

KNOWLEDGE OF COVID-19, RISK PERCEPTION AND PRECAUTIONARY BEHAVIOURS AMONG RESIDENTS OF GBOKO, BENUE STATE

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Abstract

This study investigated knowledge of COVID-19, risk perception and precautionary behaviours among residents of Gboko, Benue State. The study adopted the Ex Post-facto design where 384 residents who comprised of 148 (38.5%) males and 236 (61.5%) females were used. Their ages ranged from 25-51 years with a mean age of 37 years (SD=8.75). Multistage sampling was adopted for the study. Three instruments that include Knowledge of COVID-19 Scale, the Health Risk Perception Scale and the COVID-19 Precautionary Behaviours Scale were used for data collection. Three hypotheses were tested using simple linear regression, and standard multiple regression. Results of the study indicated that knowledge of COVID-19 had a significant positive influence on precautionary behaviour. Secondly, the result also indicated that risk perception had a significant positive influence on precautionary behaviour. Also, the result indicated that both knowledge of COVID-19 and risk perception had a significant joint influence on precautionary behaviour. Based on these findings, it was recommended that; efforts to disseminate information on the nature, extent, mode of transmission, preventive measures, treatment and vaccination to the public be intensified. Also, clinical psychologists as agents of disease prevention should organize sensitization and psychoeducational programmes to educate the residents of Gboko on the ways to prevent themselves from contracting COVID-19.

Key Words: Knowledge of COVID-19, risk perception, precautionary behaviours, residents, Gboko

Introduction

The Coronavirus Disease 2019 (COVID-19) has been considered a pandemic by the World Health Organization since 2020 (World Health Organization, 2020). This infectious disease spreads through person to person contact with infected respiratory fluids and contaminated surfaces, causing respiratory distress and death in the worst cases (Shabu et al., 2020). The challenge of eliminating the

pandemic is exacerbated by the lack of a known cure, amidst inevitable human interaction surrounding regular economic and social activities. In line with this, the novel coronavirus pandemic has been described by the World Health Organization as the worst pandemic in 100 years (World Health Organization, 2020). During the first and second quarters of the year 2020, thousands of lives were lost in a few days,

health systems were crippled and the world trade traffic stalled.

The first COVID-19 case was reported in December 2019 in Wuhan, China. The virus swiftly spread to nearly all parts of the world in the first quarter of 2020. Globally, as of May 30, 2020, the World Health Organization (WHO) reported more than 5.8 million confirmed cases of COVID-19 in over 210 countries, with case fatality of 6.23%. Of this, American regions accounted for the highest number of cases, with over 2.6 million people affected and case fatality of 5.77%. The European region recorded the second highest number of 2.1 million cases with the overall highest case fatality of 8.45% (Loayza, 2020). By June 2, 2020, more than 6.27 million cases were recorded in 188 countries, with 375,000 deaths and more than 2.69 million recoveries (Johns Hopkins University, 2020).

Across the African continent, the COVID-19 pandemic continued to evolve rapidly with over 52 countries affected. There was over 500% increase of confirmed cases between April and May 2020 (Loayza, 2020). During this period in Africa, there were 96,902 cases and 2,482 deaths. In West Africa, after South Africa and Ghana, Nigeria reported the third highest cases [Nigeria Center for Disease Control (NCDC), 2020]. On February 27, 2020, an Italian citizen became the index case for COVID-19 in Nigeria and as at April 9, 2020, there were 288 laboratory confirmed cases of COVID-19 in Nigeria with 51 discharges and 7 deaths (NCDC, 2020). As of March 22 2021, there were 137million cases worldwide, and in Nigeria there were about 162,000 confirmed cases, with over 11,000

active cases, over 148,000 discharged cases, 2030 deaths and total tested sample of 1.7million. Report further indicated that Lagos was the most impacted state with over 57,000 cases. In North-Central Nigeria, Benue State had 1,188 cases [NCDC, 2021].

