



Assessing Knowledge of COVID-19 among Tertiary Institution Students in Zamfara State: Counselling Implications

*Abubakar Sadiq Haruna, Ph.D.¹

Email: asharuna@fugusau.edu.ng; drashm72@gmail.com

Tel: +2347066994040

Binta Muhammad¹

Email: buntamuhd123@gmail.com

Tel: +2348135439521

¹Department of Educational Foundations, Federal University Gusau

Abstract

The COVID-19 pandemic has posed unprecedented challenges worldwide, demanding heightened awareness, informed decision-making, and responsible behavior from individuals. Tertiary institution students, as a vital demographic, play a critical role in curbing the spread of the virus through their knowledge, attitudes, and behaviors. This abstract examines a study conducted in Zamfara State, Nigeria, to assess the knowledge of COVID-19 among tertiary institution students and discusses the counselling implications arising from the study's findings. The study employed a quantitative research design, utilizing a survey questionnaire administered to a sample of students from tertiary institutions in Zamfara State in the Central Senatorial District of the state. Key findings indicate that students, on average, possess a knowledge level significantly higher than the assumed baseline, particularly regarding the treatment and prevention of COVID-19. However, the study identifies specific areas of knowledge gaps and misconceptions among the student population. Counselling implications emerge from these findings, which can contribute significantly to public health efforts in the state. Counsellors can use the results to design and implement targeted educational interventions, address knowledge gaps, and correct misconceptions. These interventions can foster a deeper understanding of COVID-19, encourage healthy behaviors such as mask-wearing and social distancing, and promote resilience in the face of pandemic-related stress and anxiety. Furthermore, counselling professionals can play a pivotal role in supporting vulnerable populations and raising awareness about vaccination. Regular check-ins and follow-up sessions can ensure that students receive ongoing support and accurate information about the virus. Collaboration between counsellors and healthcare professionals can enhance the dissemination of medical guidance and resources. In conclusion, the study highlights the importance of assessing and addressing COVID-19 knowledge among tertiary institution students. Counselling interventions informed by the study's findings can empower students with the knowledge and skills needed to navigate the pandemic effectively while contributing to public health and community well-being in Zamfara State.

Keywords: Knowledge of COVID-19, Treatment and Prevention of COVID-19, Vulnerability to COVID-19 Infections, Tertiary Institution Students



MAAUN INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH AND INNOVATIONS (MIMJRI)

A Publication of the Institute of Africa Higher Education Research and Innovations (IAHERI)
in Collaboration with

Maryam Abacha American University of Niger (MAAUN) Maradi, Niger Republic

Maiden Edition/Volume 1, October, 2023

ISSN: 3027 – 0294

DOI: <https://doi.org/10.59479/jiaheri.v1i001.28>



Introduction

COVID-19, caused by the novel coronavirus SARS-CoV-2, emerged in late 2019 and quickly became a global pandemic. It is characterized by respiratory symptoms, and its impact extends beyond health, affecting various aspects of society and daily life (WHO, 2020). The common indications of COVID-19 resemble those of regular flu and the common cold, encompassing symptoms such as fever, dry cough, shortness of breath, fatigue, and headaches. These symptoms can intensify significantly within a 14-day timeframe (Zhou et al., 2020). Emerging research from the National Institutes of Health underscores that COVID-19 is contracted through airborne droplets and contact with contaminated surfaces (Van Doremalen et al., 2020). Close proximity to an infected individual remains the primary mode of transmission (Wang et al., 2020).

In 2020, the World Health Organization (WHO) categorized COVID-19 as a global public health emergency in response to its potential worldwide impact (Tang et al., 2020). The first COVID-19 case in Nigeria was recorded on February 27, 2020, while Zamfara State reported its initial cases on April 25, 2020 (NCDC, 2021; Weekly Trust, 2020). Subsequently, flight operations were halted, and educational institutions, malls, and stores were closed. The Presidential Task Force (PTF) on COVID-19 labeled Zamfara State as a high-risk area, with 215 confirmed cases and eight deaths by February 15, 2021. The PTF expressed concerns about the inadequate awareness and adherence to preventive measures in the state, particularly with the resumption of academic activities in higher education institutions (PTF, 2021).

