May 2021

A Survey of COVID-19 Information Dissemination Behavior of Library and Information Professionals in Nigeria

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Abstract

The corona virus disease reported in 2019 became a global pandemic in 2020. It now maintains an unwelcome status as one of the most difficult public health challenge of modern era. The disease is highly contagious much as the rate of information and misinformation diffusion about it. Whereas members of the public might have shared information on COVID-19 but library and information professionals (LIPs) are trained on the meaningful use of information and information dissemination through social infrastructure. Thus, this paper studied in Nigeria, the COVID-19 information dissemination behavior of LIPs, using the survey research approach. Data were collected through a structured questionnaire circulated online and analyzed using SPSS. Results show that the LIPs disseminated information on COVID-19 because they are professionals, they did so frequently, largely to fact-check/correct misinformation and update people with information from government and reputed agencies on many issues relating to the pandemic. Facebook and WhatsApp were the social media networks mostly used by them. The test of hypothesis shows significant relationship between gender and the attitude of LIPs devotion to disseminating COVID-19 information. Also, educational level of the respondents significantly impacted on fact-checking and correction of misinformation dissemination behavior of the LIPs, which also affected how much of information they share.

Keywords: COVID-19, Information dissemination, Library and Information professional, Pandemic

Introduction

The outbreak of Corona Virus Disease 2019 known for short as COVID-19 has exerted wide ranging disruption to everyday living of people in almost every country of the world. It has since maintained unprecedented global spread with alarming casualty both in the figures of morbidity and mortality. This made World Health Organisation (WHO) in March 2020 to declare the disease a pandemic. According to Times (2020) "over 118,000 cases of the coronavirus illness in over 110 countries and territories around the world and the sustained risk of further global spread" were reported. Many countries, leading international and multinational organizations, as a result, announced drastic measures to reduce the widespread of the virus in the short term. Efforts are also ongoing at finding lasting therapeutic solutions through curative therapy with drug and/or prevention through vaccination.

Along with the pandemic is the infodemic concern whereby nearly every available medium of information exchange, especially the social media, is saturated with information on COVID-19 which in some cases, is misinforming, fake or misleading. This necessitates the need for proper information dissemination by all and sundry. Today's world has become more information-centered such that it is now called Information Age and information dissemination has been seen as a vital process (Cheng et al., 2013; Smith, 2002). Information dissemination according to IGI Global (2020) is an "active distribution and the spreading of information of all kinds to the users or those audiences that deserve it".

However, Library and Information (LI) professionals from time immemorial are important players of information dissemination on different issues and strategizing means of disseminating reliable and current information through various channels**.** In other words, Sharing of information is one of the cardinal duties of professional librarians. Shonhe (2017) itemized the various ways information can be disseminated in the 21st century as: "personalized collections, SMS notifications, QR codes, online reference services, social networks, websites, mailing lists and OPACs".

The library and information science (LI) profession is not in particular unaffected by covid-19 pandemic development. Besides, the direct impact on libraries' traditional activities and routine

services including closure of library buildings, the library sector was expected to join global efforts in mitigating the wide spread of the pandemic through the usage of their professional services of which information/knowledge sharing is core. Being information experts and of which accurate and timely use of information both in production, dissemination and storage could have immensely helped in managing the COVID-19 pandemic, as Ottenhoff (2020) lamented that uncertainty and fear of the virus has overpowered the news cycle, and the eruption needs global response and cooperation. This includes accurate information dissemination to calm the tension and fear of the virus in people.

This study finds it important to examine COVID-19 information dissemination behavior of LI professionals. This way, allowing the study to evaluate their contributions to the global efforts in curtailing the spread of the virus through the professional practice of information sharing by ascertaining their information dissemination behavior during the pandemic. This is more so important in this time of tons of user generated information flooding the cyberspace which has made discernment of authentic and credible information very hard. In fact, it has led to the popularity of a new maxim, fake news or misinformation, in the digital era. This study therefore assessed Nigerian library and information professionals' information dissemination behavior on the COVID-19 pandemic in Nigeria.

Research Questions

1. What information dissemination behavior does LI professionals in Nigeria practice on COVID-19?
2. Which social media networks do LI professionals in Nigeria mostly used to disseminate COVID-19 information?
3. How frequently was COVID-19 information disseminated by Nigerian LI professionals?
4. What are the challenges of disseminating COVID-19 information faced by LI professionals?
5. What is the relationship between the demographic information of LI professionals and their COVID-19 information dissemination attitude?

Hypothesis

Ho: There is no significant relationship between demographic information of LI professionals their COVID-19 information dissemination attitude

LITERATURE REVIEW

CORONAVIRUS PANDEMIC

A new virus surfaced at Wuhan, China in December 2019, from a food market and, with quick spread to other countries in early 2020. The virus, formally known as "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)", is responsible for the COVID-19 (Jewell, 2020; Yuan, et al 2020). Its rapid spread made the WHO to announce the disease a "Public Health Emergency of International Concern (PHEIC)" in January 30, 2020 (Kazi-Abdul and Farhana, 2020). On March 11, 2020, 118,000 cases were reported in over 110 countries and world territories, the WHO upgraded the status of the disease to global pandemic (Mayo Foundation for Medical Education and Research, 2020; Time, 2020). WHO (2020b) defined COVID-19 as a contagious disease occasioned by a newly discovered virus. Africa CDC (2020) viewed the virus as a "communicable respiratory disease caused by a new strain of virus that causes illness in humans" p.3. The WHO (2020a) defined COVID-19 as a big virus family that causes ailment ranging from mild to a more acute disease like Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS).

