

Evaluating the Influence of Social Media Use in COVID-19 Vaccine Hesitancy of Residents of Owerri Metropolis

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Abstract

The study aimed to find out the level of vaccine hesitancy to COVID-19 vaccines in Nigeria and determine whether social media is facilitating the spread of anti-vaccination messages about COVID-19 vaccines and the extent of vaccine hesitancy which is attributable to use of social media. The researchers used the cultivation theory to explain how frequent use of social media for information about the coronavirus pandemic has influenced users' attitudes towards the COVID-19 vaccine. A survey was conducted which produced quantitative data from 300 respondents using the multi-stage sampling technique, with the questionnaire as the instrument to elicit data on how social media influenced respondents' decision on getting immunized. Findings showed that hesitancy is high in Nigeria. It revealed that social media is facilitating the spread of misinformation about the COVID-19 vaccine. The researchers found out that hesitancy is attributable to social media because social media was the leading information source (45%) that enabled respondents to make the decision not to take the COVID-19 vaccine. This study recommends that governments, the NCDC, the NPHCDA, the health industry and the media must use social media, alongside traditional media to propagate vaccine campaigns to negate the misinformation spreading online.

Keywords

Coronavirus, Vaccine Hesitancy, Social Media, Cultivation Theory, COVID-19 Vaccine, WhatsApp, NCDC, WHO

1. Introduction

Even though COVID-19 is being managed with non-pharmaceutical interven-

tions like social distancing, hand washing, wearing of face masks and lockdowns and pharmaceutical treatments like the use of a cocktail of drugs, supplemental oxygen and ventilation, experts have always maintained that a global virus outbreak like the COVID-19 will only go away with mass vaccination which will confer the so-called herd immunity on populations (Muhealth.org, 2021; WHO, 2020). Subsequently, a “vaccine race” began immediately after the outbreak with many pharmaceutical giants like Pfizer, AstraZeneca, Johnson & Johnson, Sanofi, China Sinopharm and specialist laboratories like Germany-based Biotech and Oxford University proposing vaccine candidates.

The COVID-19 pandemic came with a massive outbreak of misinformation, disinformation and conspiracy theories (Hollowood & Monstrous, 2020; Bapaye & Bapaye, 2020; Ijioma & Odu, 2020). Some of these fake news questioned the origins of the virus, touted cures and treatments, disparaged the production of vaccines as a plot to monitor or kill people, blamed 5G technology for the outbreak and created such a flood of misinformation that the WHO Secretary-General described the situation as an “infodemic” (Zarocostas, 2020: p1).

By the end of December 2020, the WHO issued an Emergency Use Listing for the Pfizer/BioNTech mRNA vaccine marking the start of the global vaccine roll-out. It was subsequently followed by other vaccines including the Moderna version, Russian made Sputnik V vaccine, the China’s Sinopharm Jab, the Oxford/AstraZeneca vaccine and lastly in February 2021, the Johnson & Johnson vaccine.

After the WHO issued an Emergency Use Listing for the Pfizer vaccine, many other countries issued similar authorizations to enable their citizens to be speedily vaccinated, especially as the turn of the new year came with a spike in infections and deaths heralding the second-wave of the COVID-19 globally with the return of lockdowns. The situation was worsened by the emergence of new strains of the virus and the near-collapse of health services in countries like Brazil (Taylor, 2021; Roach, 2021), Poland (Taiwan News, 2020) and India.

In spite of the death toll from the outbreak, global vaccine rollout has been hampered by the hesitancy to get vaccinated. This was not entirely unanticipated as many viral conspiracy theories and fake news dissuaded people from taking the vaccines, especially the mRNA candidates from Pfizer/BioNTech and Moderna. MacDonald (2015) together with the SAGE Working Group on Vaccine Hesitancy defined vaccine hesitancy as “delay in acceptance or refusal of vaccination despite the availability of vaccination services” (p. 4163).