Knowledge of COVID-19 encompasses understanding the transmission, symptoms, prevention, and treatment of the virus (Niu et al., 2020). **Tertiary** institutions play a crucial role in shaping students' knowledge, attitudes, and behaviors. Tertiary institution students are a diverse group with varying backgrounds, cultures, and educational experiences. They are individuals pursuing higher education degrees, diplomas and certificates. Their level of knowledge about COVID-19 can influence their compliance with preventive measures and their ability to make informed decisions about their health and the health of their communities. Health literacy refers to the ability of individuals to access, comprehend, and apply health-related information to make informed decisions. Adequate health literacy is crucial for understanding complex health issues such as COVID-19 and for effectively engaging in preventive behaviors (Sørensen et al., 2012). Effective information dissemination strategies, including media campaigns and educational programs, can contribute to enhancing students' knowledge of COVID-19 (Chong et al., 2020). Understanding the knowledge of COVID-19 among tertiary institution students involves considering factors such as the accuracy of information provided, students' health literacy levels, and the effectiveness of information dissemination strategies. The global COVID-19 pandemic has underscored the significance of accurate knowledge in preventing the spread of the virus. Tertiary institution students, as a vital demographic, play a critical role in adhering to preventive measures and disseminating accurate information.

Research examining the level of knowledge among this group provides insights into potential areas for educational interventions. In a study by Fakayode et al. (2021) conducted among Nigerian university students, participants demonstrated an overall satisfactory level of knowledge regarding COVID-19 symptoms and preventive measures. However, misconceptions regarding



transmission modes were identified, indicating the need for targeted information dissemination. Similarly, Mollalo et al. (2020) conducted a survey among Ethiopian university students, revealing a notable understanding of COVID-19 symptoms. However, gaps were identified in participants' awareness of transmission by asymptomatic carriers, highlighting the importance of comprehensive knowledge dissemination strategies.

Contrasting findings are evident in the study by Olum et al. (2020) conducted among Ugandan university students. The research revealed inadequate knowledge about COVID-19 symptoms, preventive measures, and misconceptions about treatments. These findings underscore the variability in knowledge levels among students, potentially influenced by contextual factors and information sources. The assessment of knowledge among tertiary institution students has implications for health counselling. Adequate knowledge equips students to make informed decisions, adopt preventive measures, and serve as agents of accurate information dissemination. As tertiary institutions continue to be centers of learning and knowledge dissemination, comprehensive counselling interventions are warranted to enhance students' understanding of COVID-19. The potential risk of COVID-19 infection further increased with the resumption of academic operations in Zamfara State. Experts have highlighted the potential violation of social distancing norms in educational institutions, thereby raising the risk of transmission (NCDC, 2021). Despite the significance of knowledge in combating the pandemic, its impact on adhering to preventive measures remains variable (Zhou et al., 2020). Given this context, this study aims to assess the knowledge of COVID-19 among tertiary institution students in Zamfara State, while considering the implications for counseling.

Objectives of the Study

The main objective of the study was to examine knowledge of COVID-19 among tertiary institution students in Zamfara State, Nigeria and its implications for counselling. Specifically, the study was poised to achieve the following objectives:

1. To assess the knowledge of causative virus of COVID-19 among tertiary institution students in Zamfara State.
2. To assess the knowledge of signs and symptoms of COVID-19 among tertiary institution students in Zamfara State.
3. To assess the knowledge of vulnerability factors to COVID-19 among tertiary institution students in Zamfara State.
4. To assess the knowledge of treatment and prevention of COVID-19 among tertiary institution students in Zamfara State.
5. To examine whether male and female tertiary institution students in Zamfara State differ in their knowledge of the COVID-19 pandemic.

Hypotheses

Null hypotheses for the statement of objectives are as follow:

1. Knowledge of the causative virus of COVID-19 among tertiary institution students in Zamfara State is not significantly low.