According to WebMD (2020), "COVID-19 is caused by SARS-COV-2 that triggers respiratory tract infection and affect upper respiratory tract or lower respiratory tract" p.4. European Center for Disease Prevention and Control (ECDPC) (2020) stated that the virus is generated by acute Respiratory Symptoms. This indicates that, COVID-19 is a worldwide health challenge moving like a wave (United Nations Development Programme (UNDP) 2020). WHO (2020b) advised that COVID-19 majorly discharge from a person infected to another person, droplets of saliva or nose. Ali and Gatiti (2020) asserted that the virus spreads with the same mechanism like other virus, particularly that of influenza, from a person to the other. ACDC (2020) asserted that "COVID-19 spreads from person to person through infected air droplets that are projected during sneezing or coughing, contact with hands or surfaces that contain the virus and touch their eyes, nose or mouth with contaminated hands" p.4. Notably, COVID-19 symptoms in patients range from light to acute symptoms**.** Harvard Health PubLIhing (2020) maintained that COVID-19 patients experience

neurological and gastrointestinal (AI) symptoms. Centers for Disease Control and Prevention (CDCP) (2020) mentioned that symptoms may appear between 2-14 days after exposure to the pandemic and symptoms includes: nose blockage, cough, breathing difficulty, fever, headache body aches, fatigue, sore throat, diarrhea and vomiting.

Mayo Foundation for Medical Education and Research (MFMER) (2020) reported that symptoms becomes complicated with the following conditions: pneumonia and breathing trouble, organ failure, heart problems, blood clots, lung condition, acute kidney injury, viral and bacterial infections. According to Jewell (2020) the pandemic is the most difficult type of virus of pneumonia is known as 2019 coronavirus Novel infected pneumonia; others are Arrhythmia (irregular heart rate), Myalgia (severe muscle pain fatigue, heart attack, cardiovascular shock and Acute Respiratory Distress Syndrome (ARDS).

Presently, infection can be averted by strictly observing all hygiene exercise such as: regular hand wash with soap under running water, regular use of alcohol based hand sanitizers, use of facemask, cough in elbow, maintaining social distance and staying at home. Precautionary measures still remain the best approach to combat the virus till date. A cursory assessment of this new pandemic (COVID-19), shows its effect goes beyond health crisis in the affected countries. This assertion gives credence to the words of UNDP that COVID-19 has created devastating economic, social and political war that leaves deep injury. COVID-19 has upended family life globally, closures of schools, physical distance and remote working (UNICEF, 2020).

COVID-19 IN NIGERIA

Nigeria Center for Disease Control (NCDC) (2020) asserted that the first Nigeria patient of coronavirus was reported in February 27th, 2020, in Lagos State, when an Italian citizen that works in Nigeria arrived Lagos from Italy tested positive and later spread to other persons in the country. “President Muhammadu Buhari directed a cessation of all movements in Lagos and Federal Capital Territory of Nigeria, in a move to combat the spread of coronavirus, for an initial period of 14 days, which took effect from 11pm on Monday, March, 2020” (Oyekanmi, 2020). However, this movement curtailment was increased by another period of 2 weeks by the President of Nigeria and to suppress further expansion of the virus, the president declared a total lockdown across all states in Nigeria, and on April 27th, 2020, He proclaimed curfew from 8pm-6am all over the country.

While it was partially opened up on May 4th for some business and organization to commence activities. Businesses in Nigeria were affected and travelling venues plunged as state governments directed lockdown exempting basic service providers (Deloitte, 2020).

Inter-State movement was banned in Nigeria on April 23rd, 2020 to curtail the virus spread (U.S Embassy and Consulate in Nigeria (2020). Shaban (2020) asserted that Nigeria as African's biggest economy, the Federal government has continually enforced regulations over the nation, even when most Governors have relaxed restrictions. Interestingly, there are new policies in Nigeria to contain further spread of the virus. Anadolu (2020) opined that the new regulations bothers on number of people gathered, compulsory use of face masks and hand washing in public. However, the latest (Monday 19 April, 2021, 1:44 pm local time) total statistics of COVID-19 pandemic as reported by NCDC shows that Nigeria has confirmed cases of 164,233 out of which 7,840 are active, 154,32 recoveries and 2,061 deaths.

INFORMATION BEHAVIOUR (IB)

Wang in 2018 asserted that IB has its evolutionary path (Radiological Society of North America, 2020). Thus, IB is an interdisciplinary, broad and foundation in the field of information science (Kent State University, 2020). While in LIWIKI (2019), IB is seen as a "sub discipline within the field of Library and Information Science" p.1. In other words, IB remains in the disciplines of Information Science, Communication, Psychology and Management. Bates (2010) mentioned that recently, some researchers felt information seeking concentrated on efforts to information access and didn't encompass other methods in which people interact with information, thus postulating the emergence of information behavior in the 1990's as a preferred term and replacement for information seeking behavior.

