©IDOSR PUBLICATIONS
ISSN: 2550-7931

International Digital Organization for Scientific Research
IDOSR JOURNAL OF APPLIED SCIENCES 9(1) 24-27, 2024.
https://doi.org/10.59298/IDOSRJAS/2024/1.4.67598
IDOSRJAS1.4.67598

Prevalence of Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) in Nigeria

Samson Ohwonohwo Onemu[1], Emmanuel Ifeanyi Obeagu[2], Famutimi Yetunde Bodunde[1], Abdulrahman Abdulbasit Opeyemi[1], Olamijuwon Priscilla Busola[1], Ayara Peter Ayowole[1] and Abdulwasiu Oladele Hassan[1].

[1]Department of Medical Laboratory Science, Achievers University Owo, Ondo State Nigeria.
[2]Department of Medical Laboratory Science, Kampala International University, Uganda.
[*]Corresponding author: Emmanuel Ifeanyi Obeagu, Department of Medical Laboratory Science, Kampala International University, Uganda, emmanuelobeagu@yahoo.com, 0000-0002-4538-0161

ABSTRACT

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) remains one of the most challenging pandemics in the world with fewer casualties in Nigeria despite minimal vaccine uptake. This study examines the prevalence of Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) in subjects attending Federal Medical Center, Owo, Ondo State. A questionnaire based descriptive cross-sectional was conducted in 2022 among 100 patients from Federal Medical Centre in Owo, Ondo State .50 of whom had received the COIVD-19 vaccine and 50 of whom had not. For this study, men and women between the ages of 18 and 55 who appeared to be in good health were included. According to the study's findings, the prevalence of SARS-CoV-2 was detected in 5% of the population while it was absent in 95% of the rest. Two (2.00%) men and three (3.00%) women out of the five who confirmed positive for SARS CoV 2. The findings also revealed that, of the 5 participants who were tested positive for SARS CoV 2, 4 (80.00%) had not had a vaccination, while 1 (20.00%) had. Adult Nigerians who have never received the COVID-19 vaccine have a high SARS-CoV-2 antibody sero-prevalence rate. Age and gender do not appear to significantly correlate with sero-positivity ($p>0.05$). Therefore, anti-SARS-CoV-2 antibody testing is required after vaccination since it may be necessary to achieve herd immunity.

Keywords: antibody; SARS-CoV-2; Sero-prevalence; vaccine; Covid-19

INTRODUCTION

The infection that caused the pulmonary illness that sparked the COVID-19 pandemic is known as the severe acute respiratory syndrome coronavirus 2 (SARS CoV 2) [1]. The virus may have originated from a bat given its zoonotic origins and genetically resemblance to bat coronaviruses [2]. Since the Middle East respiratory syndrome coronavirus (MERS-CoV) and the severe acute respiratory syndrome coronavirus (SARS-CoV), two extremely transmissible coronaviruses with zoonotic origin, first appeared in humans in 2002 and 2012, respectively, and both of which caused fatal respiratory conditions, emerging coronaviruses have become a new public health concern[2]. Recently, a novel coronavirus illness known as COVID-19, also known as coronavirus disease 2019, spread quickly throughout the entire world [3]. The angiotensin-converting enzyme 2, or ACE2, receptor allows SARS-CoV-2 to attach to and enter cells in humans [4]. The greater prevalence of SARS-CoV-2 infections compared to SRAS-CoV infections may be due to a DNA recombination process at the S protein in the RBD region of the virus [5]. While the S, E, and M proteins collaborate to create the viral envelope, the N protein, which is found in SARS-CoV-2 encodes the RNA genome [6]. The four structural proteins, which are S (spike), E (envelope), M (membrane), and N (nucleocapsid) make up SARS-CoV-2. They are divided into two functional groups (S1 and S2) [7]. The SARS-CoV-2 spike protein, in particular, the S1 subunit, which induces bonding, and the S2 subunit, which induces fusion, enable the infectious agent to bind as well as fuse with the membrane of the host cell [8].

