COVID-19 PANDEMIC AND PUBLIC INFORMATION MANAGEMENT: A STUDY OF PUBLIC INFORMATION MANAGERS IN PLATEAU STATE

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Abstract

The study sought to evaluate the performance of public information managers in curbing the spread of COVID 19 Pandemic in Plateau State. Hence the major outcome variables studied were the role of Public Information Managers in curbing the spread of Covid-19 in Plateau state, the impact of Public Information Managers in curbing the spread of Covid-19 amongst communities in Plateau state and the challenges facing Public Information Managers in curbing the spread of Covid-19 in Plateau state. The study adopted the qualitative research design to carry out its findings. Sample survey method was used to collect data from 225 members of the Rapid Response Team spread across all the 17 LGAs in Plateau State through Purposeful sampling. A Principal Component Analysis (PCA) was conducted on the questionnaire items with orthogonal rotation (varimax) to determine the roles and challenges of public information managers. A one sample t- test was carried out to determine the impact of public information managers in curbing the spread of COVID 19 Pandemic in Plateau State. Findings showed that, the role of public information managers in curbing the spread of Covid 19 in Plateau state includes pieces of advice, information and enlightenment; that there is no significant impact made by public information managers in Plateau state in curbing the spread of Corona virus; and lack of finance, fear of contracting Covid 19 and lack of trust by the public amongst others are some of the challenges facing public information managers in curbing the spread of the disease. The study recommends that, Public Information Managers should be given an enabling environment i.e. allowed free access to those affected with the disease and provided with health information systems such as digital temperature meters and recorders. They should also be provided with sustainable finance and government support to enable them carry out their roles.

Keywords: Public Health, Public Information Management, Covid-19 and Pandemic

Introduction

The World Health Organization (WHO) issued the first warning of a suspected novel coronavirus (COVID-19) in Wuhan on December 31, 2019. Currently, the world is facing an unprecedented economic, social and political crisis with the spread of COVID-19. The Corona Virus (COVID-19) and its global spread have resulted in the declaration of a pandemic by the World Health Organization (Arshad, 2021). This deadly 21st century pandemic has spread its wings across the globe with an exponential increase in the number of cases in many countries. The developing and underdeveloped countries are struggling hard to counter the rapidly growing and widespread challenge of COVID-19 because it has greatly influenced the global economies whereby the underdeveloped countries are more affected by its devastating impacts, especially the life of the low-income populations.

During outbreaks of this nature, decisions must be taken quickly, often amid scientific confusion, anxiety, mistrust, social and institutional disturbance. Public Health Information systems and their management are particularly useful in spreading key emergency information and helping to maintain extensive social distancing (Arshad, 2021). Also, during a pandemic, the difference between life and death may boil down to whether citizens enjoy a regular flow of vital, accurate information or if this is withheld or distorted by self-serving state institutions.

Information saves lives; and in the context of COVID-19 pandemic, where there has been an excess of information and false rumors especially in developing countries like Nigeria, there are incomplete pieces of information, rumors, and misconceptions about COVID-19 in the public spaces and people are at the risk of taking actions based on misinformation (*BBC* 2020).

Public Information Managers are expected to play a critical role in responding to the outbreak of COVID-

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19, not only as platforms for efficient and effective communications but also fundamentally to change the dynamic of interactions between healthcare providers and consumers, and the way in which healthcare services are delivered to the public (Liu, 2021). Public Health Information management systems (PHIS) incorporate information generated by both population-based and institution-based data sources to provide information to support decision making (*Health Metrics Network*, 2021).

The operational response to the COVID-19 pandemic requires the rapid adaptation and leveraging of the capabilities of existing Public Information management systems to collect, transmit and analyze key health data in real-time that allows better understanding of the epidemiological situation and the crafting of appropriate control measures (Liu, 2021).

UNICEF has continued to provide technical support through the different pillars of the Emergency Operational Centres (EOCs) at the States and LGA levels, to review response activities, assess gaps and re-strategize on the COVID 19 response so as to bring about a decline in new infections, improve adoption of preventive practices and ensure sustainability of infectious disease management and response. In Plateau state, UNICEF supported the state orientation for 255 Rapid Response Team members across all the LGAs in the state. (*Nigeria: COVID-19 Situation Report,* 2020).

