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Appraisal of indigenous language risk communication intervention for COVID-19 in Lagos state

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ABSTRACT

This study sought to identify the language use, pattern of themes, and context of utterances used in risk communication messages for COVID-19 in Lagos State, Nigeria. COVID-19 pandemic poses a threat to the sustainability of public well-being globally. Hence, risk communication is becoming a plausible tool in curbing the spread of the virus. Existing studies have largely focused on clinical analysis for Covid-19, to the neglect of indigenous language risk communication interventions. In addition, to determine whether perceived panic resulting from exposure to indigenous language information on COVID-19 cases interferes with respondents' comprehension of risk communication messages in Lagos state. The study employed the mixed methods of content analysis and survey to examine three indigenous language jingles. Four hundred respondents were also randomly selected for this study. The study found that indigenous language risk messages focused majorly on preventive measures while paying minimal attention to important factors such as COVID-19 causes, symptoms, and curative measures. Furthermore, the study revealed that unwholesome risk perceptions led to 52.8% of respondents paying little attention to indigenous language risk managers. Thus, the study advocates for the adoption of the COVID-19 Risk Communication Phases Model developed during the study.

Contribution/Originality: The study advanced the phase model, which provides specific guidelines for risk perception and risk communication in each stage of a public health emergency, with a focus on disease awareness, prevention, cure, risk perception, and risk management for future outbreaks.

1. INTRODUCTION

In view of the public health emergencies ravaging the 21st century global health scene, the communication terrain is becoming an infallible player in curtailing threats to social well-being. Irrefutably, communication has become the core of curtailment strategies utilized with regards to health-related risk management efforts (Varghese et al., 2021). People constantly conceptualize communication as the conveyance and exchange of information, facts, and ideas via a media channel to an individual, a group, or a heterogeneous audience. Taylor and Bean (2019) similarly posit that communication constitutes the common exchange and understanding of a message between the source and the receiver. During public health emergencies, communicative efforts constitute communication interventions aimed at dousing unnecessary morbidity and mortality-related agitations regarding prevalent health crises. Hence, information-sharing is vital for disease prevention, behavioural modification, and intimating publics with disease-related facts (i.e., symptoms, modifications, and ways of managing susceptibility).

Essentially, all communication interventions aimed at declining morbidity and mortality rates as well as informing the public of risks inherent in disease are risk communication (Heydari et al., 2021). Risk communication for disease outbreaks can be conceptualized as the totality of all exchange, mediation, and dissemination of information, messages, advice, statistics, and curtailment tactics regarding a prevalent health crisis between health experts and groups susceptible to a particular health crisis (Akande et al., 2023). It includes a totality of communication activities required for the preparation, outbreak management, and occlusion phases of a public health distress; the communication capacities focus on encouraging rational decision-making, constructive behavioural modifications, and trust building (Toppenberg-Pejcic et al., 2019). Risk communication interventions constitute the communicative strategies employed by health enthusiasts and public health institutions in relating prevalent disease-related risks, data, symptoms, prevention tactics, possible cures, and susceptibility information to specific groups where such diseases are domiciled (Varghese et al., 2021).

The goal of risk communication intervention is curtailment and, most importantly, behavioural modification regarding the disease. Similarly, Zhang and Cozma (2022) opine that risk communication strategies for public health emergencies are focused on enabling knowledge and practices capable of preempting disease infection amongst individuals. Scholarly corroborations also show that risk communication efforts are aimed at enhancing wholesome preventive practices, reinforcing disease awareness, and establishing health risk perception levels amongst individuals in disease-prevalent regions (Akarika, Kierian, & Ikon, 2020; Kalu, Abumchukwu, & Nwachukwu, 2020; Kim & Kreps, 2020). Hence, risk communication is crucial in enhancing acquaintance with and observance of diseases preventive measures in normal situations and health emergencies alike (Varghese et al., 2021).

Regardless of the diversity of communication channels at the disposal of risk communicators, there is a need to effectively target and disseminate information to a vast public-base and the outbreak region at large. Safarpour, Farahi-Ashtiani, Pirani, Nejati, and Safi-Keykaleh (2020) assert that effective risk communication not only brings about a decline in the risk of misbehaviour, i.e., excessive hospital visits, consumption of fake information, and discrimination against patients, but also enables the utilization of authentic information sources for information-seeking and consumption amongst individuals of infected regions (Akarika et al., 2020). Amidst public health emergencies such as the current COVID-19, inadequate risk communication interventions pose a threat to dousing morbidity and mortality crises. Hence, effective risk communication entails precision and transparency of messages, disconfirmation of fake information, dissemination of authentic facts, communicating contacts of approved public health agencies to individual, and stabilizing risk perception amongst individuals within the affected region. Similarly, Saleh, Lehmann, McDonald, Basit, and Medford (2021) establish that effective risk communication is managing and altering public opinion or behaviour, and is vital in limiting transmission, preserving health resources, and reducing any tendencies of overburdening the healthcare system's capacity.

Consequently, to engender effectiveness of risk communication interventions, risk messages should be disseminated to the society in a transparent and immediate manner, in an effort to mitigate the ignorance or disinformation and motivate positive behavioural adjustments amongst the public in crisis periods. Varghese et al. (2021) also advise that risk communication messages should be decipherable for the public to assimilate and adhere to risk-based instructions, as trust in the risk communicator is crucial for efficacy of risk intervention efforts.