Information behavior is referred to as how individual advance towards information, handle and interact with information such as ability to know a need for information, access, evaluate and effectively use information for problem at hand (IGI Global, 2020). Wilson in Brown, Cheung and Riedi (2017) defined IB as the "totality of human behavior in relation to sources and channels of information, including both active and passive information seeking and information use" p.2. Bates (2010) defined IB as ways people relate with information, seek and use the information. Similarly, Information behavior describes how people interact with information such as; seek

information, search for information and utilize the information to satisfy an information need. Savolainen (2007) opined that IB is an umbrella concept that denotes the general ways people now deal with information. This shows that information behavior is a broad concept that comprises information seeking, information use and information sharing. In addition, Case (2020) asserted that IB includes information seeking aim, accidental information encounter, distribution and information use. Oladunjoye and Omiunu and Yomi-Owojori (2018) noted that a common characteristic among the various IB models involves users' information needs, seeking and searching. According to Agarwal (2017),

> "IB runs the gamut of processes from the realization of a need or gap in understanding to the search for information from one or more sources to fill that gap, to the use of information to complete a task at hand or to satisfy a curiosity, and other behaviors such as avoiding information or finding information" p.1.

The above assertion corroborates Afzal (2012), when he expressed that seeking and searching for information sources are identified, the user uses the information to solve problem and develop information if the output is relevant to the information at hand. In this light, Oladunjoye, Omiunu and Yomi-Owojori (2018) added that people embark on many information seeking strategies once the information needs are defined from diverse information resources in areas of interest that meets the users' needs. Wilson (2016) critically assessed all his models on IB and concluded the following:

- Information interaction starts from the wish to meet information needs in human existence
- The states of the need are problematic cases from work, family, social relationship, environmental and physical factors.
- Users' motivation to search for information to meet an information need is influenced by some factors
- A span of intervening variables affects seekers
- Information seeking behavior may be affected by the benefit or non-success of the search outcome

- Finding information could result in accidental finding, purposely search or information monitoring.
- Activities in information finding include information seeking, exchange and transfer to others, whose needs are known.
- IB may be collaborative, individual or collective

Afzal (2017) argued that information need necessitates information seeking and searching process for an individual and this process establish a crude map to identify the possible information resources that would satisfy an information need. However, Agarwal (2017) stated that search process varies in people who depend on individual characteristics like knowledge, personality, age, perception, gender, task, channel, access and use of source and interaction with the source. Chand (n.d) opined that people behavior, actions and motives define how they select, use and dispose ideas to satisfy needs. Henriques (2019) identified three major processes of the explanations why people act the way they do as: "belief-desire, social influence and justification". This explains that an information user in any situation, apply desire/needs/ belief to resolve a problem; the social influence explains that information user action in the process does not take place on an island, which explains why Aristotle noted that human beings are social animals and one basic feature of their environment is other people.

Sharma (n.d) classified determinants of user behavior as "economic, psychological and sociological". Furthermore, economic involves (income and standard of living), psychological (motivation, perception, communication, attitude, learning and personality) sociological (family, groups, leaders, social class and culture). Chand (n.d) identified the factors that can influence behavior as personal, situation, cultural and psychological. That is, the nature of IB is influenced by factors like personal (gender, level of education, exposure, age) psychological (perception, motives and attitudes), social (association and status), time, finance and environmental factor (physical environment). Vilar (2015) listed some distinct and recent patterns in IB as: "skimming, navigating, power browsing, squirrelling and cross checking" p.31.

INFORMATION DISSEMINATION

The current Information era has divided the activities of information profession into two: access creation and information dissemination (Esse, 2013). Information dissemination (ID) is a core

aspect of IB which has become pivot and a major process. UNESCO (2017) opined that ID has to do with the collection and distribution of information to enhance decision making. "There are different types of ID in human society, especially through the computer and communications network available"p.2 (Karyotis and Khouzani, 2016). Duggan and Banwell (2004) identified two factors that can influence information dissemination as: information provider like the library and information professionals, and receivers. They further noted two main factors attributed to each factors as external and internal factors. According to them, the internal factors for information providers are the measures, behavioral change, attitude and understanding, assessment and cost while the internal factors are the challenges, research, reinforcing existing knowledge and socio-economic factors.

The receiver's external factors are need for knowledge, way of information seeking, readiness to change, and recipient to the new information while the internal factor is perception of the importance of the information, information interaction and involvement. More leeway, information providers (librarians) should understand how information receivers and users seek information, as this would enable them provide useful services, which in the field of information science is referred to as "information behavior" (INFO 200-Information Communities, 2020). According to OCLC (2020), all libraries irrespective of type, size and locations are learning much about this pandemic crisis, adapting their programs that satisfies changing needs of users and informing them. Okike (2020) reported the information dissemination roles of librarians during the COVID-19 pandemic era. Ali and Gatiti (2020) identified three major dimensions of the roles of LI professionals as:

- "promoting health awareness by creating and disseminating information that relates to preventive measures
- Support research by providing information regarding the latest developments, research and literature.
- Meet users core needs".

THEORETICAL FRAMEWORK

WILSON MODEL OF INFORMATION BEHAVIOUR (IB)

Wilson a British Information Scientist and key proponents of IB models, over decades has developed series of IB model, which constitute a generation theory recognized globally by scholars and researchers. However, the information behavior model adopted for the study is Wilson IB model developed in 1981. This model was adopted because it is more comprehensive and suits the research.