Undoubtedly, each of the 17 local government areas in Plateau State, Nigeria has Public Information Managers who are members of the 255 Rapid Response Team across all the LGAs in the state. They are expected to furnish the public in Plateau State with information about Covid-19. The community members across the LGA need awareness and preventive measures in curtailing COVID-19.

Statement of the Problem

Effective communication and information management are crucial in the implementation of any public health plan (*Malawi's National Covid-19 Preparedness and Response Plan,* 2020). The World Health Organization (WHO) (2020) recommends simple, timely, effective, evidence-based and honest communication and transparency to build public trust and manage infodemics about Covid- 19. Transparent dissemination of data on health care utilization (e.g. using dashboards) tends to create public trust.

Several studies have been undertaken to evaluate the performance of public health information management on curbing the impact of Covid-19 pandemic. For instance, the (WHO/EURO/CPS/DMA) conducted a short qualitative survey to assess Member States' experiences regarding the performance of their national PHIS, intending to offer a snapshot of specific concerns, corrective measures adopted, and lessons learned throughout the Covid-19 pandemic. Schmidt, Abboud and Bogaert (2021) studied; making the case for strong health information systems during a pandemic and beyond and observed the strengths and shortcomings of some European HIS during the Covid-19 crisis. The study also highlighted the need for strong PHIS beyond the crisis. This researcher however does not know of any study in this field that specifically targets the people of Plateau State. This obvious gap in knowledge is what this research intends to fill.

Thus, the central problem to be investigated in this study is; Covid-19 Pandemic and Public Information Management in Plateau State: a study of Public Information Managers in Plateau State. As a basis for the study, three issues will be investigated; the first issue is the role of public information managers in curbing the spread of Covid-19 in communities. The second issue is the impact of public information managers in curbing the spread of Covid-19 amongst communities. The third issue is the challenge facing public information managers in curbing the spread of Covid-19.

Research Questions

The research questions formulated for this study are as follows:

i. What is the role of public information managers in curbing the spread of Covid-19 in Plateau State?
ii. What is the impact of public information managers in curbing the spread of Covid-19 in Plateau State?
iii. What are the challenges facing public information managers in curbing the spread of Covid-19 in Plateau State?

Research Objectives

The objectives of this study are as follows:

i. To determine the role of public information managers in curbing the spread of Covid-19 in

Plateau State.

ii. To assess the impact of public information managers in curbing the spread of Covid-19 in Plateau State.

iii. To determine the challenges being faced by public information managers in curbing the spread of Covid-19 in Plateau State

Scope of the Study

The scope of this research study is the evaluation of the performance of public information management in curbing the spread of Covid 19 in Plateau state. The study focuses on the perception of Public Information Managers in Plateau State on the topic; Covid -19 Pandemic and Public Information Management in Plateau State. The study adopts a time frame from 2019 to 2022. This is chosen to reflect the period within which Covid -19 emerged and within which the researcher can assess the impact of some health interventions.

Significance of Study

This study is significant because no known study has been carried out to seek the views of the Public Information Managers in Plateau State about the subject matter. Therefore, the finding of this study is expected to bridge this gap in knowledge hence contribute to the reservoir of knowledge in this area. Furthermore, the findings will provide policy makers and stakeholders in public health information management with needed data to make informed decisions. Also, the findings of this study will open up more research in this field of public health information management.

Literature Review

This section reviewed some literature relevant to the present study. Literature reviewed include, some concepts necessary to the understanding of the present study. Also, some variables embodied in the study such as, role of public information management, challenges of public information management will also be reviewed in the study. Furthermore, the theoretical framework for which this study is premised and some empirical studies relevant to the present study will also be reviewed.

Conceptualizing Covid-19, a Pandemic and Public Information Management, Covid-19

Covid-19 is a global infectious disease that emerged from Wuhan in the Hubei province of China in December 2019. It has spread to 210 countries throughout the world. World Health Organization (WHO) declared it a pandemic on January 30, 2020, and raised international public health concerns for it (https://www.who.int/news-room/detail). As at July 15, 2020, more than 13 million people had been affected by this disease. To date, around 0.6 million deaths have been reported. It has proved far more fatal than other coronavirus family members, with a fatality ratio of 1.4% (varying slightly among countries) (https://www.worldometers.info/coronavirus/).

