

Misconception of Science and Traditional Beliefs on Covid-19 and Hepatitis B among a Cross-Section of the People of Northern Region-Ghana



Abdallah Salifu¹ , Robert Akayim Awasina¹  & Nimatu H. Musah² 

¹ Gambaga College of Education, Ghana.

² Tamale College of Education, Ghana.

ABSTRACT

The study aimed to assess the science and the traditional beliefs of the people on COVID-19 and Hepatitis B among a cross-section of Ghanaian communities to provide a foundation for more education on diseases in the country. The study was limited to five communities in the Tamale Metropolis, Northern Region. The research design used was quantitative, specifically a descriptive survey, and relevant data were collected through primary and secondary sources using an interview guide with a randomly sampled population of 500 people: 250 males and 250 females. The data was analyzed using a descriptive approach. The results indicated that 20% females did not believe in the existence of the COVID-19 virus and did not observe any safety measures, 20% remained neutral. For hepatitis B, 76% percent of the females believed in the existence of the virus, yet only 48% took the vaccine; thus, the female population also contributed to the increased infection among the population, but not as seen in their male counterparts, with 60% who failed to take the vaccine against the disease. The hope here is that some people did not believe in the existence of these diseases, and yet they saw the need to observe at least one of the safety protocols in both cases. People all over the world need more education on diseases and their preventive measures, as well as protective laws. This study serves as a tool for advocacy and sensitisation to intensify education on diseases, particularly the deadly Covid-19 and Hepatitis B, and to recognise and support relevant laws that may be established to protect the elderly in society.

Correspondence

Abdallah Salifu

Email:

abdsavocabs@yahoo.com

Publication History

Received: 18th March, 2025

Accepted: 9th September, 2025

Published online:

11th November, 2025

To Cite this Article:

Salifu, Abdallah, Robert Akayim Awasina, and Nimatu H. Musah. "Misconception of Science and Traditional Beliefs on Covid-19 and Hepatitis B among a Cross-Section of the People of Northern Region-Ghana." *E-Journal of Humanities, Arts and Social Sciences* 6, no. 12 (2025): 2950 - 2964, <https://doi.org/10.38159/ehass.20256125>.

Keywords: Covid-19, Hepatitis, Science, Traditional Belief, Northern Ghana

INTRODUCTION

A disease is any disorder or abnormal condition that affects the normal functioning of organisms. Diseases can be infectious or non-infectious, and they can be chronic or acute. They mostly have their causative organisms or agents. Some diseases also have vectors that ensure that other organisms receive the causative agents to initiate incubation processes. Some diseases are genetic, others are caused by environmental agents and the lifestyle of the victims. Knowing the nature of diseases is important and can contribute to effective prevention, diagnosis and treatment strategies to ensure the protection of humankind and other organisms.

Moyo Clinic and Nidhi Jacob used basic science to explain some of these misconceptions or beliefs, which they described as myths. The advocacy to educate all and sundry, especially on basic knowledge of science, is paramount to empower the most active group of humanity, the youth. This move

will give the youth what it takes to explain basic scientific phenomena to their deserving colleagues and to their communities at large. Until that is done to change the attitude of the youth, health workers and the Countries clothed with the responsibilities to manage the diseases, the problems will persist.

The Traditional Beliefs of people on some diseases against science led to accusations of aged women of witchcraft, these accusations led to the destruction of families, communities and other important relationships among the people of Ghana. The problem is about the health of human beings, and there is a need to provide knowledge that would help people protect themselves against these diseases by observing scientific protocols. The long-term effect of these accusations is that Human resources are depleted as some are killed, some people are maimed, and others have their children drop out of school due to wrongful and unscientific accusations. The crusade to protect pregnant women, the illiterate and other vulnerable groups should be intensified. The protective action can save countries' economies and subsequently lead to nationwide growth and development in other sectors of the nation's entire economy.

Based on this background, the study aims to assess the science and the traditional beliefs of the people on COVID-19 and Hepatitis B among a cross-section of Ghanaian communities to provide a foundation for more education on diseases in the country.

The questions that this study seeks to answer are;

1. What preventive measures do they undertake to protect themselves against these diseases?
2. Are the people aware of and accept the existence of the diseases under study?
3. Are the people ready to take the available vaccines for both diseases?

The fact that people accused and killed others wrongly because of unfortunate victims of these diseases, ran away from vaccines that were meant to control the spread of these diseases and labelled allegations against the vaccines found by trusted and well-established bodies across the globe, justified the study. The significance of the study is that the people, other researchers, the country and the entire globe will benefit from the outcome of the research.

The study presents literature on both COVID-19 and Hepatitis B diseases to provide a basis for discussion of results; presentation of results, to use the data collected to answer the research questions; discussion, for interpretations and description of the significance of findings; conclusion, to explain findings in a broader context; and recommendation, for practical application of research outcomes.

LITERATURE REVIEW

The Corona Virus Disease (Covid-19)

The coronavirus disease caused by a new strain of coronavirus is an infectious disease that has overwhelmingly destroyed lives across the world. This new virus and disease, before the outbreak, was not known to many until it showed its ugly head in a specific location known as Wuhan, China, in December 2019, and on 12th March, 2020, Ghana experienced an outbreak of the disease, which led to the closure of schools and many other public institutions. This virus is respiratory, spreading primarily through droplets generated when an infected person coughs or sneezes, or through droplets of saliva or discharge from the nose. Individuals could be protected by maintaining personal hygiene, such as frequent hand washing with soap and water and alcohol-based sanitizer.

The disease is yet to receive a specific curative drug, but health workers have been able to manage it with food and drugs that improve the immune system to be able to withstand the deadly side of the virus. Several approaches were used to manage the virus when it emerged, but it was difficult to obtain specific drugs with certainty of their efficacy. Some tried examples, hydroxychloroquine, with no proof of their curative or preventive abilities. The misuse of hydroxychloroquine could have a devastating consequence on innocent victims' treatments and, in the worst-case scenario, could lead to death, according to the WHO. WHO coordinated measures to put together and evaluate medications to properly manage COVID-19. So far, there has been no definitive curative drug prescribed to avert or treat the new coronavirus. However, those infected with the virus only get relief from symptoms, and those at the critical level of the disease should receive improved supportive care. Some specific clinical trials were investigated and tested. The WHO accelerated research and development efforts with a variety of partners.¹

¹ WHO, "Coronavirus Disease (COVID-19) Advice for the Public: Mythbusters," 2020.