As the need to safeguard public health heightens, risk communication is becoming a major resort in the event of health crises management, as seen in the case of the current COVID-19 pandemic. Corona Virus Disease (COVID-19) is a communicable respiratory ailment characterized by a family of viruses responsible for fever-related illnesses such as common cold and more onerous diseases such as Middle East Respiratory Syndrome (MERS-CoV) and severe acute respiratory syndrome (SARS-CoV). The first documented case of coronavirus appeared in 1960, leading to the death of over a thousand patients in 2003. However, it only became recognized by the World Health Organization (WHO) as a pandemic in December 2019 following the first millennial case in Wuhan, China, on the 31stof January 2019 (Kumar, Malviya, & Sharma, 2020).

As a result of morbidity and mortality statistics of 118,319 and 4,292, respectively, on March 11TH, 2020 the World Health Organization (WHO) declared the COVID-19 health emergency outbreak a pandemic and emphasized the need for world-wide governmental commitment in curtailing the pandemic by prescribing the use of Non-Pharmaceutical Interventions (NPI's), global restrictions on movement, and risk communication interventions as a tool for curbing its spread (Bernardin, Martínez, & Perez-Acle, 2021).

Moreover, subsequent research and experiments have led to the development of Pharmaceutical Interventions (PI's), causing the World Health Organization (2021) to endorse the AstraZeneca/Oxford for global use (World Health Organization, 2021). Also, there has been subsequent approval of new vaccines such as the Johnson and Johnson, Moderna, Pfizer/BioNTech Sinopharm, Sinovac, COVAXIN, Covovax, and Nuvaxovid vaccines leading, to the development of an Emergency Use Listing (EUL) by WHO as of January 2022 (World Health Organization, 2021). To this end there have been scholarly advocacies for the utilization of these COVID-19 vaccines, stating that the use of these vaccines would lead to an evident decline in future occurrences of COVID-19 infections (Liu et al., 2020).

Despite the availability of these COVID-19 vaccines, there have been suspected increases in vaccine hesitancy among different populations globally. Uzochukwu et al. (2021) submit that the COVID-19 vaccine hesitancy emanates from perceptual beliefs bordering on the efficacy and side effects inherent in the released vaccines. Unfortunately, the prevalent vaccine hesitancy globally poses a threat to declining global COVID-19 mortality and morbidity rates (Alhassan, Owusu-Agyei, Ansah, & Gyapong, 2021). The African continent has shown a greater prevalence of this hesitancy. Mutombo et al. (2022) similarly posit that a 67.8% percentage of sub-Saharan Africa residents are unaccepting of the COVID-19 vaccines as a result of socio-political, socio-cultural, and religious influences. Consequently, the inherent vaccine hesitancy in Africa would result in heightened COVID-19 mortality and morbidity rates (Aborode et al., 2021). Forthwith, the increased vaccine hesitancy has been traced to inadequate risk communication. In effect, the United Nations admits that effective communicative interventions are a plausible tool for dousing the challenge of COVID-19 vaccine hesitancy in Africa.

As risk communication plays a crucial role in altering negative perceptual states as regards COVID-19, Merkley and Loewen (2021) submit that risk communication efforts constitute a substantial part of solutions for curbing the present pandemic, particularly when they are effective. Consequently, this research work seeks to evaluate risk communication intervention strategies for COVID-19 in Lagos State using the premise of planned behaviour and the risk communication models of Covello as a theoretical foundation as a tool for discourse. This appraisal would enable the modification of existing intervention strategies, provide solutions to the teeming communication issue, and combat a potential rise in morbidity and mortality as regards COVID-19. Nonetheless, the overall essence of this research is to evaluate the risk communication interventions on COVID-19 prevention and control in the nation's epicentre, Lagos State. Therefore, to provide a guide for this study, this research seeks to determine the language use and pattern of themes used in COVID-19 risk communication messages in Lagos State; examine how perceived panic resulting from exposure to indigenous information on COVID-19 outbreaks interferes with the respondents' comprehension of COVID-19 risk communication messages in Lagos State. Lastly, the study will identify the influence of subjective norm on the respondents' behavioural intentions towards COVID-19 prevention and control in Lagos State.

Findings of the research would be significant in contributing to existing research relating to risk communication and COVID-19, thereby providing empirical evidence for imminent research relating to the subject matter. Also, the study would be instrumental to the realization of SDG 3- Good Health and Well-being; it shall be significant to the extent of Target 3.3 and 3.D, which focuses on ensuring reduction of non-communicable diseases-based deaths and enabling capacity building for the public health sector of developing countries for timely detection & cautioning, risk mitigation, and management of nationwide and worldwide health risks, respectively. This investigation would be

significant in providing a framework for health-related organizations and institutions, as well as the Lagos State Ministry of Health, in the modification and development of further policies and risk communication strategies.

2. METHODOLOGY

2.1. Research Design

The study adopted a mixed-method approach through the use of both qualitative and quantitative methods. The qualitative approach utilized content analysis. The content analysis employed jingles for COVID-19. A similar study carried out on COVID-19 non-pharmaceutical intervention portfolio effectiveness and risk communication predominance by Chan, Yuan, and Convertino (2021) utilized the content analysis design, avowing its ability to identify the thematic properties inherent in COVID-19 risk media messages. Similarly, content analysis was relevant to this study as it identified the linguistic properties of frequently used expressions, the organisation of social interactions and situations in which they are used, and the cognitive, expressive, social, and textual competence of those who use them, enabling the researcher's insight into use of language, thematic slants, and the contexts of the jingles and the verbal expressions disseminated by the Lagos State Ministry of Health for COVID-19 risk communication. The analysis explored the risk messages ability to enhance adequate knowledge of COVID-19 capable of influencing audience decision-making.