Nigeria had improved its diagnostic capability as of the second of February, 2022, with an average screening rate of 6.4% [9]. World Health Organization (WHO) figures indicate that COVID-19 is responsible for a total of 6.6 million fatalities

as well as more than 651 million diseases globally [10]. In Nigeria, there were a total of 266,057 cases and 3,155 fatalities, according to[9]. Since the beginning of the pandemic, Ondo state had recorded 5,173 COVID-19 cases as of the 16th of February, 2022 [9]. Due to the broad distribution of COVID-19 vaccines, the risk is now being reversed. To reduce the danger of COVID-19-related mortality, researchers and a number of pharmaceutical firms have created and launched COVID-19 vaccinations [10]. Vaccination has been proven to be an effective public health approach for reducing the burden of infectious illnesses globally [10]. There were claims that the immunizations are safe and effective at preventing life-threatening COVID19 infections [10]. Nigeria and other African nations have published very few publications despite the rising body of research on COVID-19 [11-12]. Another prerequisite for managing the COVID-19 pandemic in nations with middle or low incomes is understanding the medical indicators, laboratory features, and other aspects connected with negative outcomes in COVID-19 patients. Therefore, the purpose of this study was to determine the prevalence of SARS CoV-2 in patients attending Federal Medical Centre, Owo, Ondo State.

MATERIALS AND METHODS

Research Area

This investigation was conducted in Owo, Ondo State, Nigeria. Owo was at the seat of a Yoruba city-state between 1400 and 1600 AD. Federal Medical Centre is the only functional federal government owned hospital in the local government. Owo has a land area of 735 square kilometers and it lies between 7°11'N and 5° 35'E of the Greenwich Meridian. Majority of people in this area are civil servants, traders, business men and women, transporters, farmers, teachers and students by occupation.

Study Design

The investigation employed a descriptive cross-sectional study design. The only thing that is known about a health outcome's prevalence in a particular population is from descriptive cross-sectional research. This study was conducted between March and June of 2022.

Subjects

Recruitment for this study involved gathering 100 subjects from the Federal Medical Centre in Owo, Ondo State, 50 of whom had received the COIVD-19 vaccine and 50 of whom had not. For this study, men and women between the ages of 18 and 55 who appeared to be in good health were included.

Sample Size

The sample size was calculated using the Cochrane formula for sample size determination [13]

$$n = \frac{z^2pq}{d^2} n = \frac{z^2pq}{d^2} \ldots\ldots\ldots\ldots$$

n= minimum sample size
z=standard normal deviation (1.96)
p=4% =0.04[23]
q=1-p
=0.96
d=degree of precision at the confidence level of 95%=0.05
Substituting into the formula above

$$n = \frac{1.92^2 \times 0.04 \times 0.96}{0.04^2}$$

n = 88.47
Minimum sample size = 88
Allowance for Non-response rate = 10% of 88 = 8.8
Sample size = minimum sample size + No response rate
88 + 9 = 97
To make up for the sampling error or drop outs, one hundred (100) samples were collected and used for the research at 95% confident interval.

Ethical Approval and Informed Consent

The Federal Medical Centre in Owo, Ondo State's health ethics and review Committee gave its ethical permission for the collecting of samples. Prior to the collection of samples, each participant in the study gave their informed consent.

Inclusion Criteria and Exclusion Criteria.

Individuals that attended the Federal Medical Centre in Owo, Ondo State at the time of this study and gave their consent were included in this study. The study excluded people with underlying medical issues and anyone who did not give their consent.

Analytical Technique

- **SARS-CoV-2 Rapid Antigen Test**

Procedure

The posterior nasopharynx surface was examined by inserting a sterile swab into the patient's nostril. After rotating three to four times, the swab was removed from the nasal passages. An extraction buffer tube was used to contain the swab. The swab was swirled at least five times when the buffer tube was squeezed. After removing the swab, the liquid was extracted from it by squeezing the tube's sides, and the nozzle cap was then firmly put onto the tube. Three drops of the extracted material were introduced to the test device's specimen well, and the test results were then awaited. The test result was read after 15 minutes.