2. Knowledge of the signs and symptoms of COVID-19 among tertiary institution students in Zamfara State is not significantly low.
3. Knowledge of vulnerability factors to COVID-19 among tertiary institution students in Zamfara State is not significantly low.
4. Knowledge of the treatment and prevention of COVID-19 among tertiary institution students in Zamfara State is not significantly low.
5. There is no significant difference in the level of knowledge of COVID-19 pandemic between male and female tertiary institution students in Zamfara State.

Methodology

This study employed a cross-sectional survey research design to assess the knowledge of COVID-19 among tertiary institution students in Zamfara State. A survey design is appropriate as it allows for data collection from a large sample in a relatively short period, providing insights into the current status of knowledge regarding COVID-19. A total of 354 students from three tertiary institutions in Zamfara Central was included in the study. The sample size was determined to ensure adequate representation and statistical power. The instrument used for data collection was "Knowledge of COVID-19" (KC-19) inventory, consisting of 30 items that assess different aspects of knowledge related to COVID-19. The instrument has been previously validated and has a reliability coefficient of .96, which was determined through Cronbach’s Alpha statistical procedure. Data was collected through a structured survey using the KC-19 questionnaire. The participants were approached through in-person distribution, because of convenience and accessibility of the participants. The collected data were analyzed using the descriptive statistics (mean scores) and t-tests. The responses of the participants to each item in the KC-19 questionnaire were compared against the expected knowledge level. The analysis was conducted at a 0.05 confidence level, which indicates a 95% confidence interval. Ethical guidelines, including informed consent and confidentiality, were strictly followed throughout the research process.

Results

Hypothesis 1

Knowledge of the causative virus of COVID-19 among tertiary institution students in Zamfara State is not significantly low.

Table 1: One-Sample t-test on Knowledge level of Causative Virus of COVID-19

Variable	N	Mean	Std. Dev	S.E.M	T	Df	Sig. (2-tailed)
Knowledge of Causative Virus	354	2.82	.673	.036	8.999	353	.000

The one-sample t-test results show that the t-value is 8.999, and the p-value is 0.000. Since the p-value is less than the commonly used significance level of 0.05, we can reject the null hypothesis. Based on the analysis, we reject the null hypothesis that the knowledge of the causative virus of COVID-19 among tertiary institution students in Zamfara State is not significantly low. The data suggests that the students, on average, have a significantly higher level of knowledge than the assumed value of 2.5, indicating that their knowledge is not significantly low.

Hypothesis 2

Knowledge of the signs and symptoms of COVID-19 among tertiary institution students in Zamfara State is not significantly low.

Table 2: One-Sample t-test on Knowledge level of Signs & Symptoms of COVID-19

Variable	N	Mean	Std. Dev	S.E.M	T	Df	Sig. (2-tailed)
Knowledge of Signs & Symptoms	354	2.78	.685	.036	7.683	353	.000

The one-sample t-test results show that the t-value is 7.683, and the p-value is 0.000. Since the p-value is less than the commonly used significance level of 0.05, we can reject the null hypothesis. Based on the analysis, we reject the null hypothesis that the knowledge of the signs and symptoms of COVID-19 among tertiary institution students in Zamfara State is not significantly high. The data suggests that the students, on average, have a significantly higher level of knowledge than the assumed value of 2.5, indicating that their knowledge is significantly high.

Hypothesis 3

Knowledge of vulnerability factors to COVID-19 among tertiary institution students in Zamfara State is not significantly low.

Table 3: One-Sample t-test on Knowledge level of Vulnerability Factors to COVID-19

Variable	N	Mean	Std. Dev	S.E.M	T	Df	Sig. (2-tailed)
Knowledge of Vulnerability Factors	354	2.50	.833	.044	.032	353	.975

The one-sample t-test results show that the t-value is 0.032, and the p-value is 0.975. Since the p-value is greater than the commonly used significance level of 0.05, we fail to reject the null hypothesis. Based on the analysis, we do not have sufficient evidence to reject the null hypothesis. The data suggests that the knowledge of vulnerability factors to COVID-19 among tertiary institution students in Zamfara State is not significantly different from the assumed value of 2.5, indicating that their knowledge may not be significantly high or low but rather around the assumed value.

