaires were administered to pharmacy students in 500 and 600 level classes. One hundred and forty-three (143) were completed, retrieved and used for analysis, indicating 89.34% response rate. Table 1, indicates the socio-demographics of the respondents. This study had more females, 79 (55.2%) and majority of the respondents were between the ages of 21-25 years.

Table 1: Socio-demographic data of respondents

Variables	Frequency	Percent (%)
Gender		
Males	64	44.8
Females	79	55.2
Levels		
600	73	51.0
500	70	49.0
Age		
15-20 years	30	21.0
21-25 years	86	60.1
26-30 years	27	18.9
Marital status		
Married	10	7.0
Single	133	93.0
Tribe		
Hausa	6	4.2
Igbo	54	37.8
Yoruba	34	23.8
Others	49	34.3
Religion		
Christianity	139	97.2
Islam	4	2.8

Table 2: knowledge about Coronavirus disease

S/N	Items	Mean±SD
1	Covid-19 is a novel virus infection	4.29±0.812
2	Covid-19 is contagious	3.78±1.064
3	Everyone is prone to Covid-19 infection	4.10±1.023
4	The incubation period of Covid-19 is about 14 days	3.91±1.068
5	There is a similarity between Covid-19, SARS-CoV and MERS-CoV	3.40±
6	Someone who is infected by Covid-19 can remain asymptomatic	3.27±1.170

The mean scores of the items on the table ranged from 3.27 to 4.29, which implied that majority of the respondents were knowledgeable about the Covid-19 pandemic. The corresponding Standard Deviations values ranged from 0.812 to 1.194, showing that the responses were very close.

Table 3: Perception of Coronavirus disease prevention and treatment

S/N	Items	Mean±SD
1	Do you think wearing a surgical mask can protect people from Covid-19	4.21±0.941
2	Can spraying alcohol or chlorine all over your body kill the new coronavirus	1.74±0.947
3	Do you think antibiotics are effective in preventing or treating Covid-19	1.48±0.592
4	Do you think vaccines are effective in preventing Covid-19	3.05±1.189
5	Are you willing to take Covid-19 vaccine	4.08±1.084

Table 3 showed that there is slightly varied perception among the respondents on coronavirus disease prevention and treatment. They disagreed that spraying alcohol or chlorine all over your body can kill the new coronavirus and think that antibiotics are not effective in preventing or treating Covid-19, whereas they agreed on the other items in the Table 3.

Table 4: The impact of Covid-19 on the academic activities of Respondents

S/N	Items	Mean±SD
1	Measures taken by University of Benin during Covid-19 to ensure continuity of educational process were sufficient and effective	3.31±1.116
2	Do you appreciate the online teaching experience during the Covid-19	1.59±0.735
3	Combination of face-to-face education with online education among pharmacy students was very effective during Covid-19 pandemic	2.76±1.222
4	Pharmacy students prefer online education than normal face-to-face class interaction	1.78±0.859
5	Many pharmacy students had no access to the online teaching due to lack means or due to economical and digital constraints	3.23±1.331
6	Pharmacy students' daily habits changed during the Covid-19 pandemic	3.97±1.177
7	Covid-19 pandemic has impact on pharmacy students	2.95±1.224
8	Pharmacy students were not able to cover their course outlines and practical's schedule due to Covid-19?	3.59±1.176
9	Pharmacy students were satisfied with change in study workload and with the teaching staff	3.45±1.298
10	Pharmacy students lost focus on their academics during Covid-19	4.16±0.947

Table 4 illustrates the impact of Covid-19 pandemic on academic activities of pharmacy students. The respondents agreed that Coronavirus had impacted negatively on the academic activities of pharmacy students.

4.DISCUSSION

This study was carried out to evaluate the knowledge of Corona-virus among pharmacy students in a public university and to assess the impact on their academic activities. Demographic information shows that majority of our respondents were females and were between 21-25 years of age. Majority of the respondents were single and this is attributed to the fact that they were relatively young and still pursuing their academics; this is evidently clear by the information showing that majority of the respondents were in their fifth and sixth academic year.

