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# AWARENESS, KNOWLEDGE AND OBSERVANCE OF COVID-19 NON-PHARMACEUTICAL PROTOCOLS IN A TERTIARY HEALTH CARE FACILITY IN KOGI STATE, NIGERIA

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**ABSTRACT:** ***Background and Aim:*** *There appears yet to be a permanent therapy for COVID-19 as several countries of the world have deliberately adopted some measures and strategies aimed at preventing and mitigating the impact of the virus on human lives. It was on this basis that the study investigated the extent of awareness, knowledge and the use of non-pharmaceutical protocols in COVID-19 prevention among the Health Care Workers (HCWs) of Kogi State University Teaching Hospital (KSUTH), Anyigba, Kogi State.* ***Methods:*** *It was survey research that relied completely on the use of a structured, close-ended questionnaire to study 226 health workers through an internet-based Open Data Kit (ODK). Meanwhile, descriptive statistics were used for the analysis of the data and it was facilitated by the deployment of SPSS version 23 software.* ***Results:*** *The results showed that most of the health care workers (59%) are males. The medical/ clinical staff accounted for 38.3% of the total workforce. There was high awareness and knowledge of the disease among the workers even as social media remained the most source of information for them. Apart from skin rash, all the clinical symptoms such as high fever, coughing, vomiting, elevated body temperature, sore throat and runny nose, and flu were correctly identified. Except for greetings by handshake, all the non-pharmaceutical protocols were observed by the workers. Moreover, the study established a significant association between awareness and knowledge of the disease and observance of the non-pharmaceutical preventive protocols.* ***Conclusion:*** *The authors concluded that observance of the non-pharmaceutical protocols remained probably the best approach to containing COVID-19 for now because even the various vaccines being produced across the world have not been able to completely eliminate the pandemic.*

**KEYWORDS:** Awareness, Non-pharmaceutical, Observance, COVID-19, Preventive Behaviour.



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## INTRODUCTION

Human beings in every historical epoch have been plagued by one pandemic disease or the other, leaving behind certain devastating and destabilising effects on the social structures. However, the extent of recovery from any pandemic depends on the magnitude as well as the resilience capacity of the affected countries coupled with good and robust health care system governance. This is the aspect that the developing countries may be lacking and lagging behind in terms of capacious response and coping strategies to mitigate the aftermaths. An insight into human health history shows that several diseases had once ravaged peoples of all races globally and some of those diseases include malaria, tuberculosis, smallpox, influenza, Spanish flu of 1918, the Peloponnesian pandemic disease of 430 B. C, Antonine plague of 165 A.D, Cyprian plague of 250 A.D, Justinian plague of 541 A.D, the Black death of 1350, the Columbian exchange of 1492, the great plague of London of 1665, cholera pandemic of 1817, Fiji measles pandemic of 1875, Russian flu of 1889, Asian flu of 1957, HIV/AIDS of 1981, Ebola virus disease and most recently, the COVID-19 .[16 58 26 53 14 8]

It is on record that towards the end of 2019 in Wuhan, China, there was an outbreak called Coronavirus disease (popularly referred to as COVID-19). [54] The disease, according to the laboratory test, was described as highly infectious and it was placed in the same category as Severe Acute Respiratory Syndrome-2 (SARS-2). [18] It has been discovered that the virus is zoonotic. That is, an infectious disease transmitted between species (World Health Organization, 2020). The virus belongs to the generic beta-coronavirus, from where the SARS and the Middle East Respiratory Syndrome (MERS) diseases emerged with a great threat to human lives. [50] The human-to-human transmission routes of the virus include droplets, inhalation and transmission through, coughing and sneezing, as well as direct physical body contact with an infected person. [61]

The rapid spread of COVID-19 has been recognised as a global health emergency with virtually all the continents, regions countries and territories terribly gripped by its negative multiplier effects on the economy, education, politics, family, religion, businesses, organisations and virtually the entire social structure. As of the time of this research report on the 10th of September 2020, the global epidemiological accounts put the COVID-19 related death toll at over 903, 000 while the total number of positively-tested persons was almost 28 million respectively. It was projected that if the COVID-19 related death trend continued unabated, there was a likelihood of reaching over 1 million deaths worldwide soon. Since the COVID-19 outbreak was declared a pandemic by the World Health Organization on March 11, 2020, its rapid spread has engulfed the world with rude shocks and overwhelmed the healthcare systems of most countries. Although, quite a number of countries are finding ways of containing the further spread of the disease, especially those in the Asian region, however, many across the globe are still experiencing a great increase in both confirmed and suspected cases as well as deaths. [57] Some of the world's most epicentres of the disease since its outbreak included the United States of America, Brazil, Italy, India, Spain, Britain and Russia. These countries experienced the great burden of the virus running into million of positive cases. [61] Interestingly, almost all the aforementioned affected countries are endowed with very robust health care systems which make them capable to combat the pandemic. However, this is not the same situation in most developing countries, especially Nigeria which has a dysfunctional health care system.