Some preventive measures circulated among the public included avoidance of close contact with each other and one another, especially the sick; touching the eyes, nose, and mouth should be avoided; frequent washing of hands is key; regular cleaning and disinfecting objects and surfaces one comes into contact with. Health experts and officials across the length and breadth of the country asked everyone, and in particular all Ghanaians, to take preventive measures to slow down the spread of the disease. These include: social distancing; the use of facemasks; stay-at-home orders; quarantine; isolation; use of sanitizers and hand washing.² Ghana and Global Cases of COVID-19 are seen in Table 1.

All these measures were observed globally to ensure that the pandemic was brought under control, and this, notwithstanding, posed huge challenges to developing countries, even though the death rate was relatively low in these countries.

Table 1: Cases in Ghana and Globally as of August 10, 2020, at 3:36 pm.

Location	Confirmed	Deaths	Recovered
Ghana cases	41,003	215	38, 330
Global cases	19,877,261	731,570	12,127, 638

Source: (WHO, 2020)³

The current cumulative global cases of COVID-19 by April 2024 were 704,753,890; 7,010,681 deaths, and 675,619,811 recovered.⁴ By June 17, 2021, the total cases in Ghana were 95059; those recovered or discharged, 93005(97.8%), and the total active cases were 1260. By April 07, 2024, the total cases in Ghana were 172,075; those recovered or discharged were 170,592 (99.1%), and the total active cases were 21.⁵ There was a drastic improvement in the management of the disease, in addition to the vaccines administered to control the infection rate. The biological systems of the individuals might have accepted the disease to some extent, making it weak in its destructive mission.

As of 8 August 2022, Critical cases were 6, 4 on ventilators and 20 severe cases, and by 7th April, 2024, both severe and Critical cases were zero. This is another case of success in the fight against COVID-19.⁶ With all these huge figures of cases, people still thought that the disease was spiritual and continued to blame others for spiritually causing harm to them and their relatives. What they failed to realize is that there is enough evidence to tag it as physical rather than spiritual. Tables 2 and 3 contain the Positivity rate by Surveillance.

Table 2: Positivity rate by Surveillance type for samples tested in Ghana, March to August 2021

Surveillance Type	Total number tested	Total number positive	Positivity rate
Routine Surveillance	343,423	33,101	9.6
Enhanced Contact Tracing	583,364	60,132	10.3
International travelers (KIA)	314,516	1,826	0.6
Total	1,241,303	95,059	7.7

Source: (GHS, 2021).⁷

² Emily Landon, "UChicago Infectious Disease Specialist: What We Know about Novel Coronavirus UChicago Medicine's Emily Landon Answers Common Questions about COVID-19," March 20, 2020, <https://news.uchicago.edu/story/infectious-disease-specialist-what-we-know-about-novel-coronavirus>.

³ World Health Organization., "WHO Definition of Health," 2020, <https://www.who.int/about/who-we-are/frequently-asked-questions>.

⁴ Melaine A. May, "The Unity We Seek, the Unity We Share," in *A History of the Ecumenical Movement*, ed. John Briggs (Geneva: World Council of Churches Publications, 2004).

⁵ Ghana Health Service, "Situation Update Covid-19 Outbreak in Ghana," 2024.

⁶ Ghana Health Service, "Situation Update Covid-19 Outbreak in Ghana."

⁷ Ghana Health Service, "Situation Update Covid-19 Outbreak in Ghana."

Table 3: Positivity rate by Surveillance type for Samples Tested, Ghana, March 2020-April 2024

Surveillance type	Total number tested	Total number positive	Positive rate
Routine Surveillance-22	508,451	62839	12.4
Enhanced contact tracing -102	1,149,735	101,531	8.8
International Travelers (KIA	885,433	7,705	0.9
Total	2,543,619	172,075	6.8

Source: (Ghana Health Service, 2024).⁸

Tables 2 and 3, Positivity rate by Surveillance type for samples tested in Ghana, March to August, 2021 and March to April 2024, indicate that everything was put under control and therefore the numbers involved in all cases were relatively minimal, both in Africa and the rest of the world.

Misconceptions and Beliefs about COVID-19

According to Moyo Clinic Staff, COVID-19 myths spread early in the pandemic because the disease was new, and information changed so quickly. Some of those myths are still spreading, along with new ones, and are being addressed. Some of the misconceptions are addressed as follows: COVID-19 vaccines;

1. Causing cancer or making cancer harder to treat has no research evidence.
2. Having no link to a higher risk of *heart problems, blood clots* or stroke. The benefits of vaccines outweigh the risks of rare cases of heart problems. Also, there is more risk of infection than of vaccination.
3. It does not cause fertility problems, but only temporarily affects the menstrual cycle of some women.
4. They are made only with ingredients to frustrate or get rid of the causative organism and do not contain microchips that track your location or movement.
5. Does not affect the DNA of a person. It only ensures the production of antibodies to protect the entire body against the disease.
6. Keeping one away from the disease, but getting the disease can even complicate other health issues.

Also, it is a myth that hot or cold temperatures can keep one from catching the COVID-19 virus. People all over the world, in winter and summer, get COVID-19. No foods, drinks, or supplements prevent or treat COVID-19, but vaccines and taking safety precautions can help prevent the disease. Dietary or herbal supplements are not recommended to prevent or treat COVID-19. Colloidal silver supplements are not safe or effective for treating any disease. Oleandrin, an extract of the toxic oleander plant, is poisonous and should not be taken as a supplement or home remedy.

Viruses can only spread between living beings and cannot travel on radio waves and mobile networks, as some people thought. COVID-19 vaccines do not prevent pneumonia and flu, but are made to protect against a specific germ. So, pneumococcal vaccination protects against pneumonia. The influenza vaccination protects against flu viruses, and the COVID-19 vaccines protect against COVID-19 infection. If someone in your home has COVID-19, clean and disinfect surfaces using products made for each surface. Follow the manufacturer's directions for disinfection. Disinfectants can help kill germs such as the COVID-19 virus when applied to surfaces. But it is dangerous to use disinfectants on your body, inject them into your body or swallow them.⁹ The misconception of the people about COVID-19 infection is well demonstrated and communicated by the staff of the Moyo Clinic, and this will change the mindset of individuals, thus recognising and taking part in the vaccination exercise.

The attitude of denial of and disbelief in the disease has been lingering since its inception, along with extreme doubts about preventive measures, disease manifestations, and management of suspected and confirmed cases globally. According to the results of a global study, 13% of Americans disbelieved

⁸ Ghana Health Service, "Situation Update Covid-19 Outbreak in Ghana."