Respondents were gathered from the clinical levels in the faculty of Pharmacy. This was done in order to gain enough coverage and to obtain a wider response that will help to properly evaluate our findings and validate the report of the study. Also, considering the fact that penultimate and final year were the most senior classes in pharmacy school, students from these two classes are more exposed i.e. training in hospitals and Community pharmacies. COVID- 19 is a novel virus infection. On knowledge about COVID- 19, all the respondents have indeed heard of the virus and know that infected persons can be asymptomatic. This finding is similar to a study done in Tanzania where the residents reported good knowledge of COVID-19 virus [13]. On perception of the disease, prevention and treatment recorded a high response rate across all options except ability of antibiotics to treat COVID-19. This gap needs educational intervention; antibiotics do not treat COVID-19 but may be indicated in severe cases where there is a bacterial co-infection as a complication [14]. On prevention by COVID- 19 vaccines, respondents had a good perception, this is similar to a study done in Italy which reported a high percentage (86.1%) of college students express intent to take the Covid -19 vaccine [15] and 74.5% reported in Nigeria by Adebisi, et. al., [16]. In general, respondents had a good knowledge and positive perception about COVID-19 similar to respondents in Egypt [17]. Public health Pharmacy measures for prevention and treatment of COVID-19 disease approved by WHO is now fully implemented in most Countries all over the World [18, 19]. Development of safe

and effective COVID-19 vaccines is seen as the long-term solution for this novel virus [20]. On impact of the pandemic on pharmacy students, majority of the respondents in this study agreed that the lock down due to COVID-19 pandemic severely affected the academic programs of pharmacy students negatively; the school calendar was abridged and the online learning was difficult to adapt within the short time provided. Lockdown of educational institutions caused major interruption in students' learning; availability of funding for education; disruptions in internal assessments; and the cancellation of public assessments for qualifications including in African Countries like Nigeria [4, 21]. However, Pharmacy being a professional course needs a lot of commitment, dedication, acquisition of clinical skills, and self-directed learning attitude by the students. COVID-19 outbreak created a panic, distress among student community, and uncertainty about the normalization of the situation. Online classes were started for these pharmacy students keeping in mind, the student's perception. The mean score and percentage of all the parameters assessed are in favor that online learning worked similar to the conventional classroom teaching in few parameters, but was less effective than class room teaching in other parameters. This is similar to a study which reported that online learning is not as effective or superior teaching method for every student in the learning context especially medical students, Subramanian *et al*., [22]. Pointing out that the social and communicative interaction between lecturer and student has been an important part of classroom teaching. This study indicated that although student performance is independent of mode of instruction, certain courses were more challenging to students who persist in virtual environment than in classroom. According to Sun et. al., [23], highly personalized content for learning can be improved by web-based learning. The student's online expertise is possibly increased by diversity of skills and knowledge. Our study shows that online classes were effective to some extent in some parameters but inadequate in others. To avoid the potential limitations of virtual learning in undergraduate education, both methods may be combined i.e. blended learning. Advancement in biotechnology and internet technology has brought about a revolution in education and research. Hence, blended learning should be introduced to pharmacy training and the professional career.

5. CONCLUSION

This study showed that pharmacy students in the University of Benin were knowledgeable about coronavirus pandemic; they have good perception about the WHO preventive measures and the new vaccines for coronavirus. They also reported different ways the pandemic impacted on the academic activities of pharmacy students in the University of Benin. Government should see the need to upgrade the facilities in public schools with modern digital equipment for effective online and physical education. Teaching staff and pharmacy students must be trained on how to use online educational devices and platforms.

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Conflict of Interest

We declare that there is no conflict of interest associated with this work.

Contribution of Authors

On behalf of my co-Author, I declare that this work was done by Penaere Osahon and Isaac Afuda and all liabilities pertaining to claims relating to the content of this article will be borne by us. Penaere Osahon conceived and designed the study, Isaac Afuda collected and analysed the data, and we wrote, read and approved the manuscript.

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