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In terms of evaluation, the direct consequential effect of the COVID-19 treatment and management on Health Care Workers (HWCs) across the world has been quite disturbing. The point of reference in this scenario is the HWCs of Kogi State University Teaching Hospital are were confronted with a myriad of deplorable working conditions ranging from obsolete medical equipment, dilapidated structures, scarce personal protective equipment, irregular salaries and allowances, to excess workloads. Besides, patients sometimes are attended to in an overcrowded, contaminated environment with the absence of isolation centres. [45] The picture above reflects the general state of the formal health care system in Nigeria. Besides, a group of scholars noted that some HCWs face several medical, social, psychological and career challenges, including exposure to work-induced hazards. [19]

Since the beginning of the pandemic, cases of the disease, as well as the rate of mortality among HCWs, are quite worrisome. It was reported that several thousands of HCWs have been infected with the virus, making over 10 per cent of all cases globally. [36] At a point in Iran for example, the death rate among the COVID-19 front line health workers was over 100 deaths, with several of the workers confirmed infected. [13] Similarly, other reports indicated the infection rate among HCWs in China to be about 3,387 with 22 deaths respectively. [33 60]

In Africa, the infection rate among HCWs made up more than five per cent of cases in the 14 sub-Saharan countries, with South Africa, Nigeria, Sierra Leone and Liberia topping the list. [61] Although, the WHO reported on the less significant number of cases in Africa, nonetheless, prolonged exposure to infected patients, work overload, insufficient personal protective equipment among others pose important risk factors to HCWs in the region. [60 51]. Other studies have shown the increase in the rate of COVID-19 infection, especially among HCWs to be associated with a poor level of compliance with the preventive measures of the disease. [63] The level of compliance or non-compliance with the COVID-19 preventive measures might be linked to inadequate knowledge about the disease aetiology, symptoms identification and mode of transmission or the ease of adoption of its preventive strategy. [39 41]

The steady rise in the rate of transmission of the disease in Nigeria, especially at the community level is quite alarming, more so that the country has one of the worst health care systems in the world as shown by terrible mortality and morbidity outcomes. In Nigeria, the first confirmed case of the disease was on February 27, 2020, in Lagos State. The disease carrier was a 44-year old Italian man, who travelled from Milan to Lagos Nigeria on 24th February 2020. [38] Meanwhile, the first case of the outbreak in Africa was recorded in Egypt in February 2020. [22] In terms of the transmission, spread, treatment and management of the virus in the entire population of the country, the Nigeria Centre for Disease Control (NCDC) reported that as of September 10, 2020, the total sample tests conducted was 430,712 persons. So far, a total of 55,632 cases were confirmed positive for the virus with 10, 952 active cases. Similarly, the total number of positive cases treated and discharged out of those confirmed positive for the virus stood at 43, 610 persons within the period under review. In addition, COVID-19 mortality accounted for 1, 070 deaths across the country. However, it can be inferred that the COVID-19 mortality death rate has been lagging behind the confirmed positive cases treated and discharged in the country as of 2020.

A recent report indicates the spread of the virus in the population including the Health Care Workers (HCWs). It has been reported that over 1,000 HCWs have been infected by the virus, many of whom are nurses, a situation that is considered critical and quite worrisome. [62] The glaringly decreasing capacity of the healthcare sectors of Africa, including Nigeria in handling


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the pandemic shows the risk of exposure to the disease. This challenge is further exacerbated by the poor healthcare delivery system due to under-funding, dearth of medical employees and deplorable working conditions. Besides, without the adequate provision and correct use of the PPE, the health and lives of the HCWs may be jeopardised in attending to some patients, especially the asymptomatic ones.

It is another level of challenge to note that efforts at stopping the further spread of the disease are being undermined by the mutating nature of the virus. In response, a laboratory-based study has suggested that HCWs should look beyond the earlier COVID-19 symptoms of headache, cough and respiratory problems in trying to contain it. [47] In other words, new discoveries on the nature of the virus now point to its devastating impacts on some organs like kidneys, heart, shortness of breath, loss of sensitivity in the eyes, nose and mouth among others. [21] So far, it appears that COVID-19 vaccines may not be available in abundance for all the countries and territories of the world to access. Meanwhile, the multi-dimensional effects of the pandemic are without a doubt devastating as no aspect of human life is left untouched.