⁹ WHO, "Coronavirus Disease (COVID-19) Advice for the Public: Mythbusters."

that COVID-19 was real, the highest rates of disbelief of the disease being found in Turkey and Poland (22% of the population), in Egypt and Saudi Arabia (19%), followed by Nigeria and Greece (17%).¹⁰

Hepatitis B

The Hepatitis B disease is an infectious disease caused by a pathogen known as Hepatitis B Virus (HBV), and it is an infection of the liver, which can cause scarring when it attacks the organ, especially for a long time. The HBV is a Deoxyribonucleic acid (DNA) virus and was first identified in the 1960s. It can lead to liver failure and cancer. It is not far from fatality if not attended to in time. It spreads when people come into contact with the blood, open sores, or body fluids of someone who has the virus. Hepatitis B can cause acute and chronic diseases. It easily passes from mother to child during birth and delivery, also through fluids within the living environment of humans, including sex with an infected individual, sharing needles through injections of drugs, syringes, or drug-preparation equipment and needle sticks or exposures to sharp instruments.¹¹

WHO estimates that 257 and 254 million people were living with chronic hepatitis B infection (defined as hepatitis B surface antigen positive), in 2015 and 2022 respectively, with 1.2 million new infections each year; 1.1 million deaths, mostly from cirrhosis and hepatocellular carcinoma (primary liver cancer) from the disease, in 2022, and in 2015 hepatitis B resulted in an estimation of 887 000 deaths, mostly from cirrhosis and hepatocellular carcinoma (i.e. primary liver cancer). As of 2016, 27 million people (10.5% of all people estimated to be living with hepatitis B) were aware of their infection, while 4.5 million (16.7%) of the people diagnosed were on treatment. According to the latest WHO estimates, the proportion of children under five years of age chronically infected with HBV dropped to just under 1% in 2019, down from around 5% in the pre-vaccine era, ranging from the 1980s to the early 2000s. Hepatitis B can be prevented by vaccines that are safe, available and effective.¹² It is obvious that the disease continues to spread, but with vaccines, the spread is relatively low, although ignorance about the disease affects the entire effort of managers to control the disease. The symptoms of the latest part of the disease are scary and victims, together with their relatives, sometimes read it with spiritual meaning into it. This spiritual belief allows more space for infections and deaths, increasing the economic woes of financially vulnerable countries. Hepatitis A, B, C, D and E viruses cause substantial morbidity and mortality, affecting more people worldwide than HIV. Nearly two billion people across the world are estimated to be infected with HBV, with nearly a quarter of them having chronic infection. Each year, more than half a million HBV-related deaths are recorded around the globe.¹³ Epidemiological studies have often demonstrated varying levels of endemicity of HBV worldwide, with endemic areas present in Sub-Saharan Africa (SSA) and East Asia, where between 5 and 10 % of the adult population is considered chronically infected. In other jurisdictions, the infection rate is low.

According to the ICTV classification, this virus belongs to the genus Orthohepadnavirus of the Hepadnaviridae family and, along with the Spumaretrovirinae subfamily of the Retroviridae family, represents the only other animal virus with a DNA genome known to replicate by the reverse transcription of a viral RNA intermediate.¹⁴ The Hepatitis B Virus is a blood-borne virus and roughly 75 – 200 times more infectious than HIV.¹⁵ Hepatitis B Virus (HBV) is a DNA virus and was first identified in the 1960s.

Hepatitis B Virus (HBV) is a DNA virus and was first identified in the 1960s. According to the ICTV classification, this virus belongs to the genus Orthohepadnavirus of the Hepadnaviridae family and, along with the Spumaretrovirinae subfamily of the Retroviridae family, represents the only other animal virus with a DNA genome known to replicate by the reverse transcription of a viral RNA

¹⁰ Aristidis Vasilopoulos et al., "Factors Underlying Denial of and Disbelief in COVID-19," *Jornal Brasileiro de Pneumologia*, September 23, 2022, e20220228, <https://doi.org/10.36416/1806-3756/e20220228>.

¹¹ David Markenson et al., "Part 17: First Aid: 2010 American Heart Association and American Red Cross Guidelines for First Aid," *Circulation* 122, no. 18_suppl_3 (2010): S934–46.

¹² WHO, *Coronavirus Disease (COVID-19) Advice for the Public: Mythbusters*, 2020.

¹³ Richard Ofori-Asenso and Akosua Adom Agyeman, "Hepatitis B in Ghana: A Systematic Review & Meta-Analysis of Prevalence Studies (1995-2015)," *BMC Infectious Diseases* 16, no. 1 (December 18, 2016): 130, <https://doi.org/10.1186/s12879-016-1467-5>.

¹⁴ Helene Norder et al., "Genetic Diversity of Hepatitis B Virus Strains Derived Worldwide: Genotypes, Subgenotypes, and HBsAg Subtypes," *Intervirology* 47, no. 6 (2004): 289–309.

¹⁵ Norder et al., "Genetic Diversity of Hepatitis B Virus Strains Derived Worldwide: Genotypes, Subgenotypes, and HBsAg Subtypes."

intermediate.¹⁶ The Hepatitis B Virus is a blood-borne virus, and roughly 75–200 times. Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus (HBV). It is a major global health problem. It can cause chronic infection and put people at high risk of death from cirrhosis and liver cancer. A safe and effective vaccine that offers 98–100% protection against hepatitis B is available. Preventing hepatitis B infection prevents the development of complications, including the development of chronic disease and liver cancer¹⁷.

In Western Europe and North America, less than 1 % of the population is chronically infected. The lifetime risk of infection from HBV in many African and Asian countries, the Amazon Basin and parts of the Middle East was estimated to be more than 60 %.¹⁸ Accurate determination of the burden of HBV in Africa is difficult owing to poor record keeping and under-reporting, but estimates put that about 70–95 % of the adult population shows evidence of past exposure to HBV infection, and the Hepatitis B surface antigen (HBsAg) seroprevalence rate has been put around 6–20 %.¹⁹ The national prevalence of HBV, as determined by HBsAg seropositivity, was 12.3 %. HBV prevalence among voluntary blood donors (VBDs), replacement blood donors (RBDs) and pregnant women was 10.8, 12.7 and 13.1 % respectively. HBV infection prevalence was highest among studies published within the period 1995–2002 (17.3 %), followed by those published within 2003–2009 (14.7 %) and the lowest prevalence rate was recorded across studies published in the period 2010–2015 (10.2 %). Across the country, the highest rates of HBV infection prevalence were recorded in persons within the age group 16–39 years.²⁰ The increase in the prevalence rate is due to misconceptions people have about the disease. The mode of transmission is one of the aspects of the disease that suffers a great deal of misconception, as seen below;

Misconceptions and Beliefs about Hepatitis B

According to Nidhi, Hepatitis B is still lingering in most countries due to a lack of awareness, and the following myths or misconceptions about Hepatitis B were discredited.²¹

Hepatitis B spreads by casual contact

Hepatitis B does not spread by touching, coughing, sharing utensils, sharing towels, hugging, or even kissing. However, it can be spread by sharing of a razor, sharing of a needle, sexual intercourse, or when infected body fluid enters the body through cuts and abrasions, etc." These viruses are not airborne.