The study, which was quantitative in nature, utilized the survey research design. Venkatraman and Manoharan (2023) utilized the quantitative survey design in a study conducted to assess public perceptions of public health communication during COVID-19 in India. The scholars assert that the quantitative data gave "measurable and statistically-based insight" into specific variables related. The study's primary focus on quantitative aspects necessitates the use of the survey method, which gathers data from a representative human population to evaluate quantifiable and statistical outcomes. Survey is crucial to this study as it is considered appropriate for collating public opinions regarding the research questions. Due to the vast nature of population of study, the survey method enabled the researcher to select a manageable sample within the population as representative of the entire population. This method allowed the researcher to ask the respondents a large number of questions that contribute to answering the research questions. In all, respondents were able to respond freely to the questions without any form of intrusion to enable the researcher to infer and predict the feedback of the total population with the data obtained from the sample.

2.2. Research Population

The content population Nigerian pidgin-English (NPE), Igbo, and Yoruba jingles for COVID-19 risk communication disseminated via media stations within Lagos state from the year 2020 to 2021. Mass media channels are regarded as well-utilized mediums of communication. Hence, it was expected that mass media risk communication messages in Lagos State would be accessible to the majority of the residents as a reliable source of insight into COVID-19 facts.

Lagos State, Nigeria, constitutes the selected population of study. The Southwestern geopolitical zone of Nigeria houses Lagos State, known as the "Center of Excellence." The state is ranked the 3rd most populous in Nigeria with an estimate of 9,013,534 million people, according to the NPC (2006). Lagos is considered the multicultural melting pot of Nigeria and West Africa at large (Olaniyan-Shobowale, Bamiro, Salau, & Yahya, 2021). The selection of Lagos was premised on the reoccurring cases of COVID-19 in the region such that it is regarded as the nation's epicenter (Osikomaiya et al., 2021). Lagos State consists of 20 Local Government Areas (LGA's). The human population covered both literate and semi-literate residents of Lagos State within the age range of 18-50 years. The justification for this set of respondents was premised on respondents' ability to offer responses autonomously, thereby mitigating the tendency for undue interference, which might negatively affect the objectivity of study participants responses (Köhler, Smith, & Bhakoo, 2022).

2.3. Sample Size

The sample for content analysis consisted of 3 jingles purposefully selected for the study. The 3 jingles comprised Nigerian Pidgin-English (NPE), Yoruba, and Igbo languages, which were retrieved from the respective sources in a bid to ensure adequate representation of the indigenous languages spoken in Nigeria.

The choice of the languages is predicated on their recognition as ethnic codes of communication and markers of identity and solidarity, especially in Lagos, which is regarded as a heterogeneous state where Nigerians from almost every ethno-linguistic group are well represented (Akande et al., 2023). The quantitative sample size for this study consisted of the 3 major COVID-19 epicenters within Lagos state. Statistical evidence retrieved throughout the four waves of COVID-19 in Lagos State consistently depicts Eti-Osa, Lagos Mainland, and Alimosho as the major Local Governments Areas (LGA's) with the highest records of COVID-19. These statistical evidences includes data from news sources and the Lagos State Ministry of Health.

2.4. Eti-Osa Local Government Area

Eti-Osa Local Government Area has a population of 283,791, which represents 3.11% of the state's population, according to the official 2006 Census (NPC, 2006).

2.5. Alimosho Local Government Area

Alimosho LGA is located in the Ikeja Division of Lagos State, Nigeria, with an estimated population of 1,288,714 persons constituting 11.21% of the state's population (NPC, 2006). It is considered the largest LGA in Lagos (NPC, 2006).

2.6. Lagos Mainland Local Government Area

Lagos Mainland LGA has a population estimate of 317,980, constituting 2.77% of states population, according to the official population census of 2006 (NPC, 2006).

Based on population figures, we proportionately selected the total sample size for the survey from the three major epi-centers within Lagos State. For accuracy, the sample size selection was based on the Taro Yamane sample size determination formula as well as postulation of Wimmer and Dominick (1987) which states that a sample size less than 200 is fair while 300-500 is good.

Taro Yamane Formula;

$$n = \frac{N}{[1 + N(e)2]}$$

$$n = \frac{9{,}013{,}534}{[1 + \ 9{,}013{,}534\ (0.5)2]}$$

$$n = 399.9$$

$$n \cong 400$$

Formula for Survey Size Distribution;

Eti-Osa Population= 283,791.

Alimosho Population= 1,288,714.

Lagos Mainland Population= 317,980.

Total Sample Frame = 1,890,485.

SOURCE: (NPC, 2006).

∴

Eti-Osa Population $= \frac{283{,}791}{1{,}890{,}485} \times 400 = 60$.

Alimosho Population $= \frac{1,288,714}{1,890,485} \times 400 = 273.$

Lagos Mainland Population $= \frac{317,980}{1,890,485} \times 400 = 67.$

∴ Total Sample Size= 400.

Following the calculations presented, the survey instruments were distributed proportionately across survey respondents within the sample size.

2.7. Sampling Technique

The sampling techniques entail the approach used in arriving at the final sample size for the content analysis as well as the survey.

2.8. Selection of Jingles for Content Analysis

The researcher utilized the purposive sampling method in the selection of the jingles used for this study. Only Nigerian Pidgin-English (NPE), Yoruba, and Igbo jingles for COVID-19 risk messages disseminated from year 2020 to 2021 were purposively selected.