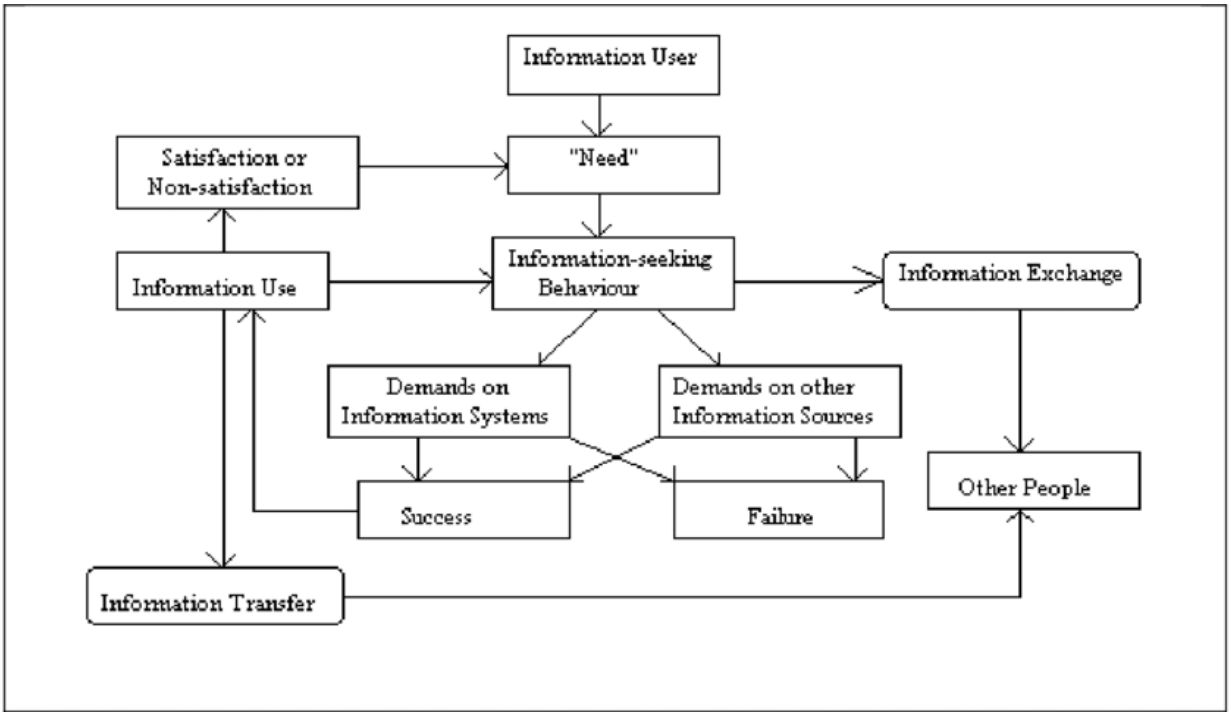

FIG.2: WILSON IB MODEL: Adopted from Wilson 1999, p.251

The model proposes that IB happens when an information need is recognized by an intended information user. Thus, to meet the information need, the information user seeks for relevant information from information system or other information sources, whether formal or informal sources. If the information sources are relevant to the information user, it is said that the search is found to be successful and the information user makes effective use of the information found. Hence, the information need may be fully or partially satisfied but, if the information sources are not relevant, it is assumed to generate into failure and dissatisfaction of the users information need. Appropriate use of information and satisfaction can lead to information sharing with others. That is, an aspect of information seeking behavior also include other persons via the sharing of information, who could also obtain information through exchange during the information seeking process while dissatisfaction or satisfaction may produce again, new information need . This model elaborated the relationship between information need, demand, seeking and dissemination.

We find this model relevant to our work at the information exchange juncture where the LI professionals are perceived as the information exchangers having found success or satisfaction with their COVID-19 information needs.

RESEARCH METHODOLOGY

The study adopted the quantitative cross-sectional descriptive research method to survey the COVID-19 information dissemination behavior of Library and Information (LI) professionals in Nigeria. The sample used for this study was 101 LI professionals. The sample represented the total number of responses received from a widely circulated online survey using Microsoft Forms. The instrument for gathering data was an online survey questionnaire designed by the researchers with Microsoft Forms. The questionnaire was administered to the participants through online platforms like Whatsapp and Facebook and respondents were given a period of 3 months; between May and August, 2020 to fill out the form. The observed low response rate despite active circulation of the questionnaire for 3 months conforms to previous reports on this mode of data collection as reported by Nulty (2008), Saleh and Bista (2017) and Harrison et al. (2019). Frequency counts, percentages and charts were used to analyze the received responses while multivariate regression was used to test the null hypothesis at 0.05 level of significance and P- value. The null hypothesis was rejected when the P- value indicated was less than the calculated.

RESULTS

Table 1: Socio-Demographic Characteristics of Respondents

Variable	Frequency	Percent
Gender		
Male	43	42.6
Female	58	57.4
Total	**101**	**100**
Educational Qualification		
NCE	3	3

HND	6	5.9
BLI/B.S	13	12.9
MLI/M.S	51	50.5
PhD	28	27.7
Total	**101**	**100**

Type of Library

Academic	81	80.2
None	1	1
LI Educator	5	4.9
National	3	3
Publishing firm	1	1
School	4	4
Special	6	5.9
Total	**101**	**100**

Socio-Demographic Characteristics of Respondents

A total of 101 Library and Information Professionals responded, out of which 42.6% were male while 57.4% were female, giving a ratio of 0.7:1. Majority of the respondents (50.5%) were Master's degree holders and 27.7% Ph.D. holders in LI respectively while 3% had National Certificate in Education (NCE). A large percent of the respondents were academic librarians (80.2%) followed by those who worked in special libraries (5.9%), LI educators (4.9%), school librarians (4%).