Between December 31, 2019, when the Chinese authorities declared their first case of pneumonia of unknown etiology to until January 3, 2020, a total of 44 cases were reported to WHO. However, the causal agent was not identified during this reported period. Subsequently, the novel coronavirus was identified on January 7, 2020, and its genomic sequence was shared with the world (https://www.who.int/docs/default-source). WHO named the disease as 'COVID-19' and causative virus as 'SARS-CoV-2' on Feb 11, 2020. It has been named due to its genetic resemblance to the coronavirus that caused the SARS outbreak of 2003. The other members of the family include SARS coronavirus SARCoV and MERS coronavirus MERS-CoV.

The disease primarily affects the respiratory system with symptoms ranging from fever, cough, and mild shortness of breath, to severe desaturation, causing respiratory failure. Despite the lung damage in the form of adult respiratory distress syndrome (ARDS), there are reports of the novel virus creating a thromboembolic condition in the body and hence causing myocardial infarction and pulmonary embolism. It can also result in kidney failure in several patients. Modes of spread range from droplets, airborne, or feco-oral to contact spread. There is news of viruses staying viable on surfaces from a few hours to many days.

A Pandemic

A pandemic is defined as "an epidemic occurring over a very wide area, crossing international boundaries, and usually affecting a large number of people" (Porta, 2014). Pandemics are, therefore, identified by their geographic scale rather than the severity of illness. For example, in contrast to annual seasonal influenza epidemics, pandemic influenza is defined as "when a

new influenza virus emerges and spreads around the world, and most people do not have immunity" (WHO 2010).

Madhav, Oppenheim, Gallivan, Mulembakani, Rubin, and Wolfe (2017) state amongst others that;

i. Pandemics have occurred throughout history and appear to be increasing in frequency, particularly because of the increasing emergence of viral disease from animals.
ii. Pandemic risk is driven by the combined effects of spark risk (where a pandemic is likely to arise) and spread risk (how likely it is to diffuse broadly through human populations). Some geographic regions with high spark risk, including Central and West Africa, lag behind the rest of the globe in pandemic preparedness.
iii. Pandemics can cause significant, widespread increases in morbidity and mortality and have disproportionately higher mortality impacts on LMICs.
iv. Pandemics can cause economic damage through multiple channels, including short-term fiscal shocks and longer-term negative shocks to economic growth.

Public Information Management

According to New Zealand Director's Guideline for Civil Defence Emergency Management Groups (DGL 14/13, 2013), Public Information Management (PIM) enables people affected by an emergency to understand what is happening and take the appropriate actions to protect themselves. This is achieved by making sure that timely, accurate, and clear information is shared with the public in an emergency. The goal of PIM during an emergency is to provide information that: creates strong public confidence during response and recovery, provides effective advice to the public on what to do or what not to do, including public safety and positive public behavior, manages public expectations, and informs the public not affected by the emergency.

PIM tasks may be carried out by one person or by a team of people, depending on the resources available, and also on the scale of the emergency during response and recovery. As the size of the team increases, the PIM Manager's responsibilities are about ensuring that the task is done, rather than carrying it out themselves (DGL 14/13, 2013).

Role of Public Information Management During COVID – 19

Several researchers have examined the role of Public information management (PIM) in managing the COVID 19 pandemic. According to New Zealand Director's Guideline for Civil Defence Emergency Management Groups, PIM enables people affected by an emergency to understand what is happening and take the appropriate actions to protect themselves. The goal of PIM during an emergency according to (DGL 14/13, 2013: 9), is "to provide information that: i) creates strong public confidence during response and recovery. ii) provides effective advice to the public on what to do or what not to do, including public safety and positive public behavior. iii) manages public expectations, and iv) informs the public not affected by the emergency"

Public Information Management (PIM) aims to give the lead agency what has been described as the "authoritative voice". PIM builds public assurance and confidence. It explains what is happening and that we are responding in a planned and coordinated way. Crucially, PIM also provides information and advice to the public about what people should and should not do. It helps us engage with our communities and get the best out of the tremendous goodwill that surfaces in an emergency. People will do what they think will help. If we do not give them advice, they will still take action. However, what they then end up doing might endanger themselves and others, and hinder the response. The information PIM provides will guide their willingness to act positively (DGL 14/13, 2013).