Hepatitis B is a hereditary disease

Hepatitis B can be transmitted from the mother to the newborn during delivery, and not through the genetic makeup of the mother. To prevent this transmission, it is essential to screen all pregnant women for HBV and then administer a medicine known as HBIG along with HBV vaccine to the newborn of an HBV+ mother, within 12 hours of delivery.

People with hepatitis B should not have sexual intercourse

People suffering from HBV should use barrier contraception (condom) while having sexual intercourse with an unvaccinated person. However, if the partner is fully vaccinated and immunized against Hepatitis B, then there is no risk of sexual transmission. It is advisable that spouses of Hepatitis B patients be first screened for the virus and then vaccinated, explained Dr Kumar.

Hepatitis virus cannot survive outside the human body

Hepatitis viruses B and C can survive on infected needles or instruments, and in body fluids. Desai said that the Hepatitis B virus can survive outside the body for at least seven days. During that time, the virus

¹⁶ Norder et al., "Genetic Diversity of Hepatitis B Virus Strains Derived Worldwide: Genotypes, Subgenotypes, and HBsAg Subtypes."

¹⁷ WHO. *Coronavirus Disease (COVID-19) Advice for the Public: Mythbusters*, 2020.

¹⁸ J J Ott et al., "Global Epidemiology of Hepatitis B Virus Infection: New Estimates of Age-Specific HBsAg Seroprevalence and Endemicity," *Vaccine* 30, no. 12 (2012): 2212–19.

¹⁹ Ofori-Asenso and Agyeman, "Hepatitis B in Ghana: A Systematic Review & Meta-Analysis of Prevalence Studies (1995-2015)."

²⁰ Ofori-Asenso and Agyeman, "Hepatitis B in Ghana: A Systematic Review & Meta-Analysis of Prevalence Studies (1995-2015)."

²¹ J. Nidhi, "6 Myths Around the Disease Debunked," 2022, <https://www.factchecker.in/myths-facts/world-hepatitis-day-6-myths-around-the-disease-debunked-myths-and-facts-828222>.

can still cause infection if it enters an uninfected person's body. "This can be eliminated by proper cleaning, as the virus is very susceptible to disinfection," he said.

Hepatitis and HIV are similar

Hepatitis types and HIV, or human immunodeficiency virus, are two different types of viruses. According to Kumar, the only similarity is that Hepatitis B and C have similar modes of transmission to HIV. However, Hepatitis B and C affect the liver, while HIV infects many organs of the body.

METHODOLOGY

The research design was quantitative, specifically a descriptive research survey and lessons derived from the literature aided in relevant data collection through primary and secondary sources. The target population of the Metropolis was 374,744, and the randomly sampled population was 500 people; 250 males and 250 females across the five occasion centers in Tamale metropolis. 50 males and 50 females were selected at each study point. Interview guides were used to conduct the interview.

Secondary data was obtained from the internet, books, and published articles. Data were tabulated, graphed, and descriptively analyzed, and the respondents were assured of anonymity. Tamale, the study area, is the regional capital of the Northern Region. The entire region has a population of 2,310,939 people.²² The population growth rate of the metropolis has been higher than that of the national population growth rate since 2000.²³ Figure 1 shows a Map of the Northern Region of Ghana and the study area, Tamale, where data on the people’s behaviour and beliefs towards COVID-19 and Hepatitis were collected.



Figure 1: (Salifu et al., 2021)²⁴

PRESENTATION OF FINDINGS AND DISCUSSION

Interviews were carried out at all five ceremonies (2 naming ceremonies and 3 weddings), using a guided questionnaire, and the outcome tabulated in Tables 5, 6, 7 and 8 below.

Table 5: Response to Preventive Measures of COVID-19

Gender	ASP	NMO	OS	MHP	NPO
Male	25	50	50	45	80
Percentage %	10	20	20	18	32
Female	20	40	50	40	100
Percentage %	8	16	20	16	40

²² Ghana Statistical Service, *Ghana 2021 Population and Housing Census: General Report Highlights* (Accra: Ghana Statistical Service, 2021).

²³ Ghana Statistical Service, *Ghana 2021 Population and Housing Census: General Report Highlights*.

²⁴ A Salifu, F K Abagale, and G Kranjac-Berisavljevic, "Soil Physical and Hydraulic Properties of Irrigable Lands in the Northern Region of Ghana.," 2021.

ASP = all the safety protocols; NMO = Nose mask only; OS = only Sanitizers; MHP = More than half of the protocols; NPO = No protocol observed.

It is clear, from Table 5 that out of 250 male respondents only 25 people observed at least all the safety protocols mentioned in the literature and 80 people did not observe any protocol unless under obligation to do so, example, the bankers made it compulsory to wash hands, wearing of nose mask or/and use of sanitizers before you were allowed to get into the Bank premises to carry out any transaction. The data indicated that 170 (68%) of the 250 males observed at least one of the safety protocols, and this is a sign of hope for the country regarding the fight against the pandemic. Literature by WHO has indicated that the rate of infection in Ghana was low as compared to the average global infection rate (Table 1), and this may be due to the voluntary and National enforcement of the preventive measures. 40 % (20 % males and 20 % females) of the people who used sanitizers among the preventive measures was the highest preventive measure among the safety protocols, and this agrees with Apanga and Kumbeni that 31.7% (highest) of pregnant women used sanitizers/handwashing.²⁵ 36 % used a nose/face mask, which was also popular due to its ready availability. Some respondents argued that the use of nose masks made breathing difficult, thus opting for the use of sanitizers.²⁶ Studies have shown that barriers include difficulty in breathing, feeling uncomfortable and headache, which prevented some study participants and community members from wearing a face mask. These findings agree with the findings of this study.

Table 5 also indicated that the males observed the protocols more than the females, because out of 250 females, 100 did not observe the safety protocols, as against 80 out of 250 males who did not observe the safety protocols at all. The use of sanitizer was popular, constituting 100 people for both sexes, and there were an equal number of percentages (20% each) for both sexes. It is not surprising that 36% of both sexes, comprising 180 people, did not observe any of the preventive measures and therefore did not believe in the existence or otherwise of the virus, and their behaviour could impede the effort of health providers in managing the canker. This outcome is clearly an indication that the National effort regarding education and enforcement of preventive measures exceeded that of the region, and this may reflect several regions in the country. The fact that people observed some preventive measures agrees with the Ghana Health Service Situation Update on Covid-19 Outbreak, indicating how drastically the infection rate had reduced due to good management of the pandemic, and this was clearly seen in the measures taken in Government and private institutions to curb the menace.²⁷

Table 6: Response to the existence of COVID-19

Gender	BEV	DBV	Neutral
Male	100	120	30
Percentage %	40	48	12
Female	150	50	50
Percentage %	60	20	20

BEV = Believe in the existence of the virus; DBV = Did not believe in the existence of the virus.