Statistical Analysis

Results were presented in tables and figures as simple frequency and percentage. Statistical comparison between groups was done using student T-test computed with SPSS software version 21.

RESULTS

Socio-demographic characteristics of the Respondents

Table 1 revealed the socio-demographic characteristics of study participants. One hundred subjects comprising of forty-six (46) male and fifty-four (54) females were recruited for this study. The subjects were grouped into different age groups; 18 – 30 years (49%), 31 – 50 years (39%) and age 51 years and above (12%) respectively. Among the subjects studied, 50 were vaccinated against COVID-19, while 50 were not vaccinated. The clinical characteristics of the participants examined are shown in Table 2. According to the data, 52% of the subjects did not have a cough, compared to 48% of the subjects. Thirty (30%) of the subjects had fever, compared to 70% who did not; 23% of the subjects lost their sense of smell, compared to 77% who did not; 22% of the subjects lost their sense of nasal congestion, compared to 78% who did not; and 29% of the subjects had trouble breathing, compared to 70% who did not. In addition, 53% of the individuals had a history of using antibiotics, compared to 47% who had none. 22% of responders took antibiotics, 16% used herbs, 32% used antimalarial, and 30% utilized other medicines as part of their treatment regimen. The prevalence of the SARS-CoV-2 coronavirus (severe acute respiratory syndrome coronavirus) among the study individuals was depicted in Figure 1. As a result of this investigation, 5% of the study participants had SARS-CoV-2 positive tests whereas 95% had negative tests. According to gender, Table 3 provided data on the prevalence of the SARS CoV 2 coronavirus among the subjects. According to the results, out of the 5 people who confirmed positive for SARS CoV 2, two (40%) were men and three (60%) were women. Similar to this, 44 (46%) of the 95 people who tested negative were men and 51 (54%) were women. Regarding gender, there was no discernible difference in SARS-CoV-2 prevalence ($p>0.05$). According to subject age, Figure 2 depicted the prevalence of the SARS CoV 2 coronavirus among the subjects. Age groups 18 to 30 years had 2%, 31 to 50 years had 2%, and 50 years and above had 1% of those who tested positive for SARS CoV 2. On the other hand, the percentages of people who tested negative for SARS CoV 2 in the age groups of 18 to 30 years, 31 to 50 years, and 50 and older, respectively, were 47%, 39%, and 9%. Regarding age, there was no discernible variation in SARS-CoV-2 prevalence ($p>0.05$).

DISCUSSION

In different regions of the world, the SARS-CoV-2 virus outbreak has been associated with diverse types of morbidity and mortality. In comparison to many developed nations and even some African nations, Nigeria's infection and mortality rates have been considerably lower [14]. A total of 3,143 deaths were reported in July 2022, while there were 256,004 confirmed cases overall[9].There have been a few explanations given for these variations, but none of them include a functioning health system [15]. The demographic and clinical details of the study participants were reported in Tables 1 and Table 2, which were conducted as a part of the prevalence study of the infection in Nigeria. The study participants presented with varying clinical symptoms like loss of nasal congestion, difficulty breathing, and fever [16]. On the general prevalence, the study found a 5% incident rate of SARS-CoV-2 among the study participants, which was consistent with the study conducted [17]. Less than 5% of the nation's population has been tested, and [9] claimed that only 5,160,280 out of more than 200 million people have been tested, which was cited as the reason for the low prevalence rate. Limited testing capacity was caused by a number of elements, including a lack of genetic testing resources, the expensive nature of molecular diagnostics, and a lack of enthusiasm in voluntary