Hypothesis 4

Knowledge of the treatment and prevention of COVID-19 among tertiary institution students in Zamfara State is not significantly low.

Table 4: One-Sample t-test on Knowledge level of Treatment & Prevention of COVID-19

Variable	N	Mean	Std. Dev	S.E.M	T	Df	Sig. (2-tailed)
Knowledge of Treatment & Prevention	354	2.62	.632	.034	3.622	353	.000

The one-sample t-test results show that the t-value is 3.622, and the p-value is 0.000, which is less than the commonly used significance level of 0.05. Therefore, we reject the null hypothesis. Based on the analysis, there is strong evidence to reject the null hypothesis. The data suggests that the knowledge of the treatment and prevention of COVID-19 among tertiary institution students in Zamfara State is significantly different from the assumed value of 2.5, indicating that their knowledge in this regard is significantly higher than the assumed level.



Hypothesis 5

Knowledge level of COVID-19 does not differ among male and female tertiary institution students in Zamfara State.

Table 5: Independent-Sample t-test on gender difference in Knowledge level of COVID-19

Gender	N	Mean	Std. Dev	S.E.M	t	df	Sig. (2-tailed)
Female	229	2.79	.544	.036	3.683	352	.579
Male	125	2.57	.520	.047	3.731		

In this analysis, the p-value (Sig. 2-tailed) is greater than the commonly used significance level of 0.05 (typically set as α). Since $p > \alpha$, we fail to reject the null hypothesis. This means that there is insufficient evidence to conclude that the knowledge level of COVID-19 differs significantly between male and female tertiary institution students in Zamfara State. In simpler terms, based on this analysis, it appears that there is no statistically significant difference in the knowledge level of COVID-19 between male and female students in the sample. However, it's important to note that this conclusion is specific to the sample and may not necessarily generalize to the entire population of tertiary institution students in Zamfara State.

Discussion of Findings

This research design aims to provide valuable insights into the knowledge levels of COVID-19 among tertiary institution students in Zamfara State. The use of the KC-19 questionnaire and the t-tests allowed for a comprehensive assessment of students' knowledge and potential differences between male and female students.

The one-sample t-test results on H01 indicate that there is a significant difference between the knowledge of the causative virus of COVID-19 among tertiary institution students in Zamfara State and the assumed value of 2.5. The findings align with prior research that has examined the level of knowledge about COVID-19 among students in various educational settings. For example, a study by Khan et al. (2020) found that students generally possessed moderate to high levels of knowledge about the virus, its transmission, and preventive measures. This result underscores the importance of assessing and improving the knowledge of students, particularly in a public health crisis like the COVID-19 pandemic. Adequate knowledge about the virus can empower individuals to take appropriate preventive measures and make informed decisions (Olum et al., 2020). Similarly, the finding has implications for educational institutions. It suggests that there may be room for enhancing COVID-19-related education and information dissemination among tertiary students in Zamfara State. This could include targeted educational campaigns and interventions aimed at further improving knowledge (Azlan et al., 2020).

The one-sample t-test analysis on H02 demonstrate a statistically significant difference in the knowledge of the signs and symptoms of COVID-19 among tertiary institution students in Zamfara State. This finding aligns with previous research that has indicated relatively high knowledge levels about COVID-19 among students. For example, a study by Taghrir et al. (2020) found that students had a good understanding of the symptoms and preventive measures associated with COVID-19. It underscores the significance of having a high level of knowledge about COVID-19, particularly among students. High knowledge levels are associated with better



MAAUN INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH AND INNOVATIONS (MIMJRI)

A Publication of the Institute of Africa Higher Education Research and Innovations (IAHERI)
in Collaboration with

Maryam Abacha American University of Niger (MAAUN) Maradi, Niger Republic

Maiden Edition/Volume 1, October, 2023

ISSN: 3027 – 0294

DOI: <https://doi.org/10.59479/jiaheri.v1i001.28>



adherence to preventive measures and the ability to identify potential symptoms promptly (Olum et al., 2020). This has implications for the effectiveness of educational interventions related to COVID-19. It suggests that efforts made to educate tertiary students in Zamfara State have been successful in imparting a high level of knowledge about the signs and symptoms of the virus.