The way in which risk communications are framed and transmitted matters a great deal; they must be clear, simple, timely, and delivered by credible messengers. Factors such as literacy rates, cultural sensitivities, familiarity with scientific principles (such as the germ theory of disease), and reliance on oral versus written traditions all have implications for how messages should be designed and delivered (Bedrosian, et al. 2016). Public information managers also need to identify and address misinformation, rumors, and anxieties. This can be a significant challenge.

During the 2014 West Africa Ebola epidemic, many communities reached for culturally familiar explanations of disease transmission and rejected disease control practices that clashed with their traditional healing and burial practices (Roca, et al.

2015). Still other individuals spread rumors about the source of the infection; for example, in Liberia some community leaders claimed that the disease was created by the government (Epstein 2014). Research has found that in unstable contexts, people tend to believe rumors that confirm their preexisting beliefs and anxieties (Greenhill &Oppenheim, 2017).

The effectiveness of risk communications is difficult to measure. However, previous risk communication efforts have brought forth overarching themes that may be beneficial during the next epidemic or pandemic. One notable model comes from a Nipah virus outbreak in Bangladesh in 2010. In that outbreak, investigators found that messages about the sources of infection and potential strategies to reduce risk were more effective when conveyed by trusted local leaders and in terms that were relevant and grounded in the shared experiences of the affected community (Parveen, et al., 2016).

Challenges of Public Information Management During COVID - 19

Mujeeb, Christoph and Medford (2021:1) assert that, "Critical to responding and combating the SARS-CoV-2 pandemic is the ability to gather and aggregate accurate and timely test results and to identify patients quickly and correctly to allow for rapid isolation and tracing of contacts". These sums up the challenges of public information management experience in handling COVID -19 pandemic. Expansively, Mujeeb, Christoph and Medford (2021:2) identified the following as some of the challenges faced by PIM managers:

a. **Lack of Strategy and Data Harmonization:** In countries like the US, where COVID-19 public health strategies lack centralization and harmonization, efforts to combat the virus largely failed and led to some of the highest number of COVID-19 infections in the world (Post, Issa, Boctor, Moss, Murphy & Ison et al., 2020). Even nine months into the pandemic, the world still lacked a standard that assures that COVID-19 data are uniformly reported (Blauer & Nuzzo, 2020). Without uniform data reports, public officials are left at an impasse in regards to responding or tracking cases.
b. **Lack of a Skilled Workforce:** Requesting COVID-19 data requires domain knowledge in infectious diseases as well as informatics. As anticipated, lack of understanding of available data and processes resulted in requests at various levels of the government (federal, state, and local levels) that were frequently ambiguous and not congruent - adding to the data collection effort at the frontlines, which required a substantial workforce during the pandemic (Arvisais-Anhalt Lehmann, Park, Araj, Holcomb, & Jamieson, et al., 2020).
c. **Failing Information Systems:** Entities that require COVID-19 data reporting frequently request a variety of formats over various time periods and with varying deadlines, which can add significantly to the reporting burden for healthcare organizations. Add to this the fact that the automation, the integration, and the interoperability of electronic systems available to public health departments, at local and state levels, substantially vary as public health information technology infrastructures and their capabilities diverge widely. Further, health department infrastructures (at least in the US) tend to be outdated and fail frequently.
d. **Reporting Errors, Delays, and Misrepresentations:** In the US, COVID-related deaths most likely reached 100,000 three weeks before the official milestone, because of reporting delays and failures to accurately attribute all COVID-related deaths to the virus (Kristof, 2020; https://www.cdc.gov/media/releases/2020/s0528-coronavirus-death-toll). The Centers for Disease Control and Prevention (CDC) conflated results of polymerase chain reaction (PCR) tests, which test for the presence of the virus, with antibody tests, which test for past infections, resulting in an inaccurate timeline of infections and in an overinflating of testing capabilities (Madrigal & Meyer, 2020; Dreher, 2020; Stein, 2020). Texas, Virginia, and Vermont were accused of misrepresenting their data to inflate the size of their testing programs (Baker, 2020). Misrepresentations - whether intentionally or accidentally - further hindered the ability to interpret data correctly.