There appears yet to be a permanent therapy for COVID-19 as several countries of the world have deliberately adopted some measures and strategies aimed at preventing and mitigating the impact of the virus on human lives. Some of the strategies implemented include frequent hand washing, use of hand sanitisers, face masks, social distancing, self-isolation, ban on public gatherings and lockdown of cities. [41] However, "the cost-benefit" of these preventive measures has continued to generate a lot of concern, especially in the aspect of living versus livelihood. It is against this background that this study investigated the extent of awareness, knowledge and observance of non-pharmaceutical protocols among the Health Care Workers (HCWs) of Kogi State University Teaching Hospital (KSUTH), Anyigba, Kogi State. However, the specific objectives included: investigating the extent of awareness of the disease among the workers; examining knowledge of clinical symptoms of COVID-19; examining observance of non-pharmaceutical protocols towards COVID-19; examining the association between awareness of COVID-19 and observance of the protocols.

## REVIEW OF RELATED LITERATURE

Awareness of a disease combined with other factors may influence health-seeking action, including preventive behaviour. It has also been observed that awareness of the disease is key to timely intervention and control. [66] However, the dissemination and reception of information about the outbreak of the COVID-19 pandemic across the world were initially distorted and mixed with certain nuances. At the early stage, most developing countries, including Nigeria failed to put some effective emergency preparedness and containment structures in place. The awareness and knowledge of the disease in many African countries were terribly distorted by religious, political and other primordial sentiments and orientations. It is in the light of this that a group of scholars conducted an internet-based cross-sectional study among health care workers using the questionnaire instrument. The findings of the study showed that a large proportion of the workers exhibited poor knowledge of the virus. [15] However, a study among Health Care Workers (HCWs) across 10 hospitals in China discovered that most of the respondents were aware of the disease. [64] This was not unexpected because the epicentre of the disease started in Wuhan, China. Another study involving Jordan and Iraq revealed that the majority of the participants demonstrated adequate awareness of the pandemic. [28] This is in


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line with a study in Egypt that noted good knowledge of the disease and a corresponding protective positive attitude. [2]

Moreover, a group of authors assessed the awareness, perceived risk and protective behaviours of Myanmar adults and subsequently revealed that virtually all the respondents had heard about COVID-19. [37] However, this was inconsistent with a Syrian-based study that reported most people not being aware of the disease, especially in terms of mode of transmission and prevention of the virus. [32] Meanwhile, a phone-based survey involving three African countries reported that the majority of health care providers had adequate knowledge of the disease. [9]

Furthermore, in terms of information sources leading to awareness and knowledge, it was revealed in an internet-based cross-sectional study with a focus on health care workers across the world that the majority of the respondents used social media to obtain information on COVID-19. [15] This is in line with a couple of related but different studies capturing data about Jordan and Iraq that identified social media as the second most common source of information regarding the disease. [4 28] Similarly, a Nigerian-based study identified the conventional media (television) as one of the major sources of COVID-19 awareness among a cross-section of youths in the country. [31] Furthermore, the internet and mass media have been identified as major sources of COVID-19 information as reflected in a study finding by some authors. [43] Other sources of information awareness and knowledge about the disease as highlighted in the literature include seminars and workshops, books, articles, posters, pamphlets, radio, magazines and newspapers. [29]

As pointed out in a study, symptomatic clinical manifestations of the disease are still unclear. [1]However, some of the commonly-occurring symptoms include fever, fatigue, cough, pneumonia, headache, diarrhoea and a runny nose among others. The aforementioned symptoms could manifest mildly and later become severe if not properly managed. Meanwhile, a study put COVID-19's clinical symptoms and manifestations into two major-specific and non-specific categories. Other most common manifestations as pointed out in the biomedical literature are acute respiratory distress syndrome, dry cough, muscle weakness and chest pain. However, it was documented in the literature that although fever was the most common symptom in COVID-19 patients, the absence of fever at the time of early screening, it was observed, did not rule out the presence of the disease as some of the clinical symptoms have been noted with severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) too. [23] Also, it has also been reported that some COVID-19 infected persons may remain asymptomatic. [12] Apart from respiratory symptoms that usually characterise the disease, it was discovered that nausea/vomiting was the first gastrointestinal clinical manifestation that is often ignored by people. [66] Meanwhile, it was argued in a clinical study that greater attention should be paid to nausea/vomiting as an early manifestation of COVID-19. [7]