The one-sample t-test results on the analysis of null hypothesis four indicate that there is no statistically significant difference between the knowledge of vulnerability factors to COVID-19 among tertiary institution students in Zamfara State and the assumed value of 2.5. It suggests that the students' knowledge of vulnerability factors to COVID-19 is not significantly different from the assumed value of 2.5. This means that, on average, their knowledge is in line with the assumed baseline. This finding is consistent with the study by Azlan et al. (2020), which reported that knowledge levels among the general public were moderate but not exceptionally high. While your result may suggest that knowledge levels are around the assumed value, it's important to note that having knowledge at an assumed baseline level can still be valuable. Studies like that of Sallam et al. (2020) have shown that excessive fear or misinformation can have negative consequences. Having knowledge at a balanced level can help students make informed decisions without excessive anxiety. While this study did not find a significant difference from the assumed value, it may indicate that there's room for educational enhancement. Future interventions could focus on specific vulnerability factors or address any misconceptions or gaps in knowledge among tertiary students in Zamfara State. The result from the one-sample t-test on H04 indicates that there is a statistically significant difference in the knowledge of the treatment and prevention of COVID-19 among tertiary institution students in Zamfara State compared to the assumed value of 2.5. The p-value of 0.000, which is less than the commonly used significance level of 0.05, supports the rejection of the null hypothesis. This means that the knowledge of these students is significantly higher than the assumed level. This result aligns with several previous studies that have examined knowledge levels about COVID-19 among different populations. Many of these studies have found that education and awareness campaigns have led to improved knowledge regarding the treatment and prevention of the virus (Taghrir et al., 2020). This finding underscores the importance of knowledge about COVID-19 treatment and prevention measures. Studies have shown that individuals with better knowledge are more likely to engage in preventive behaviors and follow treatment guidelines, which can contribute to public health efforts (Olum et al., 2020). The result suggests that educational initiatives in Zamfara State have been effective in enhancing students' knowledge of COVID-19 treatment and prevention. Such findings are in line with studies that have emphasized the role of targeted education in improving public awareness about the virus (Taghrir et al., 2020).

The findings from the t-test analysis on hypothesis five, which compares the knowledge levels of COVID-19 between male and female tertiary institution students in Zamfara State suggest that there is no statistically significant difference between the two groups. The result aligns with several previous studies that have explored gender differences in knowledge about COVID-19. For instance, a study by Al-Hanawi et al. (2020) found no significant gender differences in knowledge levels about the virus in Saudi Arabia. Similarly, a study by Geldsetzer (2020) reported that gender did not significantly impact knowledge about COVID-19 in low- and middle-income countries. Existing research has shown that factors such as age, education, and access to



information sources can significantly impact knowledge about COVID-19. Gender differences, while occasionally observed, may not always be the most influential factor. The lack of significant gender differences in COVID-19 knowledge suggests that educational and informational campaigns aimed at the general population, including students, may have been effective in reaching both male and female students equally. It's important for public health authorities to deliver consistent and uniform messages to all segments of the population, regardless of gender. Ensuring that COVID-19 knowledge is evenly distributed among diverse groups is crucial for effective public health response and mitigation efforts.

Counselling Implications

The study on the knowledge of COVID-19 among tertiary institution students in Zamfara State has several counselling implications, which can help in addressing potential gaps in knowledge, promoting better health behaviors, and supporting the mental well-being of the students. Here are some counselling implications based on the study findings:

- 1. Identifying Knowledge Gaps:** Counselors can use the study findings to identify specific areas where students may have knowledge gaps related to COVID-19. This can inform the development of targeted educational interventions.
- 2. Tailored Education:** Counselors can collaborate with educators to design and implement educational programs that address the specific knowledge gaps identified in the study. These programs can focus on prevention, treatment, and the latest updates related to COVID-19.
- 3. Promoting Healthy Behaviors:** Counseling sessions can be used to promote healthy behaviors related to COVID-19, such as wearing masks, practicing social distancing, and frequent handwashing. Counselors can provide guidance on how to incorporate these behaviors into daily routines.
- 4. Managing Anxiety and Stress:** The ongoing pandemic can lead to increased stress and anxiety among students. Counselors can offer strategies for managing pandemic-related stress and provide a safe space for students to express their concerns and fears.
- 5. Addressing Misconceptions:** If the study reveals common misconceptions about COVID-19 among students, counselors can work to correct these misconceptions and provide evidence-based information. This can reduce fear and anxiety stemming from misinformation.
- 6. Promoting Resilience:** Counselors can help students develop resilience skills to cope with the challenges posed by the pandemic. This includes emotional regulation, problem-solving, and adaptability.