The impact of the pandemic was also felt in Benue State since cases were identified, social distancing was mandated, and the threat of contraction was evident. Despite some level of success on the compliance with the precautionary measures among the high and middle classes in the state, the same was not said among the people who were considered as lower class who resided in more congested settlements such as Gboko in Benue State Nigeria on their level of compliance to precautionary behaviours (Zaid et al., 2020). Among residents of Gboko local government area, it was also observed that there was decline in adhering to social distancing, use of face masks, washing of hands with soap and use of hand sanitizer lately and people were observed to have reverted to the usual handshakes and hugging. However, there is no empirical evidence that the knowledge of COVID-19 and the perception of its risks might have contributed, like in other parts of the world, to increase or decline in the compliance to COVID-19 precautionary behaviours as observed in Gboko. However, existing data has implicated knowledge and risk perception in the prediction of precautionary measures of COVID-19 among the general populace (Serwaa et al., 2020).

One factor that is likely to be associated with precautionary behaviours is the knowledge people have about COVID-19. COVID-19

knowledge entails peoples understanding of the nature, causes, risk factors, mode of spread and preventive measures of corona virus. Evidence suggests that lack of knowledge on the health implication of a pandemic drives unpreparedness to contain deadly diseases such as COVID-19 (Betsch et al., 2019; World Economic Forum, 2019; World Health Organization, 2020). According to the World Health Organization (2017), a perceived lack of consistency, competence, fairness, objectivity, empathy, or sincerity in crisis response in the public could lead to distrust and fear. Many authors have found an association between knowledge and the adoption of precautionary behaviours among residents. For example, Hosen et al. (2021) opined that precautionary behaviours are reinforced when adequate knowledge of COVID-19 is present. In support, Alves et al. (2021) found knowledge to be an antecedent of preventive measures for corona virus. In addition, Lee et al. (2021) found COVID-19 education induced engagement in cautious behaviours. An indigenous study by Iorfa et al. (2020) also provided evidential support to this linkage. However, it seems that knowledge alone may not explain why residents adopted preventive behaviours during the pandemic. This means there could be other factors as well.

Another likely determinant of engagement in precautionary behaviours towards COVID-19 is risk perception. Risk perception entails the awareness that certain factors or behaviours make people more prone to contracting COVID-19 and also been aware of the health implications of the disease. Many residents of Gboko were observed to engage in vigilant hand washing, practice

social distancing and self-isolation while a more significant others believed it was a whiteman's disease with no effect on blacks, others ignore precautions due to superstitions and ignorance of the science behind the infection and do not comply with the stipulated prevention protocols. Due to their ignorance of the risk involvement of this disease, many residents came up with irrational beliefs that the use of face mask, hand sanitizers and social distancing are not solutions to the pandemic within the state. Studies (Serwaa et al., 2020; Zaid et al., 2020) have shown the linkage between risk perception and precautionary behaviours among residents. A Nigerian study by Olapegba et al. (2020) has also shown linkages between risk perception and cautious practices during the pandemic. Therefore, the perceptions and awareness of the risk of infections often have an influence on the adopted protective behaviours by individuals. Therefore, it is essential to understand the determinants of precautionary behaviours as measures for preventing the contraction and spread of COVID-19 infections among residents in Gboko, Benue State.

This study is anchored on the Health Belief Model developed by Rosenstock (1974). The central posits of this model are based on the beliefs that *“behaviour is a function of the subjective value of an outcome and of the subjective probability or expectation that a particular action will achieve that outcome.* The model is based on the idea that people are more likely to change their behaviour and adhere to treatments if: (i) they perceive that they are at risk of contracting the disease (perceived susceptibility), (ii) they perceive

the disease might have an unfavourable outcome (perceived severity), (iii) they perceive the proposed health behaviour to be both effective and practical (perceived benefits), (iv) they perceive the barriers to adopting the behaviour to be minimal (perceived barriers), (v) they perceive themselves to have the ability of applying and practicing the specific behaviour proposed (perceived self-efficacy), and (vi) they have the cues for motivating their actions such as internal cues (pain, symptoms, past experiences) or external cues (advice from friends, relatives and mass media campaigns) (cues to action).

The Health Belief Model is one of the most highly applied theories in public health, despite being critiqued for its focus on individuals, especially in its general assumptions; i.e. an individual's perceived susceptibility and perceived severity regarding an illness are directly linked to a change in his/her health behaviour. Its focus on individuals as sole decision makers that can say "I know, therefore I act" neglects other factors like social and cultural environments that shape the way people think and act. Thus, the model fails to allow any understanding of what motivates residents' decisions for either adopting or not adopting health behaviour.