Empirical Review

This section reviews the empirical findings of three (3) relevant studies carried out by scholars/researchers. The reviews seek to discover gaps in the studies for

which the present study intends to fill and for which findings of this study can be validated.

Rahn, Tomczyk, Schopp and Schmid (2021) studied, "Warning Messages in Crisis Communication: Risk Appraisal and Warning Compliance in Severe Weather, Violent Acts, and the COVID-19 Pandemic". The study examined how risk appraisal and individual characteristics influence the intention to comply with behavioral recommendations of a warning message regarding three hazard types: the COVID-19 pandemic, violent acts, and severe weather. A cross-sectional survey examined 403 German participants from 18 to 89 years (M = 29.24; 72% female). Participants were allocated to one of three hazard types (COVID-19 pandemic, violent acts, severe weather) and presented with warning messages that were previously issued via an official warning app. Four components of risk appraisal—perceived severity (PS), anticipated negative emotions (AE), anticipatory worry (AW), and risk perception (RP)—were assessed before and after presenting the warning message. Path models were calculated to predict the intention to comply with the warning message, controlling for age, gender, and previous hazard experience. Results showed that; For the COVID-19 pandemic, higher age (β = 0.18) predicted warning compliance (R2 = 0.05). AE (β = 0.20) predicted compliance in the case of violent acts (R2 = 0.09). For severe weather, PS (β = 0.28), age (β = 0.29), and female gender (β = 0.34) lead to higher compliance (R2 = 0.27). Changes across risk appraisal components were not consistent, as some facets decreased after the receipt of a warning message.

Lep, Babnik and Beyazoglu (2020) studied, "Emotional Responses and Self-Protective Behavior Within Days of the COVID-19 Outbreak: The Promoting Role of Information Credibility". The study explored how people search for information, how they perceive its credibility, and how all this relates to their engagement in self-protective behaviors in the crucial period right after the onset of COVID-19 epidemic. The online questionnaire was circulated within 48hrs after the first case of COVID-19 was confirmed in Slovenia. The study used a snowball sampling method to gather information on participants' demographics, perception of the situation, their emotional and behavioral responses to the situation (i.e., self-protective behavior), perceived subjective knowledge, perceived credibility of different sources of information, and their level of trust, the relationships between perceived credibility and trust, and self-protective behavior of 1,718 participants. The study ran an exploratory factor analysis (EFA), using half of the sample and found that officials received relatively low levels of trust. Conversely, medical professionals and scientists were deemed the most credible. The perceived credibility of received information was linked not only with lower levels of negative emotional responses but also with higher adherence to much needed self-protective measures, which aim to contain the spread of the disease.

Negro-Calduch, Azzopardi-Muscat, Nitzan, Pebody, Jorgensen, and Novillo-Ortiz (2021) studied "Health Information Systems in the COVID-19 Pandemic: A Short Survey of Experiences and Lessons Learned From the European Region" the study examined the role and impact of HIM in the fight against COVID 19 in nineteen European countries. An online qualitative survey was designed and administered online in November 2020 to all the 37 Member States that are part of the WHO European Health Information Initiative and the WHO Central Asian Republics Information Network. Nineteen countries responded to the survey. The study found that, the COVID-19 pandemic required health information systems (HIS) to rapidly adapt to identify, collect, store, manage, and transmit accurate and timely COVID-19 related data. HIS stakeholders have been put to the test, and valuable experience has been gained. Despite critical gaps such as under-resourced public health services, obsolete health information technologies, and lack of interoperability, most countries believed that their information systems had worked reasonably well in addressing the needs arising during the COVID-19 pandemic. The study concluded that, strong enabling environments and advanced and digitized health information systems are vital to controlling epidemics. Sustainable finance and government support are required for the continued implementation and enhancement of HIS.