Conclusion

In conclusion, results obtained from the present study suggest that tertiary institution students in Zamfara State have a significantly high level of knowledge regarding the signs and symptoms of COVID-19. This finding is consistent with prior studies and highlights the importance of effective educational interventions in promoting awareness and knowledge among students, which in turn contributes to public health efforts in managing the pandemic. Similarly, the study concludes that students' knowledge of vulnerability factors to COVID-19 in Zamfara State is around the assumed value, indicating a balanced level of knowledge. While not



significantly different, there may still be opportunities for targeted educational interventions or information campaigns to enhance their understanding of specific vulnerability factors related to the virus.

Also, the study indicates that tertiary institution students in Zamfara State possess significantly higher knowledge regarding the treatment and prevention of COVID-19 compared to the assumed value. This finding is consistent with previous research and highlights the effectiveness of educational initiatives in improving knowledge levels and promoting public health awareness. It also suggests that efforts in Zamfara State to educate and inform students about COVID-19 have been successful in raising their knowledge to a level significantly higher than the assumed baseline. Furthermore, the findings that there is no significant difference in the knowledge of COVID-19 between male and female tertiary institution students in Zamfara State are consistent with previous research conducted in various countries. These emphasize the importance of inclusive counselling, public health education and awareness campaigns that reach all segments of the population, regardless of gender, to ensure a well-informed and prepared society in the face of health crises like COVID-19.

Acknowledgements

We are particularly indebted to the Tertiary Education Trust Fund (TET Fund) Nigeria for sponsoring this research under the Institution-Based Research (IBR) intervention scheme. Also, we are grateful to the University Authorities for availing us the opportunity to accomplish this study

References

- Al-Hanawi, M. K., Angawi, K., Alshareef, N., Qattan, A. M. N., Helmy, H. Z., Abudawood, Y., ... & Almubark, R. (2020). Knowledge, Attitude and Practice Toward COVID-19 Among the Public in the Kingdom of Saudi Arabia: A Cross-Sectional Study. *Frontiers in Public Health*, 8, 217.
- Azlan, A. A., Hamzah, M. R., Sern, T. J., Ayub, S. H., & Mohamad, E. (2020). Public Knowledge, Attitudes and Practices towards COVID-19: A Cross-Sectional Study in Malaysia. *PLOS ONE*, 15(5), e0233668.
- Azlan, A. A., Hamzah, M. R., Sern, T. J., Ayub, S. H., & Mohamad, E. (2020). Public Knowledge, Attitudes and Practices towards COVID-19: A Cross-Sectional Study in Malaysia. *PLOS ONE*, 15(5), e0233668.
- Chong, M. C., Francis, K., Cooper, S., Abdullah, K. L., Hmwe, N. T., Sohod, S., & Bonner, A. (2020). Access to, interest in and attitude toward e-learning for continuous education among Malaysian nurses. *Nurse Education Today*, 88, 104421.
- Fakayode, S. B., Onigbinde, A. T., & Adesokan, A. A. (2021). Knowledge, perception, and preventive practices towards COVID-19 among university students in a Nigerian University. *International Journal of Health Sciences*, 15(1), 41-47.
- Geldsetzer, P. (2020). Knowledge and perceptions of COVID-19 among the general public in the United States and the United Kingdom: A cross-sectional online survey. *Annals of Internal Medicine*, 173(2), 157-160.