One hundred males believed the existence of the disease, 120 people did not believe the existence of the disease, and 30 people remained neutral (Table 6). What this means is that 20 people (males) believed in the existence of the virus and yet refused to observe any of the safety protocols, and the nature of the COVID-19 was that it was highly infectious and a single person could infect so many people; therefore, it was deadly to be in the midst of such people. Another worrying trend, which was quite alarming, was the fact that 120 males did not believe in the existence of the virus, and 30 remained neutral. Those who did not believe gave unscientific or unempirical reasons why they thought the virus did not exist. The hope here is that about 50 people (males) did not believe in the existence of the virus, yet, they saw the need to observe at least one of the safety protocols, and what this means is that they are gradually

²⁵ Paschal Awingura Apanga and Maxwell Tii Kumbeni, "Adherence to COVID-19 Preventive Measures and Associated Factors among Pregnant Women in Ghana," *Tropical Medicine & International Health* 26, no. 6 (June 15, 2021): 656–63, <https://doi.org/10.1111/tmi.13566>.

²⁶ Frank Kyei-Arthur et al., "Perceptions about COVID-19 Preventive Measures among Ghanaian Women," *PLOS ONE* 18, no. 4 (April 12, 2023): e0284362, <https://doi.org/10.1371/journal.pone.0284362>.

²⁷ Ghana Health Service, "Situation Update Covid-19 Outbreak in Ghana."

accepting the fact that these diseases are more physical and realistic than spiritual, thus the need to protect themselves using physical measures. This study revealed that some people in Ghana did not accept or believe in the existence of the virus, and it agrees with Studies by *YouGov-Cambridge Centre*, as contained in Vasilopoulos, Pantelidaki, Tzoura, Papadopoulou, Stilliani, Paralikas, Kortianou and Mastrogiannis that 13% of Americans disbelieved that COVID-19 was real, the highest rates of disbelieving the disease being found in Turkey and Poland (22% of the population), in Egypt and Saudi Arabia (19%), followed by Nigeria and Greece (17%).

The data in Tables 5 and 6 indicated that 150 (60%) out of 250 females observed at least one of the safety protocols; thus, 50 females did not believe in the existence of the virus and did not observe any safety or preventive measures. Therefore, males who did not believe but observed at least one safety protocol were cautious or vigilant than their female counterparts with the same fate. The outcome agreed with Moyo Clinic Staff position on COVID-19, that myths spread early in the pandemic because the disease was new, and information changed so quickly, meaning people bought into misinformation of peers and non-professionals at the early stage of the pandemic and that is why about 50 males did not believe in the existence of the disease and yet observe some of the protocols because of what they saw physically about victims of the disease. The belief of the people influences their response to preventive measures. This agrees with Kyei-Arthur, Agyekum, Afrifa-Anane, Larbi and Kisaakye that at the community level, cultural values and beliefs about COVID-19 could influence adherence to the preventive measures.²⁸

Figure 2 indicates a vivid comparison between the males and the females regarding the observation of the safety protocols and the existence or otherwise of the disease (COVID-19) in Ghana. According to the graph, more males did not believe in the existence of the virus than females. An equal number of both sexes use only sanitizers, which seemed more popular than others. A study by Bwire on why men are more vulnerable to COVID-19 than women showed that women have a more responsible attitude toward the COVID-19 pandemic than men, and that may be the reason why they believe in the existence of the virus than their male counterparts in this study. Surprisingly, males generally observed more protocol than women in this study, even though they are more in denial than the females.

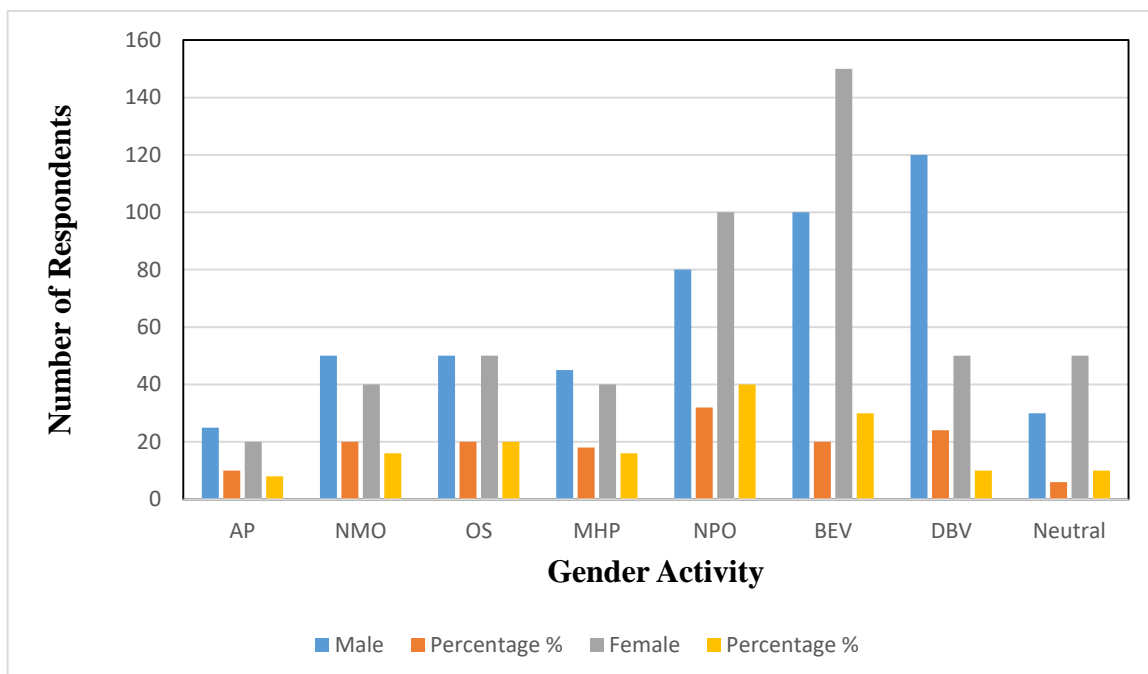


Figure 2: The males' and Females' Response to Covid-19 Questions

Hepatitis B, on the other hand, had been with the people long before COVID-19 struck. Their belief in the existence of the virus was comparatively high, as can be seen in Tables 7 and 8, and this is

²⁸ Kyei-Arthur et al., "Perceptions about COVID-19 Preventive Measures among Ghanaian Women."

due to their continued exposure and infections experienced among them and their neighbors. What they did not understand is that it is scientific and natural. Some thought it was the manifestation of the anger of their gods and ancestors.