In a systematic and meta-analytical study, a high prevalence of fever among adults COVID-19 patients was revealed. [27] However, some scholars relying on meta-analysis discovered that elevated or higher body temperature at initial stages might be a useful therapy for COVID-19 patients. [68] In other words, it was cautioned that temperature-dependent screening for COVID-19 in the community setting would likely mask the majority of patients with active viruses. In a systematic review, it was suggested that health specialists should take cognisance of nasal congestion and gustative disorders among others as possible presenting symptoms of the disease. [34] Also, cough and skin rash were identified as early common co-morbid symptoms of


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the disease. [52 3] In the same manner, flu-like condition and sore throat were reportedly suspected to be symptoms of the disease according to some authors. [6]

In actual sense, since the outbreak of COVID-19, health practitioners and those in medical allied fields have continued to battle with the containment of the pandemic. This might not be unconnected with the conflicting symptoms and signs that the disease has been manifesting in the affected patients. Sometimes, it appears clinically difficult to draw a clear line between the manifest presence of the virus and other pathogenic and underlying disease-causing agents.

Since the outbreak of the disease, several containment measures that are largely non-pharmaceutical and behavioural have been evolved and executed across the world. Some of these preventive protocols include total or partial lockdown of geographical locations, social and physical distancing, self-quarantine, use of face masks, hand sanitisers and handwashing hygiene practice. However, a few of those protocols have been reviewed in accordance with the study objectives. In light of this, a study bordering on knowledge levels, attitudes and practices toward COVID-19 among the Malaysian public discovered that most participants observed the protocols of social and physical distancing as well as correct and proper handwashing hygiene. However, fewer people wore face masks among the study participants. [10] Another study in Cross River State, Nigeria discovered a regular practice of wearing face masks and handwashing among community health workers. [44]

Moreover, a study in china noted that almost all the respondents wore face masks when going out during the period. [67] Meanwhile, in terms of the hygiene practice of handwashing, most of the respondents as noted in the literature, exhibited increased frequency of the practice during the period. In the same manner, social distancing was observed by keeping 6 feet away from the next people. [35] It was further documented in a South Korean-based study that the wearing of masks was the most observed among the major non-pharmaceutical measures against the disease. [46] Somewhere in India, a similar study reported the majority of the respondents frequently observed handwashing during the pandemic period. [35] Similarly, another study in Ethiopia has identified frequent hand washing and avoidance of shaking hands as dominant preventive practices among the study population. [30] Another study that borders on the containment of the disease and its viral spread via regular seminars and workshop-based training for health workers in Bangladesh showed that only 8% experienced it. [49]

Generally, the adoption of any protocol to prevent or contain the pandemic by any government is a function of the severity of the disease, the mutating behaviour of the virus and the immediate or long-run effects of such a measure on a people's means of survival as it does not make any rational sense to endanger lives in order to prevent the disease spread. For example, complete or partial lockdown by governments and health authorities in some developing countries has incidentally inflicted untold economic hardship on many people in the affected areas.

It could be hypothesised that being correctly aware and knowledgeable about the symptoms, signs and modes of transmission of the virus could lead to compliance with the preventive protocols put in place to contain the spread as well as mitigate the impacts on people. Although, this might be subject to some mediating factors and variables. Based on the assertion above, some studies emanating from COVID-19 literature have further documented the relationship between awareness of the disease and the observance of preventive protocols. A group of authors conducted an institution-based study in Kenya and realised that the respondents with


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adequate knowledge of the disease were doubly more likely to exhibit good preventive behaviour. However, it was concluded that adoptions of COVID-19 preventive behaviour were very low. [55] A Bangladeshi study similarly documented a relationship between higher knowledge of the disease and higher preventive behaviours. [25]

A Saudi Arabian-based cross-sectional study explored the awareness, attitude and practice of COVID-19 in relation to socioeconomic data among residents in the city of Riyadh. In this study, the authors noticed a significant positive correlation between awareness of the disease and attitudinal practice of prevention. [5] Moreover, the literature also established a moderate correlation between knowledge of the disease and the practice of preventive behaviour during the period. [56] Specifically, another study associated frequent reception of COVID-19 information with all forms of preventive behaviours such as handwashing, use of face masks and observance of social distancing protocol. [67] This is in agreement with a group of scholars that discovered knowledge of the disease as a predictor of the preventive behaviour exhibited through frequent hand washing and avoidance of handshaking. [30] It is equally important to state that regular training through seminars and workshops could inform correct knowledge of the disease as some authors linked knowledge to preventive practices. [49] In a different but related study conducted in Vietnam, the use of face masks was found to be associated with the knowledge of the disease. [20] This is consistent with a study that established a positive correlation between knowledge of the disease and preventive attitude in a Nigerian-based correctional facility. [42]