testing in patients with no symptoms. Based on age and gender representation, as seen in Table 2 and Figure 1, respectively, out of the 5% prevalent rate among the study participants, 2% were male and 3% were female. The findings of this study disagreed with those found by [18]. However, the higher rate in female can be attributed to their lower ability to access healthcare due to cultural customs, monetary, and non-monetary barriers that limit their capacity for testing and prevent them from receiving adequate care, which results in underestimated female cases and deaths from SARS-CoV-2 [19]. As regards age, 2% of the study participants within the age range of 18–30 years and 31–50 years were positive for SARS-CoV-2, while 1% of the study participants above 50 years of age tested positive. The findings are consistent with a study conducted by [20] which suggest that people between the ages of 21 and 50 in Nigeria were most affected, with people between the ages of 31 and 40 seeing the highest infection rates. According to UN statistics, Africa, including Nigeria, has the world's youngest population, with a median age of 19 years, rendering this group vulnerable to a high prevalence of infection [21]. A high seroprevalence of SARS-CoV-2 infection was witnessed in this study, as seen in Table 4, 4% of the study participants who were not vaccinated were positive, while 1% of those who were vaccinated were positive for the infection. The findings of this study were similar to those reported by [22] who had a similar high seroprevalence among non-vaccinated individuals. This is because, as of May 29, 2022, around 30,680,510 Nigerians (14.90% of the population) had received at least one dosage, while 20,096,868 (9.70% of the population) had received two doses and were thus fully immunized. As a result, Nigerian vaccination rates against COVID-19 are still low [22].

Our finding, along with the earlier results, demonstrated that sero epidemiological research could provide a more accurate assessment of the true scope of SARS-CoV-2 infection. Additionally, the results of this study's observations point to the necessity of screening for SARS-CoV-2-specific antibodies prior to vaccination in order to maximize the number of vaccine doses that may be administered, particularly in low-resource nations that heavily rely on vaccine contributions. In order to support immunization strategies against diseases that can be prevented by vaccination, the use of serology tests and sero epidemiological reports is well established [23].

Considering the nature of the research, it is important to point out that the strength of the study lies in the use of a cost-effective, non-invasive, and easy-to-access technique that would help early detection of infection in low-resource communities like the study population, so that it can help guide early decisions about vaccination, prevention, and control of disease outbreaks. However, this method limits the depth of the seroprevalence analysis due to its inability to quantify the level of antibody. As a result, it encourages further research to consider a real-time reverse-transcriptase polymerase chain reaction (RT-PCR) assay for a more quantitative, sensitive, and effective representation of the seroprevalence analysis [24-44].

In conclusion, there is a lack of knowledge regarding the antibody titer threshold that might be deemed sufficient to protect a person against SARS-CoV-2 infection, whether it be caused by vaccination or natural infection. According to this study, adults in Nigeria who have never received the COVID-19 vaccine had a significant seroprevalence of SARS-CoV-2 antibodies. This supports the earlier hypothesis that there is widespread, undiscovered community transmission. Despite the recommendation for longitudinal-scale studies to check for the presence of neutralizing antibodies in vaccine recipients, age and gender do not appear to significantly correlate with seropositivity. Additionally, screening for anti-SARS-CoV-2 antibodies after vaccination is crucial for clinical purposes because it may be necessary to achieve herd immunity.

Funding

Funding was not received for the research work

Conflicting Interest

The authors declared no conflict of interest whatsoever.

Acknowledgement

We thank all the departmental staff and Medical Laboratory Scientist at both Achievers University and Federal Medical Centre Owo and as well all the study participants for their cooperation and understanding.

REFERENCES

1. Solodovnikov, A. and Arkhipova, V. The species severe acute respiratory syndrome-related coronavirus: classifying 2019-nCoV and naming it SARS-CoV-2. Nature Microbiology. 2020. 5(4):536–544.
2. Andersen, K.G., Rambaut, A., Lipkin, W.I., Holmes, E.C. and Garry, R.F. The proximal origin of SARS-CoV-2. Nature Medicine, 2020. 26(4):450–452.
3. Bao, L., Deng, W., Huang, B., Gao, H., Liu, J., Ren, L., Wei, Q., Yu, P., Xu, Y. and Qi, F. The pathogenicity of SARS-CoV-2 in hACE2 transgenic mice. Nature, 2020. 58(3):830–833.