2.9. Selection of Survey Respondents

At the initial phase of the sampling procedure, 3 epi-centers within Lagos state selected purposively selected to effectively capture respondents suited for the study. These epi-centers, as mentioned earlier, include: Eti-Osa, Lagos Mainland, and Alimosho. Subsequently, the simple random sampling technique was employed to delimit each epi-center to their respective proportions within the sample size.

1. Alimosho Local Government Area (LGA) Sampling Process: The multi-stage sampling was employed to delimit the entire Alimosho LGA to a manageable sample size. Hence, at the first stage, the simple random sampling process was employed to randomly select two (2) of the eleven (11) constituent wards within Alimosho LGA, i.e., Abule-egba/ Meiran/Alagbado, Ayobo/Ijon Village (Camp David), Egbe/Agodo, Egbeda/Alimosho, Idimu/Isheri Olofin, Igando/Egan, Ikotun/Ijegun, Ipaja North, Ipaja South, Pleasure/Oke-odo, and Shasha/Akowonjo. At the second stage, the 2 selected wards were delineated to 2 streets each, resulting in a total of 4 streets using the simple random sampling process. Lastly, systematic sampling technique was used in selecting the 273 respondents, proportionately apportioned to Alimosho from their residential houses.
2. Lagos Mainland Local Government Area (LGA) Sampling Process: The multi-stage sampling was utilized to delineate the entire Lagos Mainland LGA to a manageable sample size. Hence, in the first stage, 2 wards were randomly selected from the LGA 11 constituent wards, i.e., Alagomeji, Epetedo, Glover/Ebute Metta, Iwaya, Maroko/Metta, Oko-Baba, Olaleye Village, Otto/Iddo, Oyadiran Estate/Abule-Oja, Oyingbo Market/Metta, and Yaba/Igbobi. At the second stage, the 2 selected wards were delineated to 2 streets each, resulting in a total of 4 streets using the simple random sampling process. Lastly, systematic sampling technique was used in selecting the 67 respondents, proportionately apportioned to Lagos Mainland from their residential houses.
3. Eti-Osa Local Government Area (LGA) Sampling Process: The multi-stage sampling was employed to delimit the entire Eti-Osa LGA to a manageable sample size. At the first stage, the simple random sampling process was employed in selecting two (2) of the ten (10) constituent wards, i.e., Ado/Langbasa/Badore, Ajah/Sangotedo, Ikoyi I, Ikoyi II, Ilado/Eti-Osa, Ilasan Housing Estate, Lekki/Ikate, Obalende, Victoria Island I and Victoria Island II. Subsequently, the 2 selected wards were delineated to 2 streets each, resulting in a total of 4 streets using the simple random sampling process. Lastly, systematic sampling technique was used in selecting the 60 respondents, proportionately apportioned to Eti-Osa from their residential houses.

The Dominick and Wimmer (2003) random selection matrix for respondents was employed in the systematic selection of respondents from their households.

3. METHOD OF DATA ANALYSIS

The data retrieved from the jingles were interpreted and analysed through content analysis using the descriptive method to ascertain the messages ability to promote knowledge of COVID-19, engender risk perception, and promote preventive behaviour through analysis of language constituents used to generate meaning. Survey was analysed descriptively. Percentages, frequency distribution tables, and descriptive statistics were used to present data and aid proper interpretation of data collected in order to achieve the study objectives.

3.1. Validity and Reliability

Also, the validity of the research instrument was subjected to face and content validity, while Cronbach alpha was used for the reliability of the study instrument. Furthermore, a pilot study to establish the validity and reliability of the instrument was conducted. Sixty copies of the questionnaire, which represent 10% of the total number of respondents, were administered to respondents in the Ota, Ado-Odo Local Government Area of Ogun state. Baker (1996) recommended a 10% sample size for the pilot study. The pilot result shows that data were normally distributed.

4. RESULTS

4.1. Qualitative Data Presentation for Content Analysis

This section covers data retrieved from the analysis of 3 COVID-19 indigenous language jingles in Lagos State. Languages of the selected jingles are Nigerian Pidgin-English, Igbo, and Yoruba, respectively.

4.2. Language Usage in Lagos State COVID-19 Jingles

The analysis of language use in the selected COVID-19 jingles focused on the vocabulary styles and message tone adopted in the messages.

4.2.1. Vocabulary Styles

Results on the vocabulary use indicate the following:

i. Utilization of Semi-Pidgin English as a vocabulary style in Pidgin COVID-19 Jingle: It was observed that the analysed COVID-19 jingle utilized semi-English Pidgin in the message. There is a use of pure English phrases and expressions in the message, which might be as a result of the nature of the message (i.e., health communication). There might be a need to explain certain terms with exactitude. However, this could potentially pose a threat to illiterate audiences who may not be familiar with these English expressions. For example, it is better to survive than cry; *keep social distance and practice good hygiene in your house and surroundings; contact any of the Nigeria Centre for Disease Control (NCDC) officials sharp sharp!* (Jingle 1, Line 14).

ii. Dominance of Instructive Vocabulary Style: It was observed that announcers of the three jingles utilized an instructive vocabulary style in messages where they majorly indicated what listeners should do, particularly in the area of COVID-19 prevention.