## METHODS

### Research Design

The study adopted the survey research design which requires the collection of data once from the health workers of Kogi State University Teaching Hospital (KSUTH), Anyigba, Kogi State. According to the operational manual of KSUTH, the institution is situated in the Dekina Local Government Area (LGA) of Kogi State. As of the time of its establishment, it was a 250-bedded hospital being converted and remodelled in 2003 by the then state government. Geographically, the state is located between latitudes 70 300'N and 80 10' N; and Longitudes 60 01'E and 7º 50'E, with a landmass of about 27,747 km2. It is surrounded by 10 states, making it a part of the north-central states of the country. The authors selected Kogi state for the study because it is interlinked with several networks of roads across 10 states, thereby making it a transit stop-over for many commuters who might pose COVID-19 transmission dangers to the residents.

### Study Population

In all, a total of 226 KSUTH employees participated in this study while purposive and multi-stage sampling techniques were utilised to select the respondents. The first stage entailed the systematic and purposive selection of the directorates. The second stage was the deliberate grouping of the target respondents into non-overlapping staff structures of junior, senior and management staff. The third stage involved simple random sampling by the use of balloting to serve as a means of selecting respondents from each staff cadre. This aspect entailed the numbering of the questionnaire according to the total number of respondents. Subsequently, an online computer-assisted random number generator was used to allocate numbers to the respondents based on the total copies of the questionnaire as predetermined by the sample size.


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In this case, every respondent was given an equal chance of being selected across cadres. Because of the sensitive nature of the study, a structured questionnaire with Open Data Kits (ODK) was deployed for the data collection exercise in order to comply with the COVID-19 social distance protocol among others. The questionnaire was segmented to capture some information like the socio-demographic and economic attributes of the respondents, level of awareness of the COVID—19 symptoms and mode of transmission among the KSUTH employees. Other components of the instrument included the attitude of the medical employees towards its prevention. In the course of the questionnaire design, the authors benefitted from some studies in the literature. [6 7 3 5 2 15 3 2 5] The questionnaire administration October, 2020-April, 2021. The questionnaire was validated by two experts in medical demography and biomedical sciences. Meanwhile, descriptive statistics were used for the analysis of the data which entailed frequency counts, charts, percentages, cross-tabulations and Chi-square. The analysis was facilitated with the aid of SPSS version 23 software.

In terms of regulatory and institutional compliance, the researcher through due process obtained ethical approval and clearance from the research ethical unit of the hospital. In addition, the study was strictly confined to the behavioural aspects of the employees and did not involve the physiological and anatomical sample or specimen (sputum, urine and blood) collections from the respondents which could lead to the injurious invasion of their body systems and organs. Be that as it may, efforts were not spared in practically adhering "religiously" to the fundamental ethical principles and cornerstones of social and behavioural research in line with the global best practice. The major ethical principles that guided and checked the behaviours of both the researcher and the respondents include confidentiality, voluntariness and anonymity as enunciated in the literature. [40 11]

## RESULTS

**Table 1 Socio-demographic and Economic Characteristics of Respondents**

| Characteristics | Respondents, n (%) |
|---|---|
| **Sex** | - |
| Male | 131(59.0) |
| Female | 91(41.0) |
| **Age in bracket years** | - |
| 18-28 | 86(38.7) |
| 29-38 | 31(14.0) |
| 39-48 | 42(18.9) |
| 49-58 | 38(17.1) |
| 59 and above | 25(11.3) |
| **Marital Status** | - |
| Married | 174 (78.4) |
| Never married | 30(13.5) |
| Divorced | 3(1.4) |
| Separated | 5(2.3) |
| Widowed | 10(4.5) |
| | - |


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| | |
|---|---|
| **Religious Affiliation** | |
| Christianity | 195(87.8) |
| Islam | 23(10.3) |
| African Traditional Religion | 4(1.8) |
| **Educational level** | - |
| Primary school certificate | 9(4.0) |
| Secondary school certificate | 43(19.4) |
| Degree cert or equivalence | 137(61.7) |
| Master and Doctorate degrees | 33(14.9) |
| **Directorate/department** | - |
| Medical/clinical | 85(38.3) |
| Pharmacy | 12(5.4) |
| Medical laboratory | 27(12.2) |
| Medical social service | 10(4.5) |
| Non-clinical/general administration | 88(39.6) |
| **Work schedule** | - |
| 12 hourly | 27(12.2) |
| 8 hourly | 166(74.8) |
| 6 hourly | 11(5.0) |
| 4 hourly | 3(1.4) |
| Unscheduled | 15(6.8) |
| **Staff confirmation status** | - |
| Permanent staff | 200(90.1) |
| Contract staff | 20(9.0) |
| **Probation staff** | **2(.9)** |

The analysis of the data and presentation of results started the socio-demographics of the Health Care Workers (HCWs) in the hospital. The socio-demographics in Table 1 showed that more than half (59%) of the respondents are males with the majority of the employees (38.7) located within the age bracket of 18-28 years. Also, most of the HCWs (78.4%) were reportedly married while the majority (88%) of them were of Christian faith.