4. Zhou, P., Yang, X.L., Wang, X.G., Hu, B., Zhang, L. and Zhang, W. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature. 2020. 579(77):270–273.
5. World Health Organization (WHO). Director-General's opening remarks at the media briefing on COVID-19. 2020. Available at: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-oncovid-19---11-march-2020.
6. Wu, C., Liu, Y., Yang, Y., Zhang, P., Zhong, W. and Wang, Y. Analysis of therapeutic targets for SARS-CoV-2 and discovery of potential drugs by computational methods. Journal of Pharmaceutical Sciences, 2020. 10 (5), 766–788.
7. V'kovski, P., Kratzel, A., Steiner, S., Stalder, H. and Thiel, V. Coronavirus biology and replication: implications for SARS-CoV-2. Nature Reviews in Microbiology, 2021. 19(3):155–170.
8. Aronson, J.K. Coronaviruses – a general introduction. Centre for Evidence-Based Medicine, Nuffield Department of Primary Care Health Sciences, University of Oxford, 2020. Pp. 5-12.
9. NCDC. Nigeria Centre for Disease Control and Prevention. An update of COVID-19 outbreak in Nigeria for Week 46. 2022b. https://ncdc.gov.ng/diseases/sitreps/?cat=14&name=An%20update%20of%20COVID-19%20outbreak%20 in%20Nigeria. Accessed 30 Dec 2022.
10. Temitope O.O., Ayodeji O.O., Olajumoke E.O., Bosede O.A., and Adebowale F.A. Determinants of COVID-19 vaccine uptake among Nigerians: evidence from a cross-sectional national survey. Archives of Public Health. 2023. 81:95
11. Bowale A. Clinical presentation, case management and outcomes for the first 32 COVID-19 patients in Nigeria. Pan African Medical Journal. 2020. 35: 24.
12. Ib`rahim OR, Suleiman BM, Sanda A, Oloyede T, Bello SO, Bello UI, Yahaya S, Dawud A, and Bashir SS. COVID-19 in children: a case series from Nigeria. Pan African Medical Journal. 2020.35: 3–6.
13. Naaber, P., Tserel, L., Kangro, K., Sepp, E., Jürjenson, V. and Adamson, A. Dynamics of antibody response to BNT162b2 vaccine after six months: a longitudinal prospective study. The Lancet Regional Health Europe, 2022. 10 (2), 100-108.
14. Bwire G, Ario AR, Eyu P, Ocom F, Wamala JF, Kusi KA, et al. The COVID-19 pandemic in the African continent. BMC Medicine. 2022: 20(1) confirmed in Nigeria on 28 February 2020. Available from: https://ncdc.gov.ng/news/227/first-case-of-corona-virus-disease-confirmed-in-nigeria.
15. Aregbeshola BS, Folayan MO. Nigeria's financing of Health Care during the COVID-19 Pandemic: Challenges and Recommendations. World Medical & Health Policy. 2021; 14(1): 195–204.
16. Dhar Chowdhury S, and Oommen AM. Epidemiology of COVID-19. Journal of Digestive Endoscopy. 2020;11(01):03–7.
17. Elimian KO, Ochu CL, Ilori E, Oladejo J, Igumbor E, Steinhardt L, et al. Descriptive epidemiology of coronavirus disease 2019 in Nigeria, 27 February–6 June 2020. Epidemiology and Infection. 2020;148(148).
18. Abate BB, Kassie AM, Kassaw MW, Aragie TG, Masresha SA. Sex difference in coronavirus disease (COVID-19): a systematic review and meta-analysis. BMJ Open. 2020;10(10): e040129.
19. Aleksanyan Y, Weinman JP. Women, men and COVID-19. Social Science & Medicine. 2022; 294(294):114698.
20. Hassan Z, Hashim MJ, Khan G. Population risk factors for COVID-19 deaths in Nigeria at sub-national level. The Pan African Medical Journal. 2020;35(Suppl 2):131.
21. Soy A. Coronavirus in Africa: Five reasons why Covid-19 has been less deadly than elsewhere. BBC News [Internet]. 2020 Oct 7; Available from: https://www.bbc.com/news/world-africa-54418613
22. Onifade AA, Fowotade A, Rahamon SK, Edem VF, Yaqub SA, Akande OK, et al. Seroprevalence of anti-SARS-CoV-2 specific antibodies in vaccinated and vaccine naïve adult Nigerians. PLOS ONE. 2023;18(1): e0280276.
23. Cutts FT, Hanson M. Seroepidemiology: an underused tool for designing and monitoring vaccination programmes in low- and middle-income countries. Tropical Medicine & International Health. 2016; 21(9):1086–98.
24. Ogar CO, Okoroiwu HU, Obeagu EI, Etura JE, Abunimye DA. Assessment of blood supply and usage pre-and during COVID-19 pandemic: a lesson from non-voluntary donation. Transfusion Clinique et Biologique. 2021 Feb 1;28(1):68-72.