Table 4: COVID-19 Information Dissemination Attitude of LI Professionals

Frequency (percent)						
Item	**Agree**	**Strongly agree**	**Disagree**	**Strongly disagree**	**Neutral**	**Total**

I devoted time to share information on COVID-19 because I am a LI professional	54 (53.5)	32 (31.7)	6 (5.9)	1 (1)	8 (7.9)	101 (100)
I disseminated reliable information on COVID-19 pandemic	53 (52.5)	35 (34.7)	2 (2)	0 (0)	11 (10.9)	101 (100)
I fact-checked and corrected misinformation on COVID-19	62 (61.4)	25 (24.8)	5 (5)	0 (0)	9 (8.9)	101 (100)
I didn't share information on COVID-19 because there are enough channels of information on it already	10 (9.9)	2 (2)	59 (58.4)	15 (14.9)	15 (14.9)	101 (100)

From Table 4, it is deduced that respondents maintained positive attitude towards COVID-19 information dissemination as they agreed with devoting time to share COVID-19 information because they are LI professional (53.5%), disseminated reliable COVID-19 information (52.5%), fact-checked and corrected COVID-19 misinformation (61.4%). The result further revealed that the LI professionals actually shared information on COVID-19 as it showed that 58.4% disagreed with the question that "I didn't share information on COVID-19 because there are enough channels of information on it already."

Table 5: COVID-19 information dissemination channels used by Respondents

Frequency (percent)						
Variable	**Agree**	**Strongly agree**	**Disagree**	**Strongly disagree**	**Neutral**	**Total**
I circulated print posters, banners, bulletins and press releases on COVID-19 to people in my community	28 (27.7)	7 (6.9)	36 (35.6)	5 (5)	25 (24.8)	101 (100)
I used my personal social media platforms to disseminate COVID-19 information	49 (48.5)	37 (36.6)	9 (8.9)	1 (1)	5 (5)	101 (100)
I used my library's social media platforms to disseminate COVID-19 information	26 (25.7)	9 (8.9)	39 (38.6)	4 (4)	23 (22.8)	101 (100)
I used my library's website/blog to disseminate COVID-19 information	21 (20.8)	4 (4)	47 (46.5)	9 (8.9)	20 (19.8)	101 (100)

I used other approaches disseminate COVID-19 information	55 (54.5)	24 (23.8)	8 (7.9)	2 (2)	12 (11.9)	101 (100)
I didn't disseminate information on COVID-19	7 (6.9)	5 (5)	50 (49.5)	35 (34.7)	4 (4)	101 (100)

Table 5: Information Dissemination Channels of COVID-19

Table 5 reveals that the major channels used by library and informational professionals in disseminating COVID-19 information were print materials (27.7%), personal social media platforms (48.5%) and other approaches (channels) (54.5%), not specified. However, it was clear from the result that the LI professionals did not use much of print posters, their libraries' social media platforms and websites as more of the respondents disagreed with such notion at 35.6%, 38.6% and 46.5% respectively. The result further reinforced initial assertion that the respondents' indeed disseminated COVID-19 information as 49.5% and 34.7% disagreed and strongly disagreed respectively with "I didn't disseminate information on COVID-19".

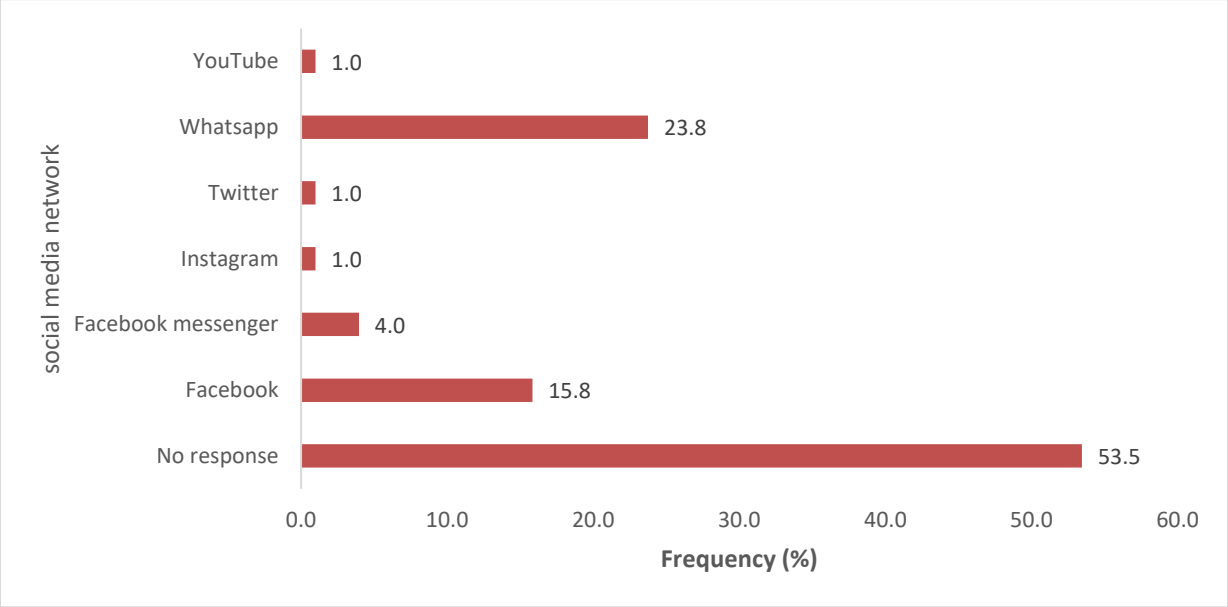

Figure 1: Social media Network mostly used by Respondents to Disseminate COVID-19 Information

Social Media Network Used to Disseminate COVID-19 Information

The result in figure 1 above shows that the LIPs majorly disseminated COVID-19 information on their personal social media platforms and using other approaches, the researchers tried to find out which of the social media networks used by the respondents. From figure 1 above, the social media

network majorly used by the respondents to disseminate COVID-19 information were: WhatsApp (23.8%) and Facebook (15.8%). Others platforms used were: Facebook messenger (4.0%), YouTube, Twitter, and Instagram had the lowest usage rate of 1.0% respectively. Curiously, a whopping 53.5% did not respond to this question.