The socio-economic characteristics of the respondents have been presented in the same Table above and it showed the majority (62%) of the workers as having had tertiary education that involved degree certification or its equivalence. Similarly, Master's and Doctorate degree holders accounted for only an estimate of 15%. Meanwhile, the senior staff cadre dominated the entire workforce of the hospital. In addition, the medical/clinical staff accounted for 38.3%, slightly lesser than the non-clinical/general administrative staff department. This might be the implied trend in almost all the teaching hospitals in Nigeria whereby the non-clinical support staff are more in number. The Table further revealed that the majority of the respondents (74.8%) worked 8 hours, from Monday to Friday except for those on call duty. It was discovered that almost all the respondents (90%) were permanent staff of the hospital.


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**Table 2: Distribution by COVID-19 Awareness and Sources**

| Variable | Frequency (222) | Percentage (%) |
|---|---|---|
| **Awareness of COVID-19** | - | - |
| Yes | 220 | 99.1 |
| No | 2 | .9 |
| **Sources of COVID Awareness** | - | - |
| Previous experience | 20 | 9.0 |
| Radio/TV | 44 | 19.8 |
| Newspaper/magazine | 22 | 9.9 |
| Co-workers | 23 | 10.4 |
| COVID workshop | 33 | 14.9 |
| Social media | 51 | 23.0 |
| Internet websites | 29 | 13.1 |

In another development, almost all the HCWs (99%) in the hospital according to Table 3 were aware of COVID-19 since its pandemic outbreak. An information source that prompted the awareness was mostly gotten from social media which accounted for 23%. These social media platforms included Facebook, Whatsapp, Twitter and Instagram among others. It can be further deduced that most of the HCWs had access to the internet service since all the social media platforms are driven by the internet. In the same vein, an estimate of 20% got aware of COVID-19 through electronic media like radio and television located around Kogi State. Unfortunately, in terms of workshops/seminars, only a handful of them (15%) accessed information on the disease through the means.

**Table 3: Percentage Distribution of Perceived Knowledge of COVID-19 Clinical Symptoms**

| **Response(=yes, No=)** | **Perceived symptoms of COVID-19 by HCWs** | | | | | | |
|---|---|---|---|---|---|---|---|
| Options | High fever, n= 222 (%=100). | Constant coughing, n=222 (%=100). | Intermittent vomiting, n=222 (%=100). | Elevated body temperature, n=222 (%=100). | Sore throat and runny nose, n=222 (%=100) | Skin rashes, n=222 (%=100). | Flu condition, n=222 (%=100). |
| Medically strongly perceived true. | 164(73.8) | 167(75.2) | 96(43.2) | 183(82.4) | 160(72.0) | 64(28.8) | 121(54.5) |
| Partially medically perceived true. | 24(10.8) | 24(10.8) | 37(16.6) | 16(7.2) | 35(15.7) | 34(15.3) | 46(20.7) |
| Not medically perceived true. | 17(7.6). | 26(11.7) | 57(25.6) | 12(5.4) | 16(7.2) | 96(43.2) | 21(9.4) |
| I don't know | 17 (7.6). | 5(2.2) | 32(14.4) | 11(4.9) | 11(4.9) | 28(12.6) | 34(15.3) |


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Medically, since its outbreak, COVID-19 seems to have always presented mixed and sometimes, complicated signs and symptoms in terms of diagnosis. This might be due to some existing underlying diseases and sicknesses that have similar diagnostic symptoms and signs. In light of this, Table 3 examined the way the HCWs in the hospital perceived the various medically diagnosable signs and symptoms of the virus. The majority of the respondents (73.8 %) had a strong medically true perception of high fever as a sign of the virus while most of them (75%.2) viewed constant coughing as a strong medically true sign of it. On the other hand, those who believed that intermittent vomiting was a strong sign of the virus accounted for 43.2%, which is less than half of the total respondents put together. The overwhelming majority (82.4%) believed that sustained elevated body was a sign of COVID-19 infection. Also, sore throat and runny nose were also perceived among the HCWs as signs of the virus infection as most of the respondents (72%) affirmed to be medically true. However, most of the workers (43.2%) did not perceive skin rashes as a sign of the virus. Perhaps, skin rashes might be an overt manifestation of exposure to other disease pathogens other than the virus. Furthermore, flu condition was perceived by more than half of the respondents (54.5) as a visible sign of COVID-19.