Knowledge of COVID-19 and Precautionary Behaviours

Odikpo et al. (2022) assessed the knowledge, compliance with preventive measures of COVID-19 among nurses working in selected hospitals in South-South Nigeria. A descriptive design guided the study. The researchers used census method to guide the

recruitment of 378 nurses in the hospital who met the study's inclusion criteria. Findings indicated that knowledge influenced compliance to preventive measures to COVID-19 among the nurses. They concluded that as knowledge of COVID-19 preventive strategies continues to increase among health workers, there is a need to translate this knowledge into adequate practice in order to minimize the hazardous effect of the pandemic on the health workers especially nurses.

Wilson et al. (2021) examined factors affecting adherence to COVID-19 safety protocol in Borno state. The study adopted the knowledge, attitude and practice theory, employed survey method as well as convenience and purposive sampling techniques to select 2,949 respondents across three LGAs in Borno state. The study found that people who were aware and knowledgeable about the pandemic were more compliant to its preventive measures. They concluded that noncompliance to COVID-19 safety protocol was largely due lack of fund to purchase and use face mask and hand sanitizer.

Osaro et al. (2021) assessed knowledge of COVID-19 and compliance with the use of face mask among university students. This cross-sectional study among 400 undergraduates of Rivers State University adopted multistage sampling technique for sampling. Results indicated that knowledge of the pandemic was key in triggering compliance behaviour. They concluded that although knowledge on COVID-19 is high among undergraduates in Rivers State, the effective use of facemask among youths is

still very low. They thus recommendations that risk communication messages by the Infection Prevention and Control (IPC) team should also include education on how to wear and remove facemask appropriately.

Yapi et al. (2021) assessed the knowledge, attitudes, and practices of the Ivorian public regarding preventive measures. Participants were invited to complete a questionnaire online, by phone, or face-to-face. Data were validated for 564 individuals. The study concluded that beyond unfavourable socioeconomic conditions, the level of knowledge regarding COVID-19 and trust in the government/health system are more likely to influence compliance with preventive measures such as self-reporting, physical distancing, the use of face masks, and eventually the acceptability of vaccines.

Risk Perception and precautionary Behaviours

Okon et al. (2021) assessed the knowledge, risk perceptions and adherence to COVID-19 protocols. The cross-sectional study was among police officers in Benue State. The results indicated that most participants demonstrate a good knowledge of COVID-19 infection 302 (99%) and positive risk perception of COVID-19 303 (99.3%) but few demonstrated good adherences on COVID-19 prevention practices 133 (43.6%). They concluded that while most participants had a good knowledge of COVID-19 transmission dynamics, and positive risk perception about COVID-19, good adherence to public health advisories were low. This study despite its conduct in Benue State, was still not carried out among residents. This reduces nothing but also adds

nothing to the existing literature on compliance to COVID19 protocol among residents in Gboko.

Serwaa et al. (2020) assessed the public knowledge, risk perception and preparedness to respond the COVID-19 in the early stage of the outbreak in Ghana. A cross-sectional study was conducted to collect information from Ghanaians during the early stage of the outbreak from 12th to 20th March 2020. Results indicated that there was high risk perceptions and moderate preparedness skill to respond to COVID-19. This study contributes to knowledge although it differs in context with the present study. The study assessed public preparedness to respond to COVID-19 but failed to proceed to assessing the actually compliance with the COVID-19 protocol. In addition, this Ghanaian study employed an online medium of data collection where it cannot be verifiable if it were the ideal respondents that gave their responses. Thus, there was need for a Nigeria based study that employed physical means of data collection among residents in Gboko.

Zaid et al. (2020) examined the knowledge and risk awareness of COVID-19 among the general public in Jordan. This cross-sectional survey was conducted using a sample of 3,791 adults in Jordan. Results indicated that a substantial proportion of participants had misconceptions about how to prevent infection. They concluded that these findings can guide government information campaigns that will be covered by media. One major limitation of this study is that it was constrained to assessing the knowledge and awareness of the populace about COVID-19 but no attempt was made to

examine how the knowledge and awareness transcend in to appropriate responses in the form of complying to IPC guidelines. This limitation was covered in the present study.