To mitigate the distrust in populations, many countries around the world started their vaccination efforts with political leaders getting their shots on live TV. In Nigeria, President Muhammadu Buhari was vaccinated on live TV on March 6th, 2021 alongside the Vice-President, Professor Yemi Osinbajo using the Oxford/AstraZeneca vaccine. Across the country, Governors and political leaders have been broadcast receiving their vaccine shots, including making statements against the conspiracy theories spread on social media and urging Nigerians to get inoculated against COVID-19 (Daniel, Mosadomi, Yusuf, Dangida,

Duru et al., 2021). The conspiracy theories, fake news and anti-vaxxer disinformation spreading on social media were such that they have reduced the number of members of the BAME community from getting vaccinated in the UK (BBC, 2021), discouraged indigenous Australians from taking the vaccines (Hoyle, 2021), made Trump-supporting Republicans less likely to get vaccinated in the USA (Summers, 2021) and have resulted in the Nigerian President and many State Governors making strident calls for Nigerians to get vaccinated, while others like the Sultan of Sokoto (Jannamike, 2021) and Benue Deputy Governor, Mr. Benson Abounu have said that no one will be forced to get vaccinated (Daniel, Mosadomi, Yusuf, Dangida, Duru et al., 2021). Therefore, this study is designed to evaluate if exposure to misinformation on social media had a determinable role in COVID-19 vaccine hesitancy in Nigeria.

While the president, governors and leaders took their COVID-19 vaccines on live television, with much publicity and assurances of the safety of the vaccines, there is still seemingly a muted hesitancy in the general public about taking the vaccines. This is observed in casual conversations, remarks, social media posts and the heightened campaign of governments and government agencies to convince Nigerians that the vaccines are safe. Most significantly, several months after the start of the vaccination campaign the Federal Government of Nigeria threatened legal action against vaccine skeptics in the aftermath of the second-wave of infections (Egobiambu, 2021). The conspiracies and disinformation spreading on social media may be the reason for the vaccine hesitancy in Nigeria, a country noted for successful mass immunization programmes against child killer and infectious diseases, including the eradication of the polio disease. With the foregoing, therefore, this study will evaluate if exposure to misinformation about the COVID-19 vaccine on social media has influenced the non-willingness of Nigerians to get the COVID-19 vaccine.

2. Research Questions

- 1) What is the level of vaccine hesitancy to COVID-19 vaccine?
- 2) Is social media facilitating the spread of anti-vaccination messages about COVID-19 vaccines?
- 3) To what extent is COVID-19 vaccine hesitancy attributable to use of social media?

3. Literature Review

3.1. Conceptual Review

The outbreak of a COVID-19 “infodemic” led to many scholars to investigate the impact of misinformation on vaccine uptake, especially as many anti-vaccination conspiracy theories were spreading on social media in anticipation of the development of a COVID-19 vaccine. One of such studies to measure the impact of COVID-19 vaccine misinformation on hesitancy in the UK and USA found out that online misinformation dampens vaccination intent and is a leading obstacle

to achieving herd immunity in both countries. The study by (Loomba, de Figuero, Piatek, de Graaf, & Larson, 2021) which was a randomized control trial where a group of subjects were exposed to misinformation and another group to factual information about the COVID-19 vaccines, also found out that “in the USA, females are less robust to misinformation than males when considering vaccination intent to protect others” (p. 341). (Loomba et al., 2021) in their study proved that recent misinformation about COVID-19 caused a decline of 6.2% points on intent to take the vaccine in the UK and 6.4% points in the USA. Interestingly, they found “no strong evidence to suggest that individuals in the UK or USA who use social media more frequently are more likely to lower their vaccination intent when exposed to misinformation compared to those in the control group (p. 346). The study which recruited 8001 respondents via an online panel and surveyed them in late 2019 before vaccine rollouts in both countries concluded by revealing that scientific sounding misinformation has the most impact on inducing hesitancy than other types of misinformation.

(Getman, Helmi, Roberts, Yansane, Cutler et al., 2018) analyzed the digital childhood vaccination information network for vaccine-hesitant parents. Their study explored the structure and influence of vaccine-hesitant content online by analyzing a database of online sources of vaccine-relevant content to see if they were pro vaccine or anti vaccine. The researchers used Media Cloud (a searchable big data platform) of over 550 million samples of online media content. From here the authors used a random sample of 450 stories from 4817 publications that met the inclusion criteria. The study revealed that the plurality of information was pro vaccine (showing 46.44%, 95% confidence interval (39.86%, 53.20%).

Furthermore, the study which used both quantitative and qualitative methods revealed that the most influential sources for vaccine related information included National Institute of Health, Centres for Disease Control and Prevention and mainstream media like the New York Times. All these sources, according to the researchers, produced pro vaccine information and with user-generated sources dominated online childhood vaccine information sources. However, the study also revealed that the vaccine-hesitant community rarely interacted with these pro vaccine content but rather used them to perpetuate false narratives within their vaccine-hesitant networks.