4.2.2. Message Tone

i. Tone of Urgency: It emphasize the COVID-19 risks and heighten audience risk perception, the announcers of the three COVID-19 jingles used an urgent tone. Varying degrees of urgency are observed in the three jingles. The urgent tones in the jingles were denoted by a combination of variations in voice pitch and exclamations, thus creating more importance for certain instructions than others. For example, immediately commence the use of

hand sanitiser and *contact any of the NCDC officials. Always use soap and water to wash your hands. To remain in good health, ensure you make use of hand sanitisers and face and nose masks and avoid crowded gatherings.*

ii. Emphatic Tone: The announcers utilized increased levels of stress for certain expressions to heighten emphasis. Certain utterances made by the speakers denoted emphasis so as to retain listeners attention and interest. The speakers placed greater emphasis on describing the dangers associated with COVID-19 at the beginning of each announcement. For example: *Coronavirus is a deadly disease; safeguard yourself and loved ones from the virus; anybody who says coronavirus disease is not real must have a rethink because it is real; Covid-19 is real, do what you should do to protect yourself.*

4.3. Thematic Patterns in COVID-19 Jingles

The following themes were used as frameworks for the interpretation of the COVID-19 jingles.

4.3.1. Existence and Danger of COVID-19

Results indicate that announcers of all jingles established the reality and danger of COVID-19 in specific message lines. Excerpts from the jingles that highlight the existence & danger of COVID-19 include the following: *Coronavirus is a deadly disease that kills the rich, the poor, the young, and the old; Coronavirus is very real, but in unity we will overcome this deadly disease.*

4.3.2. Proper Hygiene as a Means of COVID-19 Prevention

Another theme depicted in the selected jingles is the adoption of proper hygiene as strategy for combatting COVID-19. Excerpts from the jingles that highlight this include the following: *Wash your hands always with soap and water or apply hand sanitizers in the absence of soap; ensure you keep your homes and surroundings clean.*

4.3.3. Social Distancing, Hand Sanitizers & Use of Protective Masks as a Means COVID-19 Prevention

The practice of social distancing & use of face masks is prescribed as a means of COVID-19 prevention by the announcers. Excerpts from the jingles that highlight this include the following: *keep your social distance, and when you are sneezing or coughing, sneeze into the inside of your elbow; to safeguard yourself, follow instructions from the government that mandates you to stay home and stay safe.*

4.3.4. Treatment Strategies For COVID-19

Treatment strategies stated in the Jingles focused on self-isolation and contacting appropriate authorities for treatment. Excerpts depicting treatment strategies for COVID-19 include *Calling the Nigeria Centre for Disease Control (NCDC) immediately if you have symptoms or observe symptoms from people around you.*

4.4. Quantitative Data Presentation

Table 1 implies that most of the respondents in all the age brackets were from Alimosho LG, some from Etiosa LG, and very few from Ikeja LGA. The breakdown of the descriptive data shows that from the 261 male respondents, 189 (47.2%) were from Alimosho LG, 31 (7.8%) were from Etiosa LG, and 41 (10.2%) were from Ikeja LG. Meanwhile, the table also depicts that from 139 female respondents across the three (3) selected local governments, 89 (22.2%) were from Alimosho LG, 29 (7.2%) were from Etiosa LG, 21 (5.2%) were from Ikeja LG. The data presented shows that out of 400 total respondents, 169 respondents were single, out of which 121(30.2%) were from Alimosho LG, 17 (4.2%) were from Etiosa LG, and 31 (7.8%) were from Ikeja LG.

Table 1. Demographic characteristics of respondents.

Age	LG			Total
	Alimosho LG	Etiosa LG	Ikeja LG	
Below 20 years	11 (2.8)	4 (1.0)	0 (0.0)	15 (3.8)
20-30 years	99 (24.8)	40 (10.0)	62 (15.5)	201 (50.2)
31-40 years	110 (27.5)	4 (1.0)	0 (0.0)	114 (28.5)
41-50 years	48 (12.0)	10 (2.5)	0 (0.0)	58 (14.5)
Above 50 years	10 (2.5)	2 (0.5)	0 (0.0)	12 (3.0)
Total	278 (69.5)	60 (15.0)	62 (15.5)	400 (100.0)
Gender				
Male	189 (47.2)	31 (7.8)	41 (10.2)	261 (65.2)
Female	89 (22.2)	29 (7.2)	21 (5.2)	139 (34.8)
Total	278 (69.5)	60 (15.0)	62 (15.5)	400 (100.0)
Marital status				
Single	121 (30.2)	17 (4.2)	31 (7.8)	169 (42.2)
Married	134 (33.5)	40 (10.0)	28 (7.0)	202 (50.5)
Divorced	8 (2.0)	2 (0.5)	2 (0.5)	12 (3.0)
Widowed	15 (3.8)	1 (0.2)	1 (0.2)	17 (4.2)
Total	278 (69.5)	60 (15.0)	62 (15.5)	400 (100.0)

Table 2. COVID-19-related panic.