Olapegba et al. (2020) assessed knowledge and perceptions about COVID-19 among the general public in Nigeria during the initial week of the pandemic lockdown in the country. The study used purposive and snowball sampling techniques to recruit 1,357 respondents. Results indicated that Nigerians have relatively high knowledge, mostly derived from traditional media, about COVID-19. Their perceptions of COVID-19 bear implications across public health initiatives, compliance with precautionary behavior as well as bilateral relations with foreign nations. On the other hand, this study also has the limitations observed in the previously reviewed studies above, hence, this study augments those shortcomings even though the study was conducted in Nigeria. Based on the identified gaps, the following hypotheses were postulated:

- i. There will be significant influence of knowledge of COVID-19 on precautionary behaviours.
- ii. There will be a significant influence of risk perception on precautionary behaviours.
- iii. There will be a significant joint influence of knowledge of COVID-19 and risk perception on precautionary behaviours.

Design

This study employed Ex Post-facto design to investigate knowledge of COVID-19, risk perception and precautionary behaviours among residents of Gboko, Benue State. This

design focuses on examining the impact of past events on present behaviour. The design is appropriate because it allowed the researchers to collect data from the population under study such that retrospective inferences can be made.

Population

The total estimated population of residents in Gboko is 488,000 (World Statistical Data, 2023). This covers the all the council wards within the local government area (Gboko/central Market, Gboko East, Gboko North West, Gboko South, Igyorov, Mbaavarakaa, Mbaanku, Mbadam, Mbadim, Mbakper, Mbakwen, Mbatan, Mbatser, Mbatyu, Ukpekpe, Yandev North, and Yandev South).

Sample Size Determination

The sample size for the study was determined using Krejcie and Morgan's formula (1970). The total estimated population of residents in Gboko is 388,044 (World Statistical Data, 2022) (See Appendix I for the formular and calculated sample).

Sampling Technique

In order to draw samples for the study, the researchers employed the use of Multistage sampling technique where at the first stage, simple random sampling was used to draw some wards (Mbatan, Mbakpegh, Ukpekpe, Mbaaverakaa, Mbadim, Mbaanku, and Igyorov) as clusters. Secondly, in every cluster identified, accidental sampling was used to draw 55 residents from the sampled wards.

Participants

The participants for this study were 384 residents of Gboko that comprised of 148 (38.5%) males and 236 (61.5%) females. Their ages ranged from 25-51 years with a mean age of 37 years (SD=8.75). As for their ethnic groups, 192 (50%) were Tiv, 34 (8.9%) were Idoma while 158 (41.1%) were from other ethnic groups. Considering their religion, 256 (66.7%) were Christians, 24 (6.3%) were Muslims while 104 (27%) were practicing other religions. In terms of their marital status, 102 (26.6%) were single, 130 (33.8%) were married while 152 (39.6%) were either divorced or separated. Regarding their occupation, 122 (31.8%) were self-employed, 168 (43.8%) were civil servants while 94 (24.4%) were in other occupations.

Instruments

The instruments for data collection in this study include demographic Checklist, **Knowledge of COVID-19 Scale**, the Health Risk Perception Scale and the COVID-19 Precautionary Behaviours Scale.

The demographic variables that were assessed in this study include; sex, age, ethnic group, religion, marital status and occupation.

Knowledge of COVID-19 was measured using the Knowledge of COVID-19 Scale developed by Saefi et al. (2020). The uni-dimensional scale has 13 items and is assessed using 2-point format of 2 (Yes) and 1 (No). None of the items are reverse scored and the total score on the scale is obtained by summing up individual scores across all the items in the scale. The authors obtained an alpha coefficient of .76, the present study also

obtained an alpha coefficient of .76. Sample of items include: "Senior citizens aged 65 and older were at an increased risk of COVID-19", "COVID-19 was spread by the buried dead bodies of infected person".

Risk perception was measured using the Health Risk Perception Scale developed by Van-Osch and Stiggelbout (2007) to measure peoples' health risk perception. The scale has 13 items measured on a 7-point format of 1 (totally disagree) to 7 (totally agree). The scale is uni-dimensional and the total scores on the scale are obtained by summing the score of each respondent on the items. The author obtained an alpha coefficient of .84 while the present study obtained an alpha coefficient of .86. Sample of items include; "When I look back at my past, I think that, in general, I did not take risks with my health during the pandemic", "I consider safety first, where my health is concerned".