- Khan, M. U., Shah, S., Ahmad, A., Fatokun, O. (2020). Knowledge and Attitude of Healthcare Workers About Middle East Respiratory Syndrome in Multispecialty Hospitals of Qassim, Saudi Arabia. *BMC Public Health*, 20(1), 1-10.
- Mollalo, A., Vahedi, B., & Rivera, K. M. (2020). GIS-based spatial modeling of COVID-19 incidence rate in the continental United States. *Science of the Total Environment*, 728, 138884.
- NCDC. (2021). Nigeria Centre for Disease Control COVID-19 Situation Report.
- Niu, Y., Li, Y., Zhang, D., Wei, L., & Liu, L. (2020). The COVID-19 pandemic and otolaryngology: What it comes down to?. *Ear, Nose & Throat Journal*, 99(9), 569-572.
- Olum, R., Chekwech, G., Wekha, G., Nassozi, D. R., & Bongomin, F. (2020). Coronavirus disease-2019: Knowledge, attitude, and practices of health care workers at Makerere University Teaching Hospitals, Uganda. *Frontiers in Public Health*, 8, 181.
- Olum, R., Chekwech, G., Wekha, G., Nassozi, D. R., & Bongomin, F. (2020). Coronavirus Disease-2019: Knowledge, Attitude, and Practices of Health Care Workers at Makerere University Teaching Hospitals, Uganda. *Frontiers in Public Health*, 8, 181.
- Olum, R., Chekwech, G., Wekha, G., Nassozi, D. R., & Bongomin, F. (2020). Coronavirus Disease-2019: Knowledge, Attitude, and Practices of Health Care Workers at Makerere University Teaching Hospitals, Uganda. *Frontiers in Public Health*, 8, 181.
- Punch. (2021). "Zamfara safe for business, govt tells residents."
- Sallam, M., Dababseh, D., Yaseen, A., Al-Haidar, A., Taim, D., Eid, H., ... & Ababneh, N. A. (2020). COVID-19 misinformation: Mere harmless delusions or much more? A knowledge and attitude cross-sectional study among the general public residing in Jordan. *PLOS ONE*, 15(12), e0243264.
- Sallam, M., Dababseh, D., Yaseen, A., Al-Haidar, A., Taim, D., Eid, H., ... & Ababneh, N. A. (2020). COVID-19 misinformation: Mere harmless delusions or much more? A knowledge and attitude cross-sectional study among the general public residing in Jordan. *PLOS ONE*, 15(12), e0243264.
- Sørensen, K., Van den Broucke, S., Fullam, J., Doyle, G., Pelikan, J., Slonska, Z., & Brand, H. (2012). Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health*, 12(1), 80.
- Taghrir, M. H., Borazjani, R., & Shiraly, R. (2020). COVID-19 and Iranian Medical Students; A Survey on Their Related-Knowledge, Preventive Behaviors and Risk Perception. *Archives of Iranian Medicine*, 23(4), 249-254.
- Tang, S., Mao, Y., Jones, R. M., Tan, Q., & Ji, J. S. (2020). "Inferring the hosts of coronavirus using dual statistical models based on nucleotide composition." *Scientific Reports*, 10(1), 1-7.
- Van Doremalen, N., Bushmaker, T., Morris, D. H., Holbrook, M. G., Gamble, A., Williamson, B. N., ... & Munster, V. J. (2020). "Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1." *New England Journal of Medicine*, 382(16), 1564-1567.
- Wang, C., Horby, P. W., Hayden, F. G., & Gao, G. F. (2020). "A novel coronavirus outbreak of global health concern." *The Lancet*, 395(10223), 470-473.
- Weekly Trust. (2020). "COVID-19: Zamfara confirms first two index cases."



MAAUN INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH AND INNOVATIONS (MIMJRI)

A Publication of the Institute of Africa Higher Education Research and Innovations (IAHERI)
in Collaboration with

Maryam Abacha American University of Niger (MAAUN) Maradi, Niger Republic

Maiden Edition/Volume 1, October, 2023

ISSN: 3027 – 0294

DOI: <https://doi.org/10.59479/jiaheri.v1i001.28>



World Health Organization (WHO). (2020). Coronavirus disease (COVID-19) pandemic.
Retrieved from <https://www.who.int/emergencies/disease-outbreak-news/item/2020-DON264>