25. Obeagu EI, Babar Q. Covid-19 and Sickle Cell Anemia: Susceptibility and Severity. J. Clinical and Laboratory Research. 2021;3(5):2768-0487. links/617acdd03c987366c3f8b3f1/Covid-19-and-Sickle-Cell-Anemia-Susceptibility-and-Severity.pdf.
26. Obeagu EI. COVID 19: Factors Associated with Implementation and Practice of Covid-19 Prevention. Int. J. Adv. Multidiscip. Res. 2022;9(9):37-42.DOI: 10.22192/ijamr.2022.09.09.004
27. Nnodim J, Njoku-Obi T, Ohalete C, Obeagu EI. Perspective of Covid 19 Hesistancy. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2022 Mar 4;2(1):235-8.
28. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/50.
29. Obeagu EI, Babar Q, Vincent CC, Anyanwu CO. INFANTS IMMUNIZATION: CHALLENGES OF OTHER VACCINES DUE TO COVID-19 PANDEMIC. Journal of Bioinnovation. 2021;10(4):1056-66. links/6105aef21e95fe241a9e607a/INFANTS-IMMUNIZATION-CHALLENGES-OF-OTHER-VACCINES-DUE-TO-COVID-19-PANDEMIC.pdf.
30. Obeagu EI, Scott GY, Amekpor F, Ofodile AC, Chukwueze CM. A Systematic Review on the role of untreated inflammation of the genital tract in SARS COV 2 transmission. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2023 Jan 17;3(1):19-24. https://www.journal.madonnauniversity.edu.ng/index.php/medicine/article/view/98.
31. Obeagu EI, Hamisi S, Bunu UO. An update on cytokine storm in covid-19 infection: Pivotal to the survival of the patients. Int. J. Adv. Res. Biol. Sci. 2023;10(3):171-80.DOI: 10.22192/ijarbs.2023.10.03.020
32. Obeagu EI. Mental Health Care during the COVID-19 Pandemic. Journal of Public Health and Nutrition. 2020;3(5). links/6012dc1792851c2d4dfebad6/Mental-Health-Care-during-the-COVID-19-Pandemic.pdf.
33. Asogwa EI, Obeagu EI, Abonyi OS, Elom CO, Udeoji DU, Egbumike CJ, Agunwah EU, Eze CN, Akamike IC, Esimai BN. Mitigating the Psychological Impacts of COVID-19 in Southern Nigeria; Public Awareness of Routine Exercises and Preventive Measures. Journal of Pharmaceutical Research International. 2021 May 31;33(30A):72-83.
34. Obeagu EI, Babar Q, Vincent CC, Okafor CJ, Eze R, Chijioke UO, Ibekwe AM, Uduchi IO. Pulmonary Embolism in Covid-19 Pandemic: A Threat to Recovery of the Infected Patients. Journal of Pharmaceutical Research International. 2021 Aug 26;33(42A):90-8.
35. Obeagu EI, Babar Q, Uduchi IO, Ibekwe AM, Chijioke UO, Okafor CJ, Vincent CC. An Update on Transfusion Related Immunomodulation (TRIM) in a Time of COVID-19 Pandemic. Journal of Pharmaceutical Research International. 2021 Aug 27;33(42A):135-46.
36. Okorie N, Adeniran OC, Adimabua OP, Obeagu EI, Anastasia E. Pathological Changes among Norvegicus Rattus Exposed on Novel Smoked Bambusa Vulgaris (Bamboo) Leaf: Cigarette Substitute during COVID-19 Lockdown in Nigeria. Journal of Advances in Medical and Pharmaceutical Sciences. 2022 Aug 16;24(7):30-9.
37. Nakyeyune S, Ikpenwa JN, Madekwe CC, Madekwe CC, Tolulope AA, Ajayi DT, Obeagu EI, Hassan AO. COVID 19 Omicron: The Origin, Presentation, Diagnosis, Prevention and Control. Asian Journal of Research in Infectious Diseases. 2022 Sep 3:25-33.
38. Etido A, Obeagu EI, Okafor CJ, Chijioke UO, Vincent CC, Mojo-Eyes GC. The Dynamics of Innate and Adaptive Immune Response to Sars Cov-2 Infection and Its Limitations in Human Beings. Journal of Pharmaceutical Research International. 2021 Sep 27;33(45A):10-25.
39. Obeagu EI, Obeagu GU, Chukwueze CM, Ngwoke AO. Inappropriate use of personal protective equipment among health workers: A review of associated factors. Int. J. Curr. Res. Chem. Pharm. Sci. 2023;10(8):27-34.DOI: 10.22192/ijcrcps.2023.10.08.004
40. Obeagu EI, Nwosu DC, Obeagu GU. Interleukin-6 (IL-6): A Major target for quick recovery of COVID-19 patients. **Int. J. Curr. Res. Biol. Med. (2022). 7(2): 1-19. DOI:** 10.22192/ijcrbm.2022.07.02.001
41. Ifeanyi OE, Mercy OH, Prayer NN, Chijindu OH. Cytokines, coagulation profile and haematological changes in covid 19 patients as indicators of their health staus: A review. European Journal of Biomedical. 2020;7(7):724-9. links/5f083f4e299bf188161034aa/CYTOKINES-COAGULATION-PROFILE-AND-HAEMATOLOGICAL-