S/N	Items	SA	A	U	D	SD	Mean	SD
PANIC1	I'm always scared whenever I hear the news of the COVID-19 outbreak in Lagos.	147 (36.8)	67 (16.8)	10 (2.5)	102 (25.5)	74 (18.5)	2.72	1.60
PANIC2	I'm always worried that I might be infected with COVID-19 whenever I hear the news of the COVID-19 outbreak in Lagos.	166 (41.5)	67 (16.8)	10 (2.5)	88 (22.0)	69 (17.3)	2.57	1.60
PANIC3	Whenever I hear news of a COVID-19 outbreak, I fear that the healthcare system in Lagos may not be capable enough to handle an increase in COVID-19 cases.	147 (36.8)	67 (16.8)	10 (2.5)	102 (25.5)	74 (18.5)	2.72	1.60
PANIC4	Whenever I hear news of a COVID-19 outbreak, I'm always afraid that once someone becomes infected, it will get worse and may lead to death.	147 (36.8)	67 (16.8)	10 (2.5)	102 (25.5)	74 (18.5)	2.72	1.60
PANIC5	Information regarding COVID-19 contact tracing, the number of COVID-19 victims, confirmed cases, or deaths increases my fear.	147 (36.8)	67 (16.8)	10 (2.5)	102 (25.5)	74 (18.5)	2.72	1.60
PANIC6	I pay little attention to COVID19 risk communication messages because of fear.	150 (37.5)	61 (15.3)	10 (2.5)	103 (25.8)	76 (19.0)	2.73	1.61

Table 2 shows respondents' responses to COVID-19-related panic, which were measured using six (6) items. One of such items for the measurement of response to COVID-19-related panic was to find out if respondents were always scared whenever they heard the news of the COVID-19 outbreak in Lagos, and 214 (53.6%) of the respondents agreed and strongly agreed with the statement, 176 (44%) disagreed and strongly disagreed with the statement, while 10 (2.5%) neither agreed nor disagreed with the statement, with a mean of 2.72 and a standard deviation of 1.60. This implies that most respondents were always scared whenever they heard the news of the COVID-19 outbreak in Lagos. Another question item used was to find out if respondents were always worried that they might be infected with COVID-19 whenever they heard the news of the COVID-19 outbreak in Lagos, and 233 (50.3%) agreed and strongly with the statement, 157 (39.3%) strongly disagreed and disagreed with the statement, 10 (2.5%) were unsure of their decision, with a mean of 2.57 and a standard deviation of 1.60. This indicates that the majority of respondents consistently expressed concern about contracting COVID-19 upon hearing about the COVID-19 outbreak in Lagos. The researcher also attempted to discover if whenever respondents heard the news of the COVID-19 outbreak, they feared that the healthcare system in Lagos might not be capable enough to handle an increase in COVID-19 cases. It was discovered that 214(53.6%) of the respondent agreed and strongly agreed with the statement, 176(44%) disagreed and strongly disagreed with the statement, while 10(2.5%) neither agreed nor disagreed with the statement with a mean of 2.72 and a standard deviation of 1.60. This shows that whenever respondents hear news of the COVID-19 outbreak, they fear that the healthcare system in Lagos may not be capable enough to handle an increase in COVID-19 cases.

Table 3. Perceived behavioural control over recommended COVID-19 preventive practices.

S/N	Items	SA	A	U	D	SD	Mean	SD
BI1	Keeping surfaces clean, wearing my facemasks and practicing social distancing would reduce the chances of COVID-19 infection.	163 (40.8)	65 (16.3)	37 (9.3)	90 (22.5)	45 (11.3)	2.47	1.48
BI2	Taking the COVID-19 vaccine would reduce my chances of infection.	136 (34.0)	40 (10.0)	26 (6.5)	109 (27.3)	89 (22.3)	2.94	1.62
BI3	Paying attention to COVID-19 risk messages would increase my Knowledge of COVID-19 and keep me informed.	296 (74.0)	33 (8.3)	20 (5.0)	28 (7.0)	23 (5.8)	1.62	1.20

Table 3 shows the descriptive statistics of perceived behavioural control over recommended COVID-19 preventive practices, which were measured with three (3) items. One of such items was asking respondents if they thought keeping surfaces clean, wearing facemasks, and practicing social distancing would reduce chances of COVID-19 infection, and 228 (57.1%) of the respondents agreed and strongly agreed that they would, 37(9.3%) of the respondents were undecided, and 135 (33.8%) of the respondents disagreed and strongly disagreed, with a mean score of 2.47 and a standard deviation of 1.48. This suggests that the majority of the respondents believe engaging in these practices will reduce the chance of COVID-19 infection. Also, 176 (44%) of the respondents affirmed that taking the COVID-19 vaccine would reduce their chances of infection. 26 (6.5%) feel indifferent about it, while 198 (49.6%) disagreed and strongly disagreed with the statement with a mean score of 2.94 and standard deviation of 1.62. This implies that most of the respondents do not agree that taking the COVID-19 vaccine would reduce their chances of infection. The final item used for this measurement was to find out if paying attention to COVID-19 risk messages would increase respondents' knowledge of COVID-19 and keep them informed. 329 (82.3%) respondents strongly affirm this notion, 20 (5%) feel indifferent about the notion, whereas 51 (12.8%) refuted this claim with a mean score of 1.62 and standard deviation of 1.20.

5. DISCUSSION OF FINDINGS

The analysis of language use in the selected COVID-19 jingles focused on the vocabulary styles and message tone adopted in the messages. It is observed that the analysed COVID-19 jingle utilized semi-English Pidgin in the message. There is a use of pure English phrases and expressions in the message, which might be as a result of the nature of the message (health communication). It may be necessary to explain certain terms with precision. However, this might pose a threat to illiterate audience groups who lack knowledge of these English expressions. For example, it is *better to survive than for water to run your eye; keep social distance and practice good hygiene in your house & surroundings; and contact any of the NCDC officials sharp sharp!* This observation corroborates the findings of Fadipe and Salawu (2021), which revealed that majority of risk messages communicated in Nigerian-Pidgin English utilize English expressions capable of interfering with illiterate audience comprehension of messages. Nyarko, Serwornoo, and Azanu (2021) similarly found that the use of semi-vernacular in risk messages limits audience assimilation of health communication messages.