Table 6: Type of COVID-19 Information Disseminated by Respondents

Frequency (percent)						
Variable	**Agree**	**Strongly agree**	**Disagree**	**Strongly disagree**	**Neutral**	**Total**
Local and national updates on COVID-19 from NCDC and other verified agencies like WHO	45 (44.6)	47 (46.5)	2 (2)	3 (3)	4 (4)	101 (100)
Information on librarians and Libraries activities in relation to COVID-19	44 (43.6)	19 (18.8)	11 (10.9)	4 (4)	23 (22.8)	101 (100)
Information on COVID-19 preventive measures	51 (50.5)	43 (42.6)	2 (2)	1 (1)	4 (4)	101 (100)
Information on COVID-19 drug and vaccine development	35 (34.7)	13 (12.9)	24 (23.8)	3 (3)	26 (25.7)	101 (100)
Information on lockdown and other government directives	52 (51.5)	34 (33.7)	4 (4)	0 (0)	11 (10.9)	101 (100)
Information on palliative measures and relief packages	38 (37.6)	14 (13.9)	19 (18.8)	2 (2)	28 (27.7)	101 (100)
Information on global COVID-19 issues	54 (53.5)	31 (30.7)	5 (5)	0 (0)	11 (10.9)	101 (100)
I didn't disseminate information on COVID-19	10 (9.9)	3 (3)	48 (47.5)	32 (31.7)	8 (7.9)	101 (100)

From Table 6, it can be seen that the major COVID-19 information disseminated were: local and national updates on COVID-19 from NCDC and other agencies (44.6%), librarians and libraries activities on COVID-19 (43.6%), COVID-19 preventive measures (50.5%), COVID-19 drugs and vaccine development (34.7%), lockdown and government directives (51.5%), palliative measures and relief packages (37.6%) and global COVID-19 issues (53.5%).

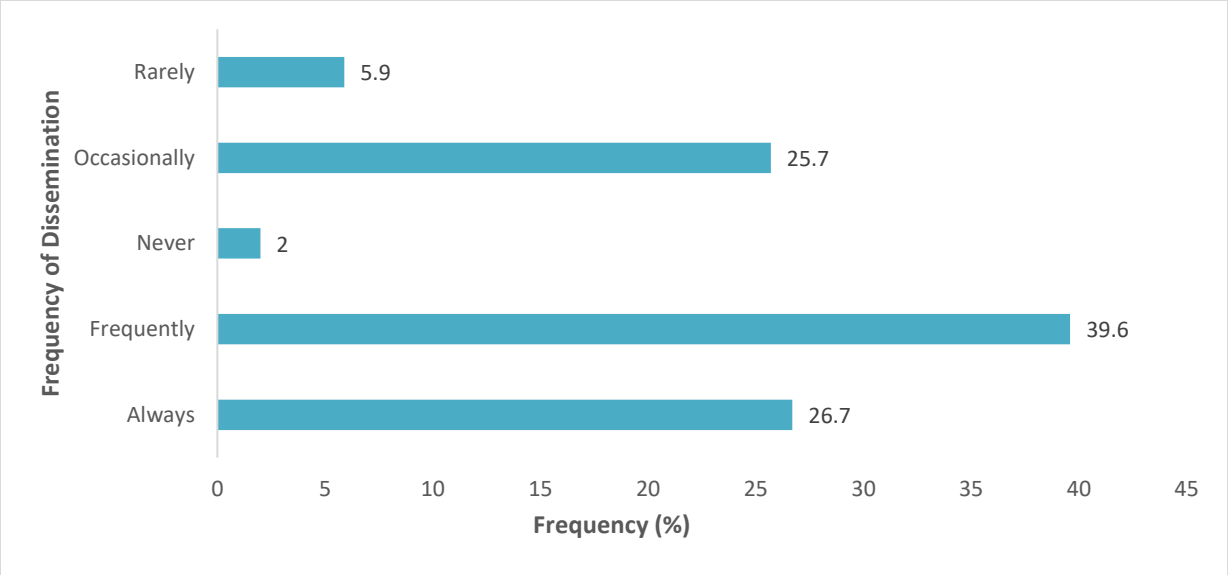

Figure 2: Frequency of COVID-19 Information Dissemination Practices of Respondents

Frequency of COVID-19 Information Dissemination Practices of Respondents

From Figure 2 above, it is clear that almost all the respondents disseminated COVID-19 information with exception of the 2% that indicated never. While many of them (25.7%) and more (26.7%) respectively occasionally and always disseminated COVID information, a majority (39.6%) indicated that they frequently did.