Precautionary behaviour was measured using the COVID-19 Precautionary Behaviours Scale developed by Rahman and Sathi (2020). The scale has 10 items measured using a format of 1 (rarely) to 4 (always as recommended). These items were drawn based on the COVID-19 guidelines provided by the Centre for Disease Control (CDC). The present study obtained a Cronbach's alpha of .75 while the present study obtained .88. The uni-dimensional scale has items such as "Did you follow recommended hand hygiene practices?", "Did you observe social distancing as recommended?"

Procedure

This study was conducted in Mbatan,

Mbakpegh, Ukpekpe, Mbaaverakaa, Mbadim, Mbaanku, and Igyorov wards in Gboko. The researchers prepared a total number of 384 copies of the questionnaire for administration. The researchers moved around the residential areas in the selected wards in Gboko where the consent of residents was sought to partake in the study. The researchers visited local markets, churches and social gatherings in the selected wards. The respondents were assured that the study will be harmless, results will be confidential, finding will be used solely for the purpose of the research and that they are free to withdraw from participation. Those who upon understanding the nature of the study, and willingly consented to participate were issued a copy of the questionnaire and

they were instructed on how to complete it. The researchers used two research assistants (trained postgraduate students) who assisted in the data collection process. After the administration of 384 copies of the questionnaire, all the 384 copies representing a return rate of 100% were found viable and considered for data analysis.

Data Analysis

Data for this study were analyzed using descriptive and inferential statistics. Mean, standard deviation, frequencies and percentages were used to describe the participants. In addition, simple linear regression was used to test hypotheses 1 and 2, while standard multiple regression was used to test hypothesis 3.

Results

Table 1: Summary of Simple Linear Regression showing the influence of knowledge of COVID-19 on precautionary behaviours.

Variables	R	R ²	F	df	β	t	Sig.
Constant	.342	.117	50.570	1,382		22.442	.000
Knowledge of COVID-19					.342	-7.111	.000

The result presented in table 1 indicated that knowledge of COVID-19 had a significant positive influence on precautionary behaviour among residents in Gboko [$R^2=.117$, $F(1,382)=50.570$, $p<.001$]. This result means that residents with knowledge of COVID-19 measures are more likely to

engage in safety preventive measures of COVID-19. The result further indicated that the knowledge of COVID-19 explained 11.7% of the variation in precautionary behaviours. Thus, hypothesis one was confirmed.

Table 2: Summary of Simple Linear Regression showing the influence of risk perception on precautionary behaviours.

Variables	R	R ²	F	df	β	t	Sig.
Constant	.793	.629	647.402	1,382		10.076	.000
Risk Perception					.793	25.444	.000

The result presented in table 2 indicated that risk perception had a significant positive influence on precautionary behaviour among residents in Gboko [$R^2=.629$, $F(1,382)=647.402$, $p<.001$]. This means that residents who have high risk perception will

be more likely engage in precautionary behaviours for preventing COVID-19. The result further indicated that risk perception explained 62.9% of the variation in precautionary behaviours. Thus, hypothesis two was also confirmed.

Table 3: Summary of Standard Multiple Regression showing the joint influence of knowledge of COVID-19 and risk perception on precautionary behaviours.

Variables	R	R ²	F	df	β	t	Sig.
Constant	.794	.630	324.180	2,381		3.380	.001
Knowledge of COVID-19					.035	.992	.322
Risk Perception					.809	22.979	.000

The result presented in table3 indicated that knowledge of COVID-19 and risk perception had a significant joint influence on precautionary behaviour among residents of Gboko [$R^2=.630$, $F(2,381)=324.180$, $p<.001$]. The result further indicated that both knowledge of COVID-19 and risk perception explained 63% of the variation in precautionary behaviour. Thus, hypothesis three was also confirmed.