**Table 4: Distribution by Observance of Non-Pharmaceutical COVID-19 Preventive Protocols**

| **Response=yes, No** | **Preventive attitude towards the COVID-19 pandemic** | | | | | |
|---|---|---|---|---|---|---|
| Options | Used face mask, n=222 (%=100). | Keep 6 feet away from co-workers, n=222 (%=100). | Handshake by bare hands, n=222 (%=100). | Always wash hands with detergents, n=222 (%=100). | Used hand sanitiser in office, n=222 (%=100) | COVID training in last 7 months, n=222 (%=100). |
| Yes | 187(84.2) | 169(76.1) | 93(41.9) | 182 (82.0) | 187 (84.2) | 142(64.0) |
| No | 35(15.8) | 53(23.9) | 129(58.1) | 40(18.0) | 35(15.8) | 80(36.0) |

Any disease outbreak in human population usually requires the attitudinal cooperation of people for its effective containment, prevention and possible elimination. In the face of the COVID-19 pandemic, the most at-risk HCWs, including clinical and non-clinical staff were investigated to know their level of compliance with the prevention protocols. As indicated in Table 4 above, the majority of the workers (84.2 %) used face masks while at work. Those who maintained a physical distance of 6 feet accounted for a significant 76.1%. In contrast, more than half of the respondents (58.1%) did not observe avoidance of shaking hands during the period of this study. This implies that despite the observance of physical distance off maintaining 6 feet, compliance with the social distance through the preventive attitude of "no shaking of hands" remained a challenge. This is because; it is easier to maintain physical distance than social distance. That is, social relations of work among HCWs could be expressed


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through a regular handshake. Moreover, most of the respondents always washed hands with detergents (82%), used hand sanitiser in the office (84.2%) and had undergone COVID-19 prevention training/workshop in the last 7 months (64%) preceding this study.

**Table 5: Distribution by COVID-19 Awareness, Knowledge and Observance of Protocols**

| Prevention Behaviour, n=222(%) | | Being Aware of COVID-19, n=222(%) | | Pearson chi-square(<0.5 |
|---|---|---|---|---|
| | | Yes | No | |
| Used face mask during COVID-19. | Yes=187(84.2) | 220 (99.1) | 2(0.9) | 10.783[a](.001) |
| | No=35(15.8) | - | - | |
| Always washed hands in office. | Yes=182 (82.0) | 220(99.1) | 2(0.9) | 9.183[a](.002) |
| | No 40 (18.0) | - | - | |
| Used hand sanitiser in office. | Yes 187 (84.2) | 220(99.1) | 2(0.9) | .378[a](.539) |
| | No 35 (15.8) | - | - | |

Gleaning from Table 5, the cross-tabulation of COVID-19's awareness and preventive behaviours showed a strong association as indicated by 1 per cent level of significance. However, the use of hand sanitiser in the office did not have a significant association with the level of awareness of the virus among the HCWs. This can be deduced from the fact that the cost of getting hand sanitiser may be out of reach of many workers financially if the hospital management fails to provide it for their regular use. In other words, it could have been cost-effective for the workers to easily use face masks and wash hands with detergents without financial recourse to the hospital management for provision.

## DISCUSSION

The socio-demographic and economic characteristics of the respondents revealed that 59% are males. Also, those within the age bracket of 18-28 constituted 38.7%. In terms of the directorate, medical/clinical staff accounted for 38.3% out of the entire medical workforce that participated in the study. When people are aware and sufficiently knowledgeable about a particular disease, "other things being equal", it can inform their preventive as well as protective behaviour in a way. It was discovered in this study that almost all the employees were aware of the disease. The finding is consistent with some previous studies. [64 2 37 28 9] However, the finding is at variance with a couple of studies in the literature. [15 32]

The major sources of information that led to the awareness and knowledge of the disease among health workers were discovered to be social and conventional media. This is in agreement with a study that identified social media as the major channel that most people used to access information about the disease. [15] Also, the finding reinforced similar study findings involving Jordan and Iraq. [4 28] Similarly, it aligns with a Nigerian-based study that identified the conventional media (television) as one of the major sources of COVID-19 awareness. [31] Other studies also lend credence to the current finding. [43 29]