They concluded that vaccine hesitant communities often misused scientific evidence and vaccine information published in the mainstream media and from health agencies and organizations, same information that pro vaccine parents use to make informed decisions.

(Wilson & Wiysonge, 2020) in a study titled, “social media and vaccine hesitancy” considered the threat posed by anti-vaccination efforts on social media as critically important to the need for world-wide COVID-19 vaccination. The study evaluated the effect of social media and online disinformation campaigns on vaccination rates and attitudes towards vaccine safety globally. The researchers used a large-n cross country regression framework to evaluate the effect of social media on vaccine hesitancy globally. To achieve this, the researchers operationa-

lized social media usage into two dimensions: the use of it by the public for organic action (using Digital Society Project indicators) and the level of negatively oriented discourse about vaccines on social media (by analyzing all geocoded tweets in the world from 2018-2019). The study also investigated the level of foreign-sourced social media disinformation in each country (using Digital Society Project indicators).

The outcome of vaccine hesitancy was measured in two ways. First, the researchers used polls of what proportion of the public in each country feel vaccines are unsafe (using Wellcome Global Monitor Indicators for 137 countries); secondly, the researchers used annual data of actual vaccination rates from the World Health Organization for 166 countries. Their findings revealed that the use of social media to organize offline anti-vaccine actions is highly predictive on the belief that vaccinations are unsafe, beliefs which were increasingly picked up online. The authors also revealed that the prevalence of foreign disinformation led to the drop in vaccination rates and this was statistically proven. Furthermore, this may likely increase the number of negative vaccine tweets by 15% for the media county. They showed that “a 1-point shift upwards in the 5-point disinformation scale is associated with a 2-percentage point drop in mean vaccination coverage year over year” (p. 1).

The study concluded that there is a significant relationship between organization on social media and public doubts of vaccine safety and that there is a substantial relationship between foreign disinformation campaigns and delivering vaccination coverage.

(Murphy, Vallieres, Benetall, Shevlin, McBride et al., 2021) in a study published in Nature and focusing on the UK and Ireland populations examined socio-demographic, political and health variables associated with COVID-19 vaccine hesitancy and resistance. The study also examined psychological processes that lead to vaccine resistance and the sources of information about COVID-19 for vaccine hesitant individuals. The study focused on the sources of COVID-19 information to help health officials better target messaging in order to achieve positive behaviour change.

(Murphy et al., 2021) revealed that vaccine hesitant respondents consumed significantly less information about the pandemic from television and radio and had significantly less trust in information disseminated from the mass media, their doctor, other health care professionals and government agencies. In the UK sample, the vaccine resistant group consumed significantly less information about COVID-19 from newspapers and television broadcast compared to the vaccine accepting group ($p < 0.05$). While in relation to trust in available information, compared to vaccine accepting respondents, vaccine resistant respondents reported significantly ($p < 0.05$) lower levels of trust in information that was disseminated via mass media, their doctors, other health care professionals and government agencies.

The study which used a sample of 1041 adults from Ireland and 2025 from the

United Kingdom found that 26% of Irish respondents and 25% of UK respondents were vaccine hesitant. The respondents were surveyed online between March and April 2020, a few months after the COVID-19 virus was first reported in the British Isles.

Furthermore, the study which distinguished between vaccine hesitant and vaccine resistant respondents found out from the Irish sample that the vaccine resistant group differed from vaccine hesitant group in terms of higher levels of conspiracy beliefs ($r^2 = 0.006$) and lower levels of trust in scientists or health care professional ($r^2 = 0.05$) and the state ($r^2 = 0.03$). The two groups recorded more distrust than the vaccine accepting group. Similarly, the three groups in the UK data showed that vaccine resistant group differed from vaccine hesitant group in terms of higher levels of conspiracy beliefs ($r^2 = 0.01$) and lower levels of trust in scientists ($r^2 = 0.03$) and health care professional ($r^2 = 0.04$).

3.2. Theoretical Framework

This study uses a framework anchored on Cultivation theory to interrogate if users of social media are likely to be vaccine hesitant because of the misinformation about the negative effects of getting vaccinated against COVID-19 received on social media.

Originally proposed in the 1960s by George Gerbner, Cultivation theory is one of the main theories of media effects. The theory posits that people who are frequently exposed to media are more likely to have their social realities influenced by the messages that emanate from the media. Gerbner propounded the theory as a way to test how television, which was becoming very popular, was shaping the realities of the viewers. The theory revealed that the perceptions of people who watch certain programmes repeatedly on television start reflecting what they see or hear repeatedly.