Table 7: Challenges of Disseminating COVID-19 information faced by Respondents

Frequency (percent)						
Variable	**Agree**	**Strongly agree**	**Disagree**	**Strongly disagree**	**Neutral**	**Total**
High internet data cost affected my COVID-19 information dissemination activities	26 (25.7)	31 (30.7)	27 (26.7)	6 (5.9)	11 (10.9)	101 (100)
Irregular electricity supply affected my COVID-19 information dissemination activities	33 (32.7)	22 (21.8)	24 (23.8)	8 (7.9)	14 (13.9	101 (100)
Lack of relevant devices such smart phone, tablets or laptops my COVID-19 information dissemination activities	13 (12.9)	7 (6.9)	55 (54.5)	16 (15.8)	10 (9.9)	101 (100)
Distractions from family members due to lockdown affected my COVID-19 information dissemination activities	17 (16.8)	8 (7.9)	49 (48.5)	16 (15.8)	11 (10.9)	101 (100)

COVID-19 information overload affected my COVID-19 information dissemination activities	29 (28.7)	7 (6.9)	39 (38.6)	7 (6.9)	19 (18.8)	101 (100)
Boredom and lack of physical activities due to lockdown affected my COVID-19 information dissemination activities	17 (16.8)	6 (5.9)	52 (51.5)	14 (13.9)	12 (11.9)	101 (100)
Fear and emotional distress	20 (19.8)	4 (4)	50 (49.5)	15 (14.9)	12 (11.9)	101 (100)

The major challenges LIPs faced in disseminating COVID-19 information were high internet data cost (30.7%) and irregular electricity supply (32.7%). However, the respondents disagreed with the following as challenges to disseminating COVID-19 information: "Lack of relevant devices such smart phone, tablets or laptops my COVID-19 information dissemination activities" (54.5%), "Distractions from family members due to lockdown affected my COVID-19 information dissemination activities" (48.5%), "Boredom and lack of physical activities due to lockdown affected my COVID-19 information dissemination activities" (51.5%), fear and emotional distress (49.5%). Although, "COVID-19 information overload affected my COVID-19 information dissemination activities" was relatively perceived as a challenge (28.7%), a lot more (38.6%) disagreed it was.

Hypothesis Testing

Before the test of significance, the dataset was examined for multi-collinearity using the Variance Inflation Factor (VIF) diagnostic check. The results showed that multi-collinearity was absent among the independent variables with VIF equal to 1.058, 1.074 and 1.037 for gender, educational qualification and type of library, respectively. Hence the three variables were qualified for the test of significance. The Multivariate regression model was used to test the hypotheses based on its merit as a powerful test of significance when considering multiple dependent and independent variables simultaneously.

Table 10: Demographic Information of Respondents and their COVID-19 information Dissemination Attitude

			95% CI	
Variables	**B**	***P* value**	**Lower**	**Upper**

I devoted time to share information on COVID-19 because I am a LI professional				
Gender	-0.597	**0.023***	-1.111	-0.084
Educational Qualification	0.146	0.281	-0.122	0.414
Type of Library	0.001	0.979	-0.096	0.099
I disseminated reliable information on COVID-19 pandemic				
Gender	-0.279	0.329	-0.843	0.286
Educational Qualification	0.126	0.397	-0.168	0.42
Type of Library	0.04	0.454	-0.066	0.147
I fact-checked and corrected misinformation on COVID-19				
Gender	-0.338	0.207	-0.866	0.19
Educational Qualification	0.278	**0.047***	0.003	0.554
Type of Library	0.062	0.221	-0.038	0.162
I didn't share information on COVID-19 because there are enough channels of information on it already				
Gender	-0.407	0.12	-0.92	0.107
Educational Qualification	0.291	**0.034***	0.023	0.559
Type of Library	0.056	0.26	-0.042	0.153

B: Coefficient of regression; *: *p* value < 0.05; 95% CI: 95% Confidence Interval

H_0: There is no significant relationship between demographic information of LI professionals and their COVID-19 information dissemination attitude

The first construct in table 10 shows that respondents' gender significantly influenced their dissemination attitude of devoting time to share information on COVID-19 because of being LI professionals (*P*-value = 0.023, *B*: -0.597, [95% CI: -1.111 – -0.084]). In the third and fourth constructs, the educational qualification of respondents had a significant impact on respondents' dissemination attitude of fact-checking and correcting misinformation on COVID-19 (*P*-value = 0.047, B: 0.278, [95% CI: 0.003 – 0.554]); and not sharing information on COVID-19 because

there were enough channels of information on it already (*P*-value = 0.034, B: 0.291, [95% CI: 0.023 – 0.559]).

Discussion of Findings

The demographic data of respondents reveal that female respondents were more than the male. A cursory observation of some research indicates that females respond to questionnaire than males. Majority of the respondents were Master's degree holders. This relates with the study of Ishtiaq, Sehar and Shahid (2020) where 65.5% of their respondents were MLIS degree holders. A large percent of the respondents were academic librarians followed by special librarians and library educators while school librarians had the lowest response rate.

The result of research question one shows that LIP had positive attitude towards COVID-19 information dissemination behavior. This result corresponds with the prior research on information dissemination behavior. In a study by Shi et al. (2018) titled, "Determinants of users' information dissemination behavior on social networking sites: An elaboration likelihood model perspective", they found that informativeness and informational social influence affected twitterers' information retweeting decision. It can also be explained from the findings of Dempsey (2010) that "the need to be individualistic, the need to be altruistic, and the consumption of online content all have positive impacts on individual EWOM forwarding behavior". Where fact-checking information can be altruistic and informational social influence, disseminating COVID-19 information because of being an LI professional can be both seen from the informativeness and altruistic viewpoints.