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The "bridge" between perceptions and clinical facts was examined in this study in view of the fact that as of the time duration of this study, COVID-19 testing kits were yet to be deployed to Kogi. However, it was discovered that the majority of the respondents perceived high fever as a strong sign of the virus. Interestingly, this finding reinforced some of the previous studies in the COVID-19 literature. [1] [23] However, a group of authors submitted that some COVID-19 infected persons might not manifest any symptoms to that effect. The authors further revealed that most of HCWs perceived constant coughing as a strong medical sign of the disease. [12] This re-affirms the findings of other scholars that separately emphasised nausea/vomiting as the first gastrointestinal clinical manifestation of the disease, though often ignored by people. [7] [66]

The current study revealed the overwhelming majority of the respondents to have perceived sustained elevated body as a sign of the disease infection. The finding is in agreement with a systematic and meta-analytical study. [27] In contrast, it was cautioned in another study that temperature-dependent screening for COVID-19 in the community setting would likely mask the majority of patients with active virus. [68] Notwithstanding, some scholars further argued that elevated or higher body temperature at initial stages might be a useful therapy for the patients. [68] The current study has discovered that most respondents perceived sore throat and runny nose as signs of the disease infection. This is in line with a previous clinical finding that advised health practitioners to take cognisance of nasal congestion and gustative disorders as likely manifestations of the disease. [34] However, most HCWs did not view skin rash as a sign of the virus. Perhaps, skin rashes might be an overt manifestation of exposure to other diseases pathogens other than the virus. This finding is inconsistent with the medical literature where cough and skin rash were identified as early common co-morbid symptoms of the disease. [52] [3] Furthermore, flu condition was perceived by more than half of the respondents as a likely visible sign of COVID-19. The perception is correct and at the same time in consonance with a previous clinical study. [6]

The World Health Organization (WHO) and other relevant authorities have always placed emphasis on the adoption of non-pharmaceutical protocols as a way of containing and stemming the tidal spread of the disease. On the basis, this study investigated the extent of compliance with the protocols among the health workers and realised that the majority of the workers used face masks while at work. Similar studies from other parts of the world, including Nigeria, reported high and regular use of face masks during the pandemic. [67] [44] [46] However, the finding was in contrast to a Malaysian-based study where fewer people were reported to have used a face mask. [10] It was further revealed that most respondents observed the practice of social and physical distance of keeping 6 feet away from the next person while in public. The finding reinforced previous studies in the biomedical literature. [10] [48] Meanwhile, more than half of the respondents did not observe avoidance of shaking hands during the period of this study. The finding was dis-similar to a study in Ethiopia where avoidance of handshake was observed. [30] Moreover, it was also found that most of the respondents always observed handwashing as well as used hand sanitiser. This is in alignment with a couple of studies carried out in Malaysia and India respectively. [10] [35] The preventive behaviour of the workers revealed that most of them had undergone COVID-19 prevention training/workshop in the last 7 months prior to the study. This was unlike a hospital-based study where only 9% took training on COVID-19. [49]

It has been established that awareness and knowledge of the disease had a strong association with observance of the non-pharmaceutical preventive protocols. This was in tandem with some previous studies that associated awareness and knowledge of the disease with social distancing, use of face masks and regular hand washing and avoidance of greetings through


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shaking of hands. [5 56 67 30 49 25 20 42] However, some authors noted very low adoptions of COVID-19 preventive behaviour. [55]

## CONCLUSION

The awareness level of COVID-19 among Kogi State University Teaching Hospital (KSUTH) health care workers was discovered to be high, while the most source of information leading to awareness was social media. Except for skin rash, most HCWs perceived high fever, constant coughing, vomiting, sustained elevated body, sore throat and runny nose, and flu as co-morbid clinical symptoms associated with the disease. Identifying clinical symptoms of COVID-19 might be problematic because of certain underlying diseases that are likely to manifest the same. So, this may pose a very serious challenge to health facilities that lack testing kits. Meanwhile, the non-pharmaceutical preventive protocols noted among the workers included face masks, social distancing, avoidance of handshaking, hand washing and use of hand sanitiser.

## RECOMMENDATIONS

Since COVID-19 has no known cure, for now, there is a need to strengthen the existing non-pharmaceutical preventive protocols among the health care workers in the hospital. It is important to keep enlightening health care workers on how to properly identify clinical symptoms and signs of the disease. Observance of the non-pharmaceutical protocols remains probably the best approach to containing the disease for now because even the various vaccines being produced across the world have not been able to eliminate the pandemic. Moreover, clinical management of victims of the disease is more financially demanding than the observance of the protocols in terms of social distancing, avoidance of handshake, hand washing and use of hand sanitiser. More importantly, the hospital management should endeavour to make face masks and hand sanitiser available to workers. It should also involve all the health care workers in seminars and workshops targeted at managing the disease in the area of correct symptom identification and proper compliance with the preventive protocols.

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