According to Gerbner, repeated exposure to media cultivated the belief that the messages conveyed by the media apply to the real world. This means that television contributes to the way people view and interpret issues in the society.

Cultivation theory argues that the media is not a true reflection of the society and that television images exaggerate what really exists and so the audience views the world in distorted way.

Gerbner saw that the television was the dominant storytelling media in society and that was the reason for the focus on TV programming which according to him, with the proliferation of programming, the pattern of messages remain the same resulting to different viewers cultivating similar perceptions of reality.

3.3. Relevance of Cultivation Theory

As social media becomes pervasive, cultivation theorists have used the theory to describe how new media impacts social realities of users. In their application of cultivation theory to new media, (Morgan, Shanahan, & Signorielli, 2015) argue that new media messages set narratives and these narratives cultivate users per-

ception of social reality.

(Hermann, Eisend, & Bayón, 2020) evaluated how Facebook use cultivated the social perceptions and attitudes of users about ethnic diversity. Their study showed that Facebook use influenced the perceptions of ethnic minorities to mirror the ethnic diversity which was prevalent on the social media network. The authors used an online survey of 476 Facebook users and a follow-up experiment of 75 persons to prove that Facebook “cultivates ethnic diversity perceptions and ethnic diversity-related attitudes”. The work of Herman *et al.* add to the body of cultivation research by showing that new media is a source of cultivating influences and attitude change, especially on social media.

Some scholars (Bryant, 1986; Potter, 2014) have criticized the cultivation theory because the cultivation theory treats media consumers as passive participants of the media process and that it focuses on the patterns of media messages instead of individual responses to the messages. Traditionally, cultivation theory was used to measure the effects of television on heavy viewers but in today’s interpersonal and social media driven media ecosystem, which is increasingly fragmented, cultivation theory is also used to study the influences of exposure to specific media messages and programming, no matter how small (Potter, 2014). This study will therefore use the framework of cultivation theory as it seeks to evaluate the influence of anti-vaccination messages spread on social media in COVID-19 vaccine hesitancy in Nigeria.

4. Hypothesis

H_0 : There is no significant relationship between frequency of exposure to misinformation about the vaccine on social media and hesitancy to take the COVID-19 vaccine.

5. Method

The survey research method was used for this study. The questionnaire was used as a research instrument to obtain data from the area of the study which was Owerri Municipal Local Government Area. The total population of Owerri Municipal LGA is 172,600, according to the Nigerian Bureau of Statistics (City Population, 2020). This is the projected population as of 2016. It was from this population that a study sample of 400 was drawn using the Taro Yamane formula.

The questionnaire consisted of a Likert-type four points rating scale and multiple-choice list of options to allow the respondents to express their opinions. The survey questions asked respondents what they thought about the level of vaccine hesitancy attributable to social media and the extent of misinformation about the vaccine spread on social media.

Multistage sampling technique was used for the questionnaire distribution: cluster sampling and simple random sampling. Two clusters were purposively chosen from the local government at the first stage. The second stage incorporated the simple random sampling of respondents in the two clusters. The Federal Medical Cen-

tre (FMC), Owerri and the Alvan Ikoku Federal College of Education, Owerri were chosen as the two clusters. The FMC is a large sprawling centre where thousands of people congregate everyday and it is also one of the sites for COVID-19 vaccination in Owerri municipal. The College of Education is also another large community of Owerri residents with over ten thousand students and over one thousand staff. Both clusters are populated with respondents with access to smart-phones and social media.

The survey was conducted between May 2021 and June 2021—a period when the national COVID-19 immunization programme was on-going. Out of 400 questionnaires administered to the respondents only 304 were answered and this number formed the basis for the analysis.

6. Results

6.1. Analysis of Research Questions

Demographics

The study received 304 completed copies of the questionnaires which were used in the final analysis. The Median age of participants was 45.5 years old with just 2% being 61 and above. Over a quarter (31.4%) of the respondents were female with males making up nearly three quarters (68.6%). Just over half (52%) of the participants had a post-graduate qualification while 2% only had stopped at the Ordinary Level (secondary school). Higher education graduates made up nearly half (46%) of the participants

Research question 1: what is the level of vaccine hesitancy to COVID-19 vaccine?