Table 7: Response to the Existence of Hepatitis B

Gender	BEV	DBV	Neutral
Male	200	30	20
Percentage (%)	80	12	8
Female	190	45	15
Percentage (%)	76	18	6

BEV = Belief in the existence of the virus, DBV = Did not believe in the existence of the virus

From the results, it is obvious that males who believed in the existence of the Hepatitis virus far outweighed those with the opposite view. This was so because some people did not believe in the existence of the disease, and they did not see the need to be vaccinated; thus, the failure of 150 out of 250 males (Table 8) to take the vaccine. Some males believed in the existence of the virus but refused to take their vaccines. The females' opinions were not entirely different from the position of the males, except that the figures regarding their beliefs were not the same, just a difference of 10 males more than females, as seen in Table 7. Figure 8 indicates that 56% of the people under study did not take the vaccine; meanwhile, 7% remained neutral and could worsen the infection situation if they had decided to ignore the control and preventive measures.

Table 7 further indicates that 76% of the females believed in the existence of the virus and yet only 48% took the vaccine, thus, the female population also contributed to the increased infection among the population but not as seen in their male counterparts with 60% who did not to take the vaccine against 76% who believe and yet 52% rejected the vaccine (Tables 7 and 8). What people failed to realize is that vaccines do go through a lot of tests and trials, sometimes on human beings only and other times on other mammals with similar characteristics, such as mice, monkeys, etc. The best approach is the latter for optimum safety reasons.²⁹ Studies by Chu et al., showed that the chronic HBV carrier prevalence was observed to be higher in males than in females (10.7% vs 4.4%) and this revelation of theirs may supports the highest rate of disbelief in the existence of the virus by the male respondents than the female respondents and could also be the reason for which more female took the vaccine than their male counterparts (Table 7 and 8). According to Bhuiyan et., Females (OR 1.55 with 95% CI: 1.30–1.85) had higher vaccine coverage compared to males and this agrees with this study which revealed that 48% of females as against 40% (Table 8), took the vaccine.

Table 8: Response to Vaccination of Hepatitis B

Gender	Vaccinated	Not Vaccinated
Male	100	150
Percentage (%)	40	60
Female	120	130
Percentage (%)	48	52

Figure 3 shows a pictorial position of both males and females, regarding the Hepatitis disease.

²⁹ Xiu Yun Wu et al., "The Influence of Physical Activity, Sedentary Behavior on Health-Related Quality of Life among the General Population of Children and Adolescents: A Systematic Review," *PLOS ONE* 12, no. 11 (November 9, 2017): e0187668, <https://doi.org/10.1371/journal.pone.0187668>.

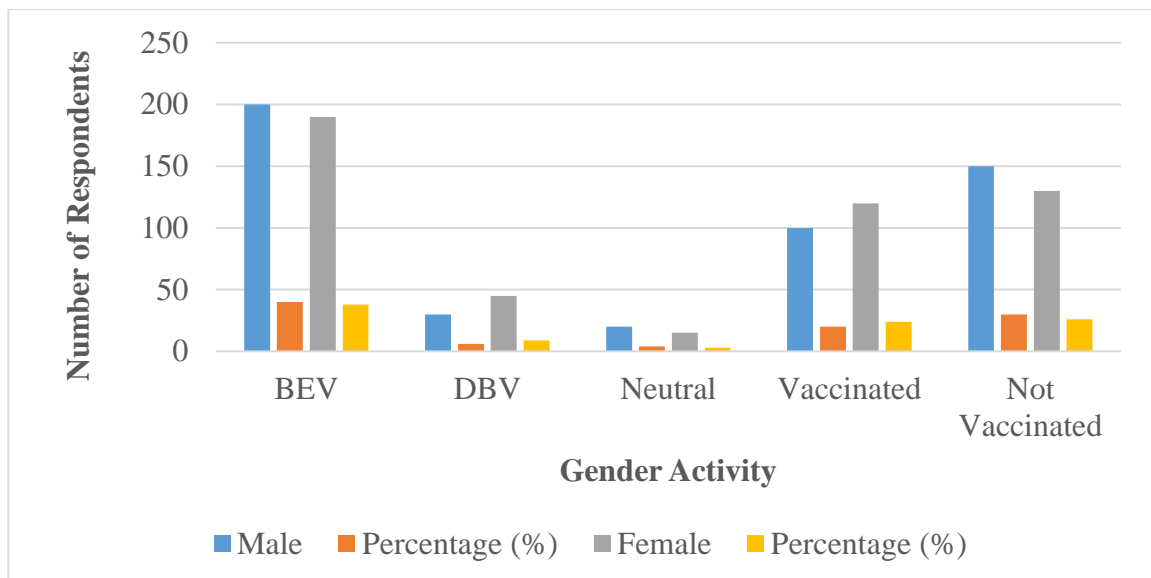


Figure 3: Male and Female Responses on the Existence and Preventive Measures of Hepatitis B

General Scientific Misconceptions and Beliefs of the People

Scientific misconceptions of COVID-19 and Hepatitis B

Misconception among the respondents that is supported by Moyo clinic staff demystification of COVID-19 vaccine myths include: COVID-19 vaccines are causing cancer, heart problems, blood clots, stroke, and fertility issues that affect people's DNA. Also, the assertion that high temperatures affect the virus and can be treated using hot water; Disease spreads through wireless or mobile networks; Use vaccines for other diseases to cure Covid-19; Use of a herbal mixture could prevent or cure infection of the virus.

General evidence is not available that these COVID-19 vaccines can cause cancer. However, HPV (human papillomavirus) vaccines can protect against some cancers. Heart problems were recorded in a few cases with the administration of Johnson and Johnson COVID-19 vaccines, raising alarm among people, especially victims. These vaccines were quickly removed from the system, but it was difficult to erase the impact of the unfortunate few cases. The vaccines that came later were not associated with heart problems, blood clots or stroke. Blood clots have good and bad sides; they stop bleeding when blood vessels are damaged, but can also cause stroke, miscarriage during pregnancy, and heart attack. In older adults, blood clots can cause blockage of blood vessels, leading to high BP (blood pressure). If COVID-19 in adults could lead to stroke, it is recommended to take COVID-19 vaccines to avoid stroke by preventing infection.