Theoretical Framework

The theoretical framework adopted for this study is the Social Cognitive Theory. The Social Cognitive Theory explains how people acquire and maintain certain behavioral patterns, while also providing the basis for intervention strategies. Social Cognitive Theory (SCT) is one of the social theories that integrate elements of psychology, sociology and political science. It was

developed by Albert Bandura in 1977 to emphasize the role of observation and cognitive factors in learning and also to understand and predict behavior (Glanz, Rimer, & Viswanath, 2015). This theory suggests that learning is not an exclusively internalized process but rather a function of socialization.

In other words, Social Cognitive Theory proposes that human beings learn a behavior through observing others perform that behavior. Additionally, after observing someone else perform a behavior, an individual is more likely to recall past experiences or memories of that behavior and use these recollections to steer future interactions (Lipscomb, 2017)). The theory reaffirms the notion that human beings are influenced by their environment, thereby making social interactions, past experiences, and the media significant factors in an individual's behavioral development.

This theory is relevant to the present study because the simplicity of its content facilitates its use in understanding and addressing different phenomena relating to COVID – 19 Pandemic and its spread, the creation of knowledge and in professional education about it (Lipscomb, 2017). It increases critical and creative thinking by assessing current knowledge, and probes unanswered questions that can generate new disciplinary knowledge for COVID -19 through Public Information Management systems within the inhabitants of Plateau State.

The theory also provides elements that can contribute to the design or adaptation of PIM interventions that allow the achievement of goals in a practical public health situation such as Corona Virus. Likewise, different elements derived from the category of concepts of observational learning can be used in the implementation of strategies and the facilitation approach to them. These concepts can serve as tools for the development of new competencies in public information management strategies taking into account that, by observing others, one can create rules of behavior and a guide for action.

Research Methodology

This study adopted the qualitative research design to carry out its findings. According to Lune and Berg (2017), Qualitative procedures provide a means of accessing unquantifiable knowledge about the actual people researchers observe and talk to or about people represented by their personal traces. Sample survey method was used to collect data from 225 members of the Rapid Response Team spread across all the 17 LGAs in Plateau State through Purposeful sampling. A 5 - point Likert type questionnaire was served on the sample size for the purpose of collecting the data. The questionnaire was administered face-to-face during a workshop in Jos so that respondents were relatively compelled to answer the questions. Also, the researcher collected data from other sources; such as empirical findings of other scholars and relevant literature. This is because, empirical findings of other scholars and researchers is needed to validate the findings of the present study.

The Questionnaire items used were tested for reliability using Cronbach's alpha reliability score in SPSS version 23 and found to be closer to 1.0 (Subedi, 2016). To ensure the validity of test instruments and cases, a case item correlation analysis was also carried out on the perceived tasks value scale comprising questionnaire items and the number of respondents (cases) using SPSS and found to be valid.

The major outcome variables studied were the role of Public Information Management in curbing the spread of Covid-19 in communities, the impact of Public Information Management in curbing the spread of Covid-19 amongst communities and the challenge facing Public Information Management in curbing the spread of Covid-19.

Data Presentation and Analysis

Out of the 225 questionnaires distributed to the study participants, only 220 questionnaires returned properly filled. The completed copies of the questionnaires were collated, coded and entered into the Statistical Package for Social Sciences (SPSS) version 23 and subsequently analyzed as follows:

RQ1: What is the role of Public Information Management in curbing the spread of Covid-19 in Plateau State? To answer this research question, the researcher first assessed whether the ten (10) questionnaire items that summed up to determine the role of public information management in curbing the spread of Covid-19 in Plateau State score formed a reliable scale. Cronbach's Alpha was computed using SPSS version 23 and the result was .739. A principal component analysis (PCA) was conducted on the ten (10) questionnaire items with orthogonal rotation (varimax) using dimension reduction.

Table 1: Rotated Component Matrix showing the role of public information management in curbing the spread of Covid-19 in Plateau State

Rotated Component Matrix[a]		Component		
		1	2	3
1.	Creates strong public confidence during response and recovery		.966	
2.	Provides effective advice to the public on what to do or what not to do	.777		
3.	Manages the public's expectations of the disease			.965
4.	Provides early warning of potential spread of the disease		.990	
5.	A motivator for action to stop spread of the disease			.964
6.	A form of communication between caregivers and public	.989		
7.	Gives victims an emotional outlet			.707
8.	An opportunity to hear about preventive measures		.993	
9.	Opportunity to correct misperceptions about the disease	.954		
10.	Informs the public not affected by the emergency			987

Source: SPSS output 2022

A principal component analysis (PCA) was conducted on the ten (10) items with orthogonal rotation (varimax). The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis. Table 4.20 indicates KMO = .773 and all KMO values for individual items were > .800, which is well above the acceptable limit of .5 Bartlett's test of sphericity χ^2 (253) = 5598.843, $p < .001$, indicated that correlations between items were sufficiently large for PCA.