Table 1 shows that 84 participants say they are very unlikely to take the vaccine, 108 indicate they are unlikely while 84 say they are likely and 24 indicate to very likely get their COVID-19 vaccine.

$$\text{Using } M = \frac{\sum X}{N}$$

where:

X = any score in series of numbers; M = the mean; Σ = the sum; N = the total number of series in a distribution

The mean score in **Table 2** reveals that respondents are Unlikely to take the COVID-19 vaccine ($M = 2.1$).

Research question 2: is social media facilitating the spread of anti-vaccination messages about COVID-19 vaccines?

Table 3 shows that 84 participants say they have rarely seen messages warning people against taking the COVID-19 vaccines, 120 answer that they see such warnings Sometimes, while 76 and 20 respondents indicate that they Frequently and Very Frequently, respectively see warnings against taking the COVID-19 vaccines on their social media.

$$\text{Using } M = \frac{\sum X}{N}$$

Table 1. Level of vaccine hesitancy.

Statement	Very unlikely	Unlikely	Likely	Very likely	Total
How likely are you to take the COVID-19 vaccine?	84	108	84	24	300

Table 2. Mean score calculation.

Responses	N	Weighted Responses
Very Unlikely	84	1
Unlikely	108	2
Likely	84	3
Very Likely	24	4

Table 3. Social media and spread of anti-vaccine messages.

Statement	Rarely	Sometimes	Frequently	Very frequently	Total
How often do you see messages warning people against taking the COVID-19 vaccine on social media?	84	120	76	20	300

where:

X = any score in series of numbers; M = the mean; Σ = the sum; N = the total number of series in a distribution.

The mean score in **Table 4** reveals that respondents Sometimes see messages warning people against taking the COVID-19 vaccine ($M = 2.1$).

Research question 3: to what extent is COVID-19 vaccine hesitancy attributable to use of social media?

Table 5 shows that a significant number of 92 or 45% of the 204 respondents that indicated that they were hesitant to get vaccinated attributed their decision to the influence of social media, 48 or 23% reported that family and friends influenced their decision while 36 (18%) and 28 (14%) respondents pointed at doctors/health workers and TV/radio & newspapers respectively as the major information source that enabled them make the decision to not get vaccinated.

6.2. Testing of Hypothesis

In testing the hypothesis stated, the researcher used Ordinal Regression analysis.

H_0 : There is no significant relationship between frequency of exposure to misinformation about the vaccine on social media and hesitancy to take the COVID-19 vaccine.

An ordinal regression analysis was calculated to predict frequency of exposure to misinformation on social media about the COVID-19 vaccine and hesitancy to get the vaccine. From the model fitting information in **Table 6**, we see that the

difference between the two log-likelihoods—the chi square—has an observed significance level of more than 0.0005. This means that we can accept the null hypothesis that the model without predictors is as good as the model with the predictors.

Based on the observed significance level (0.432), we accept the null hypothesis and state that there is no relationship between frequency of exposure to misinformation on social media about the COVID-19 vaccine and hesitancy to get the vaccine.

Table 4. Mean score calculation.

Responses	N	Weighted Responses
Rarely	84	1
Sometimes	120	2
Frequently	76	3
Very Frequently	20	4

Table 5. Extent of hesitancy attributable to social media.

Statement	Social media	Family & friends	Doctors/ health workers	TV/radio & newspapers	Total
Which major information source enabled you to make the decision not to take the vaccine?	92 (45%)	48 (23%)	36 (18%)	28 (14%)	204 (100%)

Table 6. Ordinal regression analysis for the relationship between frequency of exposure to misinformation about the vaccine on social media and hesitancy to take the COVID-19 vaccine.

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig
Intercept Only	37.335			
Final	36.717	0.617	1	0.432

Link function: Logit.

Goodness-of-fit			
	Chi-square	df	Sig.
Pearson	3.952	8	0.861
Deviance	4.138	8	0.844

Link function: Logit.

7. Summary of Results

The first research question which asked “what is the level of vaccine hesitancy to COVID-19 vaccine?” was studied using the survey methodology. It was found that the level of COVID-19 vaccine hesitancy was very high as most respondents were hesitant to get vaccinated. The second research question asked if social media was facilitating the spread of anti-vaccination messages about COVID-19 vaccines. It was found out that social media was facilitating the spread of anti-vaccination messages against the COVID-19 vaccine as most respondents answered that they see anti-vaccination messages warning people not to get vaccinated. The third research question sought to find out what extent is COVID-19 vaccine hesitancy attributable to use of social media. The study revealed that social media was the leading information source enabling respondents to make the decision not to take the COVID-19 vaccine.