Furthermore, the study revealed the dominance of instructive vocabulary styles. It is observed that announcers of the three jingles utilized an instructive vocabulary style in messages where they majorly indicated what listeners should do, particularly in the area of COVID-19 prevention. Piller, Zhang, and Li (2020) however advice for the use of conservational and dialogic message styles in health messages to develop rapport with audience. Nevertheless, Venkatraman and Manoharan (2023) negate stating utilization of conservational styles may delay dissemination of key facts in risk messages and overshadow key message contexts.

With respect to message tone, the study observed the existence of tones of urgency in the jingles. The announcers of the three COVID-19 jingles employed an urgent tone to highlight the COVID-19 risks and enhance the audience's perception of risk. Varying degrees of urgency are observed in the three jingles. Jones, Bonfield, Farrell, and Weston (2023) findings reveal that the utilization of fear appeals such as urgency or threats enables the development of risk perception amongst audience members, while Guo et al. (2024) found that majority of COVID-19 risk messages utilized urgency to depict severity of the disease. The urgent tones in the jingles are denoted by a combination of variations in voice pitch and exclamations, thus creating more importance for certain instructions than others. For example, c*ontact any of the NCDC officials sharp sharp!*

The study also observed the use of emphatic tones. The announcers utilized increased levels of stress for certain expressions to heighten emphasis. Certain utterances made by the speakers denoted emphasis so as to retain listeners attention and interest. Kerrigan et al. (2023) found that in an effort to heighten risk perception, risk messages utilized emphatic tones. The speakers placed greater emphasis on describing the dangers associated with COVID-19 at the beginning of each announcement. For example; c*oronavirus day is real oh!*

With respect to thematic patterns of existence and danger of COVID-19, results indicate that announcers of the three jingles established the reality and danger of COVID-19 in specific message lines. Similar studies that carried out content analysis on risk messages had similar themes as presented in this study e.g., MacKay (2022); Aderogba (2021) and Epepe (2021). These research findings reveal that themes inherent in COVID-19 messages include severity of disease and preventive practices for COVID-19. However, the existence and danger of COVID-19 were sparsely mentioned in all three jingles.

It was observed that the jingles employed declarative and instructive statements made by announcers that focused on teaching listeners about COVID-19 prevention. Venkat and Janakiram (2021) findings showed that risk messages for COVID-19 majorly utilized dialogic statements, which are at variance with the findings of this study. Onuora, Torti Obasi, Ezeah, and Gever (2021) and Adebisi and Pius (2022) substantiate that declarative language context for risk messages enables focus on key message constituents.

With respect to perceived COVID-19 panic, majority of respondents displayed risk information-perceived COVID-19 panic. However, this panic was not associated with their comprehension of COVID-19 risk messages, as respondents displayed a high level of COVID-19 knowledge across all LGA's, which shows that the respondents

comprehension of COVID-19 risk information is uninfluenced by perceived COVID-19 panic of respondents. These results are, however, at variance with the findings of Usuwa et al. (2020) and Iorfa et al. (2020) which state that audience-perceived panic limited their perception of risk information for Lassa Fever & COVID-19, respectively. Ochu et al. (2022) similarly substantiates that risk perception is congruent to respondents comprehension of risk messages. However, the respondent's ability to decipher COVID-19 risk information may be related to the presence of interpersonal risk information sources that may directly influence respondents knowledge of COVID-19.

Results retrieved in relation to respondents behavioural intentions towards COVID-19 practices revealed that a majority of respondents had positive COVID-19 behavioural intentions. Also, it was observed that majority of respondents carried out wholesome COVID-19 preventive practices, which shows a positive relationship between the respondents behavioural intentions and COVID-19 preventive practices. With respect to subjective norms, respondents selected friends, family, and colleagues as the important people in their social network whom they look up to, exuding expected behaviour for COVID-19 and in carrying out preventive measures for COVID-19. The study also observes a positive relationship between which respondents most preferred interpersonal information sources and the major influencers of respondents behavioural intentions with respect to subjective norms. The findings of Iliyasu et al. (2021) corroborate these observations, as the researchers found that behavioural intentions and beliefs majorly influenced individuals adoption of preventive practices. Similarly, Odetokun et al. (2022) discovered a relationship between individuals behavioural intentions and interaction with interpersonal sources.

6. CONCLUSION

The study concludes that perceived risk does not impede the comprehension of risk information. The negative dominance model, on the other hand, contends that instilling fear in messages or flooding them with unfavorable facts impairs people's comprehension of risk messages, leading to a state of panic. And that perceived subjective norms have substantial effect on the behavioural intentions of the respondents. Consequently, the study suggests that indigenous languages play a significant role in addressing health issues. This is an indication that the coupled use of local languages has a humongous bearing on the participation of the community in adherence to health interventions aimed at reducing the repercussions of public health adversities. Given these observations, it becomes crucial to employ effective communication techniques in any future health sector interventions.

6.1. Implication

The findings imply that indigenous language communication is essential in public health interventions. The study contributes to the understanding of localized messaging as being more effective in raising COVID-19 awareness as well as the compliance with health measures among the participants of the study and, thus, the need for culturally and linguistically appropriate health promotion campaigns. This has the potential of improving the society's health status, especially in societies that have multilingualism, which is the case for Nigeria, since it will enhance the dissemination of information to all the population.