Research question two reveals that the major channels used by library and information professionals in disseminating COVID-19 information were social media platforms, print materials and other channels. It specifically agrees with Chukwuyere et al. (2020) where they found that social media could be used by librarians to disseminate information on COVID-19. According to Idubor, Elogie and Ikenwe (2016) social media have huge potentials to promote information dissemination. The finding also aligns with the outcome of the report of Chan et al. (2020) who used two social media platforms, Twitter and WeChat to disseminate a carefully designed infographic on the principles of managing airways for the control of staff infection and safety and patients in relation to COVID-19 in their tertiary hospital in Hong Kong. They reported thousands of Twitter retweets and website page views just few weeks after posting the infographic

with several requests for reuse in context-specific situations from places across many regions of the world. The result also corroborates Daudu & Mohammed (2013) who reported that newspapers, journals, events, and mass media outlets are the channels of disseminating information.

The finding also reveals that the social media network mostly used by LIP to Disseminate COVID-19 information were WhatsApp and Facebook. Curiously, a whopping 53.5% did not respond to this question. This may not be unconnected with social media fatigue pointed out by Islam et al. (2020). Bright, Kleiser and Grau (2015) described social media fatigue as the "persistent impulses to back away from social media due to information and communication overload". Notwithstanding, the result agrees with Brown, Cheung & Riedi (2017) who reported that social media is a vital channel used in information dissemination because information is valuable and ultimate interest to human. The study also conforms to Ishtiaq, Sehar and Shahid (2020) finding that most Pakistani librarians used Facebook to disseminate information. The findings corroborate other reports that WhatsApp was used by world organizations and governments to disseminate COVID-19 information. It specifically agrees with the findings of Liu and Tong (2020) which suggested that messenger apps such as WhatsApp "may be an effective medium for disseminating pandemic-related information, allowing official agencies to reach a broad sector of the population rapidly". According to Chan et al., 2020, Sahni and Sharma, 2020, responsible use of social media has the potential of disseminating general health information to check the spread of the virus. According to Duong et al. (2020), social media saves time sharing new findings and unusual case reports.

From research question three, it can be seen that the major COVID-19 information disseminated were: global COVID-19 issues, lockdown and government directives, COVID-19 preventive measures, local and national updates on COVID-19 from NCDC and other agencies, librarians and libraries activities on COVID-19, COVID-19 drugs and vaccine development, palliative measures and relief packages. Cinelli et al. (2020) had reported that Italians used social media to spread the news on government's plan to restrict movement in the city of Lombardy and that such preemptive activity over the unmediated channels did not make the lockdown on the city effective in stopping the spread of the virus. Moreover, to indicate that these diverse kinds of information were disseminated about the pandemic is to agree with the assertion of Okike (2020) that librarians are

furnished to communicate important information along the needs evaluation of numerous groups of people including those affected in a pandemic situation as this.

The major challenges faced by LIP in disseminating COVID-19 information were high internet data cost and irregular electricity supply. Fasae and Adegbilero-Iwari (2016) reported that poor internet access is the principal challenge faced by respondents of their study in using mobile devices for educational purposes. High cost of internet data is a well reported case in Nigeria which according to Okonji (2019) compelled the country's Minister of Communication to direct all Telcommunications to reduce the price of internet data last year. It is not certain if such directive had been complied with. Similarly, Nigeria has a long history of poor or epileptic electricity supply to its teeming populace.

The test of null hypotheses shows that respondents' gender significantly influenced their information dissemination attitude of devoting time to share information on COVID-19, and their educational qualification had significant impact on respondents' dissemination attitude of fact-checking and correcting misinformation on COVID-19 and not sharing information on COVID-19. The result is comparable to previous studies which reported that 'social bind has positive impact on the opinion-passing behaviour users' (Sun et al, 2006; Choi et al, 2007) or intention to share news (Ma et al., 2014). However, previous studies especially on information dissemination in social networks have described the effect of cognition results and emotional reactions on information dissemination (Bagozzi and Dholakia, 2002; Wheeless and Grotz, 1976 and Barnes and Olson, 1985). Emotions and behaviour of participants of social networks which affect their opinion formation have been reported by Hu et al. in 2015 as part of the many factors that affect the information dissemination behaviour of people. They further stated that socio-cultural background and emotions of information disseminators affect cognitive process which in turn affects their dissemination practices. Relatedly, Hu et al. (2015) reported that cognition and group behaviour of participants in social networks affect information dissemination of public health emergency. Additionally, Shi, Hu, Lai and Chen, (2018) found informativeness and informational social influence to affect information dissemination decisions such as retweeting by individuals on social network, Twitter. Our result is separate from these findings thus making our work to contribute some knew knowledge on the subject.

Conclusion and Recommendations

The findings of this study are pivot to government, researchers and LIPs globally. In Nigeria, LIPs disseminated covid-19 information, fact-checked, corrected misinformation and provided update information majorly through Facebook and WhatsApp channels. The study concluded based on the finding that a significant relationship exists between LIPs demographic information and their attitude towards information dissemination, which to an extent determines how much information they share. Thus, LIPs level of information dissemination on the pandemic is influenced by their gender and educational level amongst others.

Therefore, the recommendations arising from this study are given below:

1. Library and information professionals should always show commitment to their professional calling at all times especially in the times of crises.
2. Library and information professionals should see themselves as critical stakeholders in the fight against infodemic and fake news by disseminating accurate information on prevailing subjects of public interest.
3. Library and information professionals should be considered by governments and their agencies as critical partners in the spreading of credible information to the public during health and other emergencies like this.
4. Library and information professionals in Nigeria should leverage more digital channels to reach and serve their users base.

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