8. Findings

8.1. High Vaccine Hesitancy

The study revealed that the level of COVID-19 vaccine hesitancy is very high as most respondents answered that they were Unlikely to get vaccinated (weighted mean 2.1). It was also found that respondents gave reasons like the vaccine was devilish and there was no COVID-19 in Nigeria, rather the outbreak was malaria for not taking the vaccine. These reasons correspond with some of the popular anti-vaccination messages spreading on social media.

The implication of this finding is that the COVID-19 vaccination programme is going to face a lot of challenges as Nigerians are not willing to get vaccinated because of several reasons. Even as the results of this study were being tallied the country had not vaccinated up to 1% of its citizens as reported, after almost five months of the rollout (*Our World in Data, 2021*).

This finding was corroborated by (*Orij, Allagao, Wagio, Obagah, Tekenah, & Ozori, 2021*) in their study titled, “hesitancy of COVID-19 Vaccination among health workers (other than doctors) in a Tertiary Hospital in South-South, Nigeria”. The researchers who conducted the study on health workers in a Federal Medical Centre in Bayelsa state found out that, “only 50 health workers—less than a third of them (27.4%) accepted the COVID-19 vaccination” (p. 24). (*Orij et al., 2021*) revealed that the reason for the hesitancy was that “most health workers, who refused the vaccine, did so because they wanted to see what would happen to those who received the vaccine (70.5%). Other reasons were that the vaccine had not gone through enough clinical trials (62.1%), it would be associated with side effects (60.6%) and it is unsafe (47.7%)” (p. 25).

More reasons given by the participants were lack of trust in government and claims that the vaccine contained the mark of the beast, or that there were alternative drugs to combat the virus other than the vaccine. This showed that hesitancy to the COVID-19 is very rooted, even among people working in the health sector and the leading reasons behind the low acceptance ranged from distrust of

government to religious motivations.

The finding corroborates the anchor theory of cultivation theory. Social media has been found to influence the perception of the users and make them believe the stories they encounter online mirror the real world. Many of the reasons proffered by users for not taking the vaccine in this study and in the one by (Oriji et al., 2021) reflect the anti-vaccination stories that are spread on social media.

8.2. Social Media Facilitating Spread of Anti-Vaccination Messages

This study also found out that social media was facilitating the spread of anti-vaccination messages against the COVID-19 vaccine as most respondents answered that they sometimes see these anti-vaccination messages warning people not to get vaccinated (weighted mean 2.1).

The implication of this finding is that people are hesitant to get vaccinated because of several reasons and these reasons are sometimes received via social media messages. Social media is contributing to the hesitancy in the population through facilitating the spread of misinformation against the vaccine.

The finding in this work is collaborated by the study conducted in the United States by (Pitch-Loeb, Saviola, Goldberg, Hughes, Verhey et al., 2021) where they concluded that those less likely to take the COVID-19 vaccine were those who primarily got their information about the COVID-19 vaccine from social media channels. This was in clear contrast with their findings that showed that people who used traditional media were more likely to get vaccinated. According to them, “the results also show that those who are less likely to get the vaccine are using social media as their sole source of information, or as at least one of their sources of information” (p. 11). Attention is needed from social media companies to address vaccine hesitancy and the spread of misinformation.

The finding fits into the framework of Gerbner’s Cultivation theory. While Traditional media provides information from highly trusted and reliable sources like the WHO, Virologists, epidemiologists and other healthcare workers which encourage people to get vaccinated, social media is cultivating the perception of its users by spreading information from less trusted sources and thereby engineering a hesitancy to get vaccinated.

8.3. Social Media Leading Source of Vaccine Hesitancy Inducing Messages

Finally, this study revealed that social media was the leading information source (45%) that enabled respondents to make the decision not to take the COVID-19 vaccine. Respondents who indicated that they were unlikely to take the vaccine were further asked to indicate the major information source that helped them make the decision.

The implication of this finding is that COVID-19 vaccine hesitancy is attributable to social media messages which sow doubt and distrust in the minds of persons who primarily get their information about the Coronavirus from social media. However, with the inability to disprove the null hypothesis using Ordinal

Regression, the study could not prove the extent of the hesitancy that is caused by social media alone.

This finding was corroborated by (Wilson & Wiysonge, 2020) whose study on “Social media and vaccine hesitancy” found out that social media plays a significant role in vaccine hesitancy, with a special mention of foreign state actors using disinformation to create problems in other countries. According to them, “our large n-cross-national analysis shows a significant relationship