Table 1 (Rotated Component Matrix) above shows the factor loadings after rotation. Table above indicated that items 2, 6, and 9 are loaded unto component 1; Items1, 4 and 9 are loaded unto component 2; Items 3, 5, 7 and 10 are loaded unto component 3. From the table, it can be seen that the items that cluster on the same components suggest that component 1 represents Advisory, component 2 Informational, component 3 Enlightenment. The above result implies that majority of the respondents are of the opinion that the roles of public information management in curbing the spread of Covid-19 in Plateau State are: Advisory, Informational and Enlightenment.

RQ2: What is the impact of Public Information Management in curbing the spread of Covid-19 in Plateau State? To answer this research question, a null hypothesis; *"There is significant impact of public information management in curbing the spread of Covid-19 in Plateau State"* was formulated.

Table 3: Descriptive Statistics for the Impact of Public Information Management in curbing the spread of Covid-19 in Plateau State

Descriptive Statistics		Mean	Std. Deviation	N
1.	Creates strong public confidence during response and recovery	3.20	1.233	220
2.	Provides effective advice to the public on what to do or what not to do	3.20	1.278	220
3.	Manages the public's expectations of the disease	2.67	1.293	220
4	Provides early warning of potential spread of the disease	2.92	1.426	220
5.	A motivator for action to stop spread of the disease	2.93	1.428	220
6.	A form of communication between caregivers and public	2.66	1.294	220
7.	Gives victims an emotional outlet	3.23	1.232	220
8.	An opportunity to hear about preventive measures	3.01	.818	220
9.	Opportunity to correct misperceptions about the disease	2.91	1.435	220
10.	Informs the public not affected by the emergency	2.91	1.415	220

Source: SPSS output 2022

From the table above, the Mean, Std. Deviation score, of each item of the questionnaire and the number of samples relating to the impact of public information management in curbing the spread of Covid-19 in Plateau State is shown. To test the formulated hypothesis, a data file was created and the data containing the scale data means (Table 3 above) was

entered in SPSS version 23, with the variable "Means" taking up one column. Next, the normality of the data distribution was checked as shown in table 4 below:

Table 4: Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Means	.264	11	.060	.811	11	.053

Source: SPSS output 2022

Table 4 above indicates that the *p*-value from Kolmogorov-Smirnov test is .060 and from Shapiro-Wilk test of normality is .053. These values are both greater than .05 which means it is acceptable to assume that the mean distribution of the score is normal (or bell-shaped). This implied that a *t*-test can be performed with the samples. A *t*-test was therefore performed on the sampled distribution to test the formulated hypothesis. A *t*- test carried out using SPSS version 23 is shown in table 5 below:

Table 5: One-Sample Test

One-Sample Test Test Value = 3.38						
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Means	-.060	10	.953	-.00500	-.1879	.1779

Source: SPSS output 2022

Table 5 above indicates that the One - Sample *t*-test statistic is, - .060 and the *p*-value from this statistic is, .953. This p-value is more than .05 (the level of significance usually used for the test). Such a *p*-value indicates that the average means of the sampled population is *not statistically significantly different* from 3.38. The 95% confidence interval estimate for the difference between the population means and 3.38 is (-.1879, .1779).

Decision: Since the *p*-value from this statistic which is .953 is greater than .05 (the level of significance usually used for the test), the sampled population is therefore not statistically significantly different from 3.38 (the population mean); the Null hypothesis that says; *"There is significant impact of public information management in curbing the spread of Covid-19 in Plateau State" is* therefore rejected.