CHANGES-IN-COVID-19-PATIENTS-AS-INDICATORS-OF-THEIR-HEALTH-STATUS-A-REVIEW.pdf.

42. Obeagu EI, Scott GY, Amekpor F, Ugwu OP, Alum EU. Covid-19 Infection and Diabetes: A Current Issue. International Journal of Innovative and Applied Research. 2023;11(1):25-30.
43. Hassan AO, Obeagu EI, Ajayi DT, Tolulope AA, Madekwe CC, Madekwe CC, Ikpenwa JN, Nakyeyune S. COVID 19 Omicron: The Origin, Presentation, Diagnosis. Prevention and Control. Asian Journal of Research in Infectious Diseases. 2022;11(1):25-33.
44. Ifeanyi OE. Emerging clinical & medical challenges and appropriate solutions during COVID-19 pandemic times. Med Clin Rev. 2020;6(5):108. **DOI:** 10.36648/2471-299X.6.5.108 links/6012db46299bf1b33e30a9ec/Emerging-Clinical-Medical-Challenges-and-Appropriate-Solutions-during-Covid-19-Pandemic-Times.pdf.

CITE AS: Samson Ohwonohwo Onemu, Emmanuel Ifeanyi Obeagu, Famutimi Yetunde Bodunde, Abdulrahman Abdulbasit Opeyemi, Olamijuwon Priscilla Busola, Ayara Peter Ayowole and Abdulwasiu Oladele Hassan (2024). Prevalence of Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) in Nigeria. IDOSR JOURNAL OF APPLIED SCIENCES 9(1) 24-27. https://doi.org/10.59298/IDOSRJAS/2024/1.4.67598