Discussion

Hypothesis one was tested to find out if knowledge of COVID-19 will significantly influence precautionary behaviours among residents in Gboko. Findings indicated that there was a significant influence of knowledge of COVID-19 on precautionary behaviours among residents in Gboko. This implies that residents who were aware of the nature of the corona virus disease were more likely to take safety measures such as handwashing and social distancing. This finding tallies with that of Odikpo et al. (2022) who revealed that knowledge and unit of practice are determinants of compliance to preventive measures to COVID-19 among

the nurses. Another related study by Wilson et al. (2021) found that people who were aware and knowledgeable about the pandemic were more compliant to its preventive measures. Similarly, Osaro et al. (2021) found that although knowledge on COVID-19 is high among undergraduates in Rivers State, the effective use of facemask among youths is still very low. This study is indigenous to Nigeria, same as the present study. Another consonant study by Yapi et al. (2021) found that the level of knowledge regarding COVID-19 and trust in the government/health system are more likely to influence compliance with preventive measures such as self-reporting, physical distancing, the use of face masks, and eventually the acceptability of vaccines.

Hypothesis two was tested to find out if risk perception will significantly influence precautionary behaviours among residents in Gboko. Findings indicated that there was a significant influence of risk perception on precautionary behaviours among residents in Gboko. This implies that residents who are aware of the dangers associated with corona

virus disease will be more predisposed to observing the prevention protocol. Therefore, this study agrees with Okon et al. (2021) who found that most participants demonstrated a good knowledge of COVID-19 infection and positive risk perception of COVID-19 but few demonstrated good adherences on COVID-19 prevention practices. In a like manner, Serwaa et al. (2020) found in their study that, 62.7% had “good” knowledge about the outbreak, 68.3% had a high risk of contracting the COVID-19 infection and 81.4% had a moderate preparedness skill to prevent and control the disease. A related studies (Zaid et al., 2020; Olapegba et al., 2020) did not have a self-perceived risk of contracting COVID-19. Most (81%) have been avoiding crowded places and 61.3% washed their hands very often. Iorfa et al. (2020) revealed that risk perception mediated the association between COVID-19 knowledge and precautionary behaviour. They further indicated that having adequate knowledge of COVID-19 was linked to higher involvement in precautionary behaviour through risk perception.

Hypothesis three was tested to find out if knowledge of COVID-19 and risk perception will jointly influence precautionary behaviours among residents in Gboko. Findings indicated that there was a significant joint influence of knowledge of COVID-19 and risk perception on precautionary behaviours among residents in Gboko. This implies that engaging in precautionary behaviours is a function of one's knowledge and awareness of the risk of contracting corona virus. However, there are no support studies to this finding yet.

Implications of the Study

This study has shown that despite the egress of COVID-19 in Benue State, there is need for clinical psychologists to persist in creating awareness on the psychological impact of the pandemic and educating the public on precautionary measures to adopt when such a pandemic emerges. This has become necessary since the present study revealed that COVID-19 knowledge enhances preventive behaviours.

Limitations of the Study

The researchers met a number of limitations in the process of conducting this study. First and foremost, since the study is retrospective, it may have been difficult for the respondents to accurately report their attitudes, perceptions and behaviours during the pandemic. This limitation was managed amicably because they were given the room to clearly state if they neither agree or disagree with the items in the questionnaire when they are in doubt.

Another limitation was that, the study was designed such that the variables will not be manipulated in any way, thus the inferences drawn here are not causal in nature, meaning that we cannot conclude that knowledge of COVID-19 nor risk perception caused precautionary behaviours. It can only be said of the extent to which one variable predicts the other.

Recommendations

The ministry of health in Benue State is hereby suggested to employ the services of Clinical Psychologist who will support in educating, raising awareness on preventive measures and strengthening policies that will

enhance compliance to COVID-19 protocols in Gboko and Benue State at large.

In addition, clinical psychologists as agents of disease prevention should organize sensitization and psychoeducational programmes to educate the residents of Gboko on the risk involved in contracting COVID-19. This effort has been revealed to also enhance precautionary behaviours.

Conclusion

Based on the findings obtained from the present study, it was concluded that knowledge of COVID-19 is a significant predictor of precautionary behaviour among residents of Gboko. Also, risk perception was a significant determinant of precautionary behaviour among residents of Gboko. Lastly, knowledge of COVID-19 and risk perception are significant joint predictors of precautionary behaviour among residents of Gboko.

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