RQ3: What are the challenges facing public information management in curbing the spread of Covid-19 in Plateau State? To answer this research question, the researcher first assessed whether the ten (10) questionnaire items that summed up to check the challenges facing public information management in curbing the spread of Covid-19 in Plateau State score formed a reliable scale. Cronbach's Alpha was computed using SPSS version 23 and the result was .839. A principal component analysis (PCA) was conducted on the 10 questionnaire items with orthogonal rotation (varimax) using dimension reduction.

Table 6: Rotated Component Matrix showing the challenges facing public information management in curbing the spread of Covid-19 in Plateau State

Rotated Component Matrix[a]	Component		
	1	2	3
1. Information sharing is hampered by limited resources	.966		
2. There are frequently changing reporting templates	.777		
3. Contents of situation report templates and variables captured varies			.965
4. Political barriers to data sharing hinder ability to timely and accurately monitor the transmission dynamics of COVID-19.		.990	
5. Failures or challenges to obtain accurate data		.994	
6. Lack of strategy and data harmonization			.964
7. Lack of a skilled workforce	.989		
8. Information processing is affected by stress and uncertainty			.707
9. Reporting errors, delays, and misrepresentations		.993	
10. There is the fear of getting contracted by the disease			.886

Source: SPSS output 2022

A principal component analysis (PCA) was conducted

on the ten (10) items with orthogonal rotation (varimax). The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis. Table 4.20 indicates KMO = .773 and all KMO values for individual items were > .800, which is well above the acceptable limit of .5 Bartlett's test of sphericity χ^2 (253) = 5598.843, p < .001, indicated that correlations between items were sufficiently large for PCA.

Table 6 (Rotated Component Matrix) above shows the factor loadings after rotation. The factors (challenges) that loaded well together implied the challenges facing public information management in curbing the spread of Covid-19 in Plateau State. Table above indicated that items 1, 2, and 7 are loaded unto component 1; Items 4, 5, and 9 are loaded unto component 2; Items 3, 6, 8 and 10 are loaded unto component 3. From the table, it can be seen that the items that cluster on the same components suggest that component 1 represents Limited Resources, component 2 Fear of Contracting the Disease, component 3 Lack of Trust.

The above result implies that majority of the respondents are of the opinion that the major challenges facing public information managers in curbing the spread of Covid-19 in Plateau State are: Limited Resources, Fear of Contracting the Disease and Lack of Trust.

Discussions

Research Question 1 findings indicated that, the most important roles of Public Information Managers in curbing the spread of Covid-19 in Plateau State are: Advisory, Informational and Enlightenment. This is in agreement with findings from Negro-Calduch, Azzopardi-Muscat, Nitzan, Pebody, Jorgensen, and Novillo-Ortiz (2021) who found that the COVID-19 pandemic required health information systems (HIS) to rapidly adapt to identify, collect, store, manage, and transmit accurate and timely COVID-19 related data.

Research Question 2 findings indicated that, the impact of Public Information Management in curbing the spread of Covid-19 in Plateau State *was insignificant. This finding disagrees with* Negro-Calduch, Azzopardi-Muscat, Nitzan, Pebody, Jorgensen, and Novillo-Ortiz (2021) who found that despite critical gaps such as under-resourced public health services, obsolete health information technologies, and lack of interoperability, most countries believed that their information systems had worked reasonably well in addressing the needs arising during the COVID-19 pandemic.

Research Question 3 findings indicated that, the main challenges facing Public Information Management in curbing the spread of Covid-19 in Plateau State are: Limited Resources, Fear of Contracting the Disease and Lack of Trust. This finding agrees with Lep, Babnik and Beyazoglu (2020) who found that, Public Information Officials received relatively low levels of trust.

Conclusion

This study concludes that no significant impact has been made by public information management in Plateau state to curb the spread of Corona virus. The study also found that, pieces of advice, information and enlightenment are vital to controlling epidemics. Furthermore, it found that, sustainable finance and government support are required for the continued implementation and enhancement of public health information management to curb the spread of Corona Virus in the state. Thus, the study recommends that for effective public information management to curb the spread of Covid-19 in Plateau State, Public Information Managers should be given an enabling environment i.e. allowed free access to those affected with the disease and provided with health information systems such as digital temperature meters and recorders. They should also be provided with sustainable finance and government support to enable them carry out their roles.

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