6.2. Limitation and Recommendation

Although this research has some merits, the study's main weaknesses arise from the geographic scope that may limit the use of its results in other areas. The cross-sectional study also poses a major methodological limitation in terms of making causal inferences. Furthermore, the cross-sectional nature of the study lacks longitudinal data: it limits the evaluation and analysis of change over time data. Finally, the generality of the results is another limitation of the study because it targets a certain population group, and their experiences may be different from others that are not included in that group.

Based on the findings, the study strongly recommends that risk communication strategies should downplay the minimal influence that perceived risk bears on comprehension and instead major on those influential social norms

that affect behavioural intentions. Therefore, the following strategies of risk communication are suggested: culturally appropriate framing, that is, the use of indigenous languages and culturally familiar examples and stories, and structural framing, with recipients adhering to culturally appropriate procedures. The recommendations can also be used to build on what is already being done in the field of risk communication and to propose better policy guidelines that would be better prepared for further public health crises, thus improving the management of future epidemics.

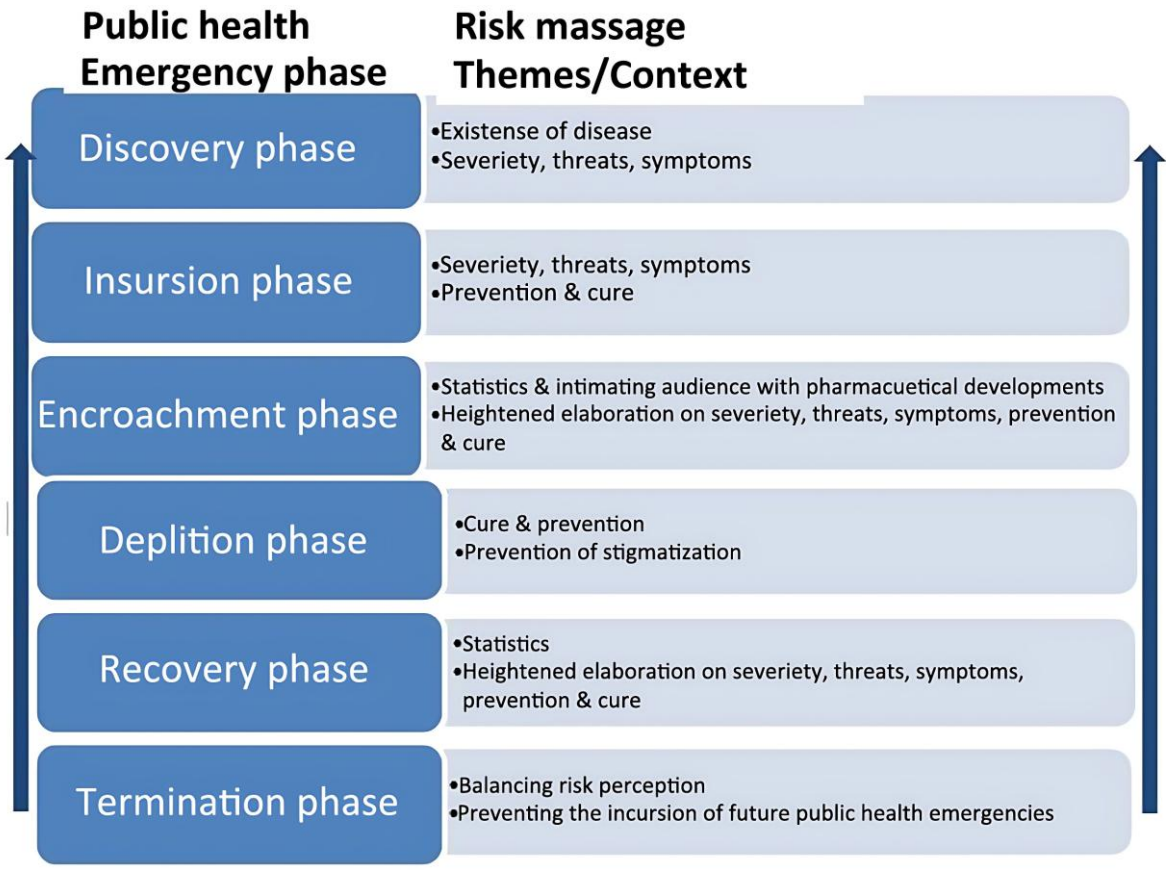

Figure 1. COVID-19 risk communication phase model.

Figure 1 (The phase model) illustrates the stages of a public health emergency and the nature of risk messages and communication interventions to be developed with respect to each phase. The public health emergency phases presented in models are a product of WHO (2018) phases of public health emergency (preparedness phase, response phase, recovery phase), which have been expounded upon.

In the 1st phase of a public health emergency, which is the discovery phase, risk messages should focus on communicating the existence of the disease as well as its severity, threats, and symptoms. Risk communications should also endeavor to build trust at this phase. At the incursion phase, risk communicators should intensify communications on the severity, threats, and symptoms of the disease. Also, they should intimate public with the prevention and cure for disease.

At the 3rd phase, which is the encroachment stage, risk communication interventionists should intimate individuals with mortality and morbidity statistics so as to create risk perception; also, they should focus on communicating pharmaceutical developments so as to balance risk perception. However, there must be increased elaboration on the severity, threats, symptoms, prevention, and cure. At the Depletion Phase, risk communication interventionists should intensify messages bordering on prevention and cure as well as discourage stigmatization of convalescing victims of the disease.

At the recovery phase risk communicators must provide statistics to prove the flattening of the curve and the decline in morbidity and mortality statistics. In the 6th & final phase, which is the termination stage, risk communication messages on balancing risk perception and preventing the incursion of future outbreaks.

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