Some youth think that the vaccine has the potential to cause impotence and sterility. Some were of the view that it was a ploy to reduce the population of Africans through the vaccine. Their actions and views about the disease may be due to a lack of adequate knowledge on how vaccines work, and this agrees with the position of Nidhi, that Hepatitis B is still lingering in most countries due to a lack of awareness.³⁰ Infertility issues might also be due to witchcraft, and these perceptions keep them away from taking the COVID-19 vaccines. This myth originated from a misinterpreted statement made by Bill Gates in 2020.

Some scientific misconceptions of hepatitis B include;

Hepatitis B spreads through

1. casual contact like handshakes,
2. sharing of food,
3. insect bites,
4. Interaction with pets and
5. breastfeeding.

There is also a claim that the disease has no treatment. The virus spreads through blood and fluid and therefore cannot spread through mere contact between two bodies of human beings or human to other

³⁰ Nidhi, "6 Myths Around the Disease Debunked."

animals. Unlike malaria, the bite of an insect cannot spread the pathogen, and therefore, the disease cannot be spread through pests. Breast milk is fluid, but the virus rarely spreads through it, and therefore, nursing mothers with hepatitis B should be advised to breastfeed their babies, especially when they are vaccinated. There is treatment for Hepatitis B, and victims of the disease are encouraged to visit appropriate health posts for advice and treatment.

Traditional Beliefs of COVID-19 and Hepatitis B

People who did not believe in the existence of COVID-19 were of the view that COVID-19 was a test from the gods to separate the good ones from the bad ones. Others also linked it to witches and wizards and needed ancestral protection.

Some people never believed that COVID had no cure; they believed that their forefathers had professed solutions to new and old sicknesses, and therefore, spiritual consultation with their gods could hint to them the kind of herbs to use for COVID.

One needed to get a special herb from a spiritual guru with clean hands to prepare liquid herbs for drinking and bathing. Some participants thought that the use of hot water for bathing and drinking could solve the problem.

As supported by Tran, the respondents believed that Hepatitis B is one of the disciplinary measures of the gods and victims prefer treatment from traditional priests and other highly spiritually powerful individuals.³¹ Others believe that HBV is the manifestation of witches and wizards, and some believe that the disease is due to spiritual poisoning; thus, they seek persons who are spiritually inclined to deliver them. Others also go for herbal treatment. These beliefs can delay health seeking in orthodox health centers or establishments, leading to delay and poor health care and consequently promoting the risk of HBV transmission to family and friends.

Generally, a cross-section of the people in the region and the country at large has turned to using more herbal treatments to treat diseases. Especially, those diseases that they suspected to be more spiritual than physical. It is obvious from figures 2 and 3 that both males and females shared to some extent the spirituality involved in a good number of diseases they encountered as human beings, in their very existence on the earth's surface. Meanwhile, the curriculum of schools is such that natural science is taught in the early stages of the basic schools in Ghana and all other levels of education as core or liberal studies and or African studies, and the essence of that is to provide a good foundation in science for its citizens. This plan of the curriculum provides a basis for them to understand the science of day-to-day activities so as to avoid things or actions that may cause harm to them.

It was obvious that the people involved in the study had some knowledge of diseases, but had their own point of view that Hepatitis B and COVID-19 were not ordinary and therefore deserving of spiritual intervention, as was done by their ancestors.

The discovery of Covid-19 vaccines, just like the Hepatitis B virus, which had vaccines for a long time, before that of Covid, has even confirmed and created more distrust among a great number of people who are not sufficiently educated in diseases in the Ghanaian communities. Some people were still not cautious enough and opted not to take the vaccine for both diseases. These people thought that taking the COVID-19 vaccine would infect them with the disease, just as was their perception in the case of the Hepatitis B virus.

The level of ignorance on diseases is far from over; further education could replace the spiritual connotations of these diseases with physical acceptance of realities, thus making it unacceptable for people to be victimized within the comfort of misconception.

People's perception of vaccines is still high. These people are not entirely wrong, but they do not know scientifically their position on vaccination. Vaccines can indeed give mild side effects such as headache, stomach disturbance, etc. when administered. Others can give much more temporary, serious effects, such as seizures after vaccination. In a worst-case scenario, people with weak immunity can get mild infections, but this encounter is not popular and thus, makes vaccines a still better choice to control or prevent the spread of diseases. One heavily frustrating and mind aspect is the militating against the actions of these people (without empirical evidence on both diseases) against the efforts, be it economic,

³¹ Tram T Tran, "Understanding Cultural Barriers in Hepatitis B Virus Infection," *Cleve Clin J Med* 76, no. Suppl 3(2009): S10-3.

academic or social, put in place by Nations and cooperative bodies to free them from the shackles of these ravaging diseases.

People have thrown caution to the wind and have been infected with these deadly diseases they blamed on witchcraft. People have intentionally or otherwise made themselves avoidable victims of spiritual bondage and consequently engaged the attention of their communities with witchcraft accusations. That is why it is important to support the passage of a bill in Ghana to criminalize the allegations that are usually labeled against innocent old men and women. The bill, which was passed by Parliament in June 2023 to prohibit the practice by any person as a witch doctor or a witch finder, among others, was aimed at amending the Criminal Offences Act, 1960 (Acts 29).³²

RECOMMENDATIONS

1. The way to go now is for the Government and other benevolent organizations to give to the people more education, more vaccines and more medication for both diseases, to meet the global demand and expectations, especially in the developing countries.
2. Harsher punitive measures should be put in place to discourage people with little knowledge of diseases from pronouncing cruel allegations against innocent persons in their communities. Community leaders must be empowered to enforce these measures.

CONCLUSION

The study aimed to assess the science and the traditional beliefs of the people on COVID-19 and Hepatitis B among a cross-section of Ghanaian communities to provide a foundation for more education on diseases in the country. The scientific misconceptions and beliefs of some people contribute to the increased infection rate of diseases in countries, especially developing countries, where education about these diseases is not adequate. People's wrong perception about vaccines is still high due to a lack of education. Prevention is better than cure, and therefore, vaccination against diseases is still a better option than curing infections. The cultural and religious dogma concerning diseases is a threat to the peaceful existence of human beings, because what people believe influences their behaviour, and the negative consequences of it will overcome all barriers to affect innocent ones. COVID-19 and Hepatitis B are among diseases people claim do not go down well with injection, and therefore, victims should manage them at home instead of opting for orthodox treatment, and this belief continues to contribute to the inability of countries to eliminate these diseases. Working on the attitude of the people towards diseases by giving them detailed and comprehensive education would go a long way to minimise the rate of infection. It is obvious that some people act based on insufficient knowledge of diseases, particularly the two diseases in focus and therefore, need education. Lessons drawn from the literature and the outcome of the study clearly indicate that issues about perceptions and beliefs about diseases are a global canker and require massive investment, attention and proper education to change the narrative.

BIBLIOGRAPHY

- Agyeman N. K. "You Can't Call Anyone Witch in Ghana; It's a Crime - Parliament," 2023. <https://www.graphic.com.gh/news/general-news/you-cant-call-anyone-witch-its-a-crime-parliament.html>).
- Apanga, Paschal Awingura, and Maxwell Tii Kumbeni. "Adherence to COVID-19 Preventive Measures and Associated Factors among Pregnant Women in Ghana." *Tropical Medicine & International Health* 26, no. 6 (June 15, 2021): 656–63. <https://doi.org/10.1111/tmi.13566>.
- Ghana Health Service. "Situation Update Covid-19 Outbreak in Ghana," 2024.
- Ghana Statistical Service. *Ghana 2021 Population and Housing Census: General Report Highlights*. Accra: Ghana Statistical Service, 2021.
- Kyei-Arthur, Frank, Martin Wiredu Agyekum, Grace Frempong Afrifa-Anane, Reuben Tete Larbi, and Peter Kisaakye. "Perceptions about COVID-19 Preventive Measures among Ghanaian Women." *PLOS ONE* 18, no. 4 (April 12, 2023): e0284362. <https://doi.org/10.1371/journal.pone.0284362>.

³² Agyeman N. K., "You Can't Call Anyone Witch in Ghana; It's a Crime - Parliament," 2023, <https://www.graphic.com.gh/news/general-news/you-cant-call-anyone-witch-its-a-crime-parliament.html>).

- Landon, Emily. "UChicago Infectious Disease Specialist: What We Know about Novel Coronavirus UChicago Medicine's Emily Landon Answers Common Questions about COVID-19," March 20, 2020. <https://news.uchicago.edu/story/infectious-disease-specialist-what-we-know-about-novel-coronavirus>.
- Markenson, David, Jeffrey D Ferguson, Leon Chameides, Pascal Cassan, Kin-Lai Chung, Jonathan Epstein, Louis Gonzales, Rita Ann Herrington, Jeffrey L Pellegrino, and Norda Ratcliff. "Part 17: First Aid: 2010 American Heart Association and American Red Cross Guidelines for First Aid." *Circulation* 122, no. 18_suppl_3 (2010): S934–46.
- May, Melaine A. "The Unity We Seek, the Unity We Share." In *A History of the Ecumenical Movement*, edited by John Briggs. Geneva: World Council of Churches Publications, 2004.
- Nidhi, J. "6 Myths Around the Disease Debunked," 2022. <https://www.factchecker.in/myths-facts/world-hepatitis-day-6-myths-around-the-disease-debunked-myths-and-facts-828222>.
- Norder, Helene, Anne-Marie Couroucé, Pierre Coursaget, José M Echevarria, Shou-Dong Lee, Isa K Mushahwar, Betty H Robertson, Stephen Locarnini, and Lars O Magnus. "Genetic Diversity of Hepatitis B Virus Strains Derived Worldwide: Genotypes, Subgenotypes, and HBsAg Subtypes." *Intervirology* 47, no. 6 (2004): 289–309.
- Ofori-Asenso, Richard, and Akosua Adom Agyeman. "Hepatitis B in Ghana: A Systematic Review & Meta-Analysis of Prevalence Studies (1995-2015)." *BMC Infectious Diseases* 16, no. 1 (December 18, 2016): 130. <https://doi.org/10.1186/s12879-016-1467-5>.
- Ott, J J, G A Stevens, J Groeger, and S T Wiersma. "Global Epidemiology of Hepatitis B Virus Infection: New Estimates of Age-Specific HBsAg Seroprevalence and Endemicity." *Vaccine* 30, no. 12 (2012): 2212–19.
- Salifu, A, F K Abagale, and G Kranjac-Berisavljevic. "Soil Physical and Hydraulic Properties of Irrigable Lands in the Northern Region of Ghana.," 2021.
- Tran, Tram T. "Understanding Cultural Barriers in Hepatitis B Virus Infection." *Cleve Clin J Med* 76, no. Suppl 3 (2009): S10-3.
- Vasilopoulos, Aristidis, Nikoleta Alexandra Pantelidaki, Aggeliki Tzoura, Dimitra Papadopoulou, Kotrotsiou Stilliani, Theodosios Paralikas, Eleni Kortianou, and Dimos Mastrogiannis. "Factors Underlying Denial of and Disbelief in COVID-19." *Jornal Brasileiro de Pneumologia*, September 23, 2022, e20220228. <https://doi.org/10.36416/1806-3756/e20220228>.
- WHO. "Coronavirus Disease (COVID-19) Advice for the Public: Mythbusters," 2020. ———. *Coronavirus Disease (COVID-19) Advice for the Public: Mythbusters*, 2020.
- World Health Organization. "WHO Definition of Health," 2020. <https://www.who.int/about/who-we-are/frequently-asked-questions>.
- Wu, Xiu Yun, Li Hui Han, Jian Hua Zhang, Sheng Luo, Jin Wei Hu, and Kui Sun. "The Influence of Physical Activity, Sedentary Behavior on Health-Related Quality of Life among the General Population of Children and Adolescents: A Systematic Review." *PLOS ONE* 12, no. 11 (November 9, 2017): e0187668. <https://doi.org/10.1371/journal.pone.0187668>.

ABOUT AUTHORS

Dr. Abdallah Salifu was a science tutor at Tamale College of Education from 2008 to 2021. He is currently the Vice Principal of Gambaga College of Education, North East Region, Ghana. He attended the University of Cape Coast for his first degree, Kwame Nkrumah University of Science and Technology, in Kumasi, for his second degree and University for Development Studies, Tamale, for his terminal degree(PhD). His research interests lie in the areas of physics, chemistry, environmental science and other science-related disciplines.

Robert Akayim Awasina is a dedicated Assistant lecturer in the Department of Science at the Gambaga College of Education. With a strong academic background, he brings a unique blend of theoretical knowledge and practical expertise to the lecture hall. He has completed his PhD thesis in Innovation Communication, University for Development Studies, Tamale-Ghana (2025), currently waiting for graduation. He obtained an MPhil in Innovation Communication and a BSc. Agriculture Technology,

from the University for Development Studies, Tamale-Ghana in 2015 and 2006, respectively. He has a research interest in the Social Sciences.

Dr. Nimatu Haruna Musah is a lecturer at the Tamale College of Education, Tamale, Ghana, West Africa. She has a PhD in horticulture. She is currently Head of Department for Science. She has research interests in Agriculture Science, Integrated Science and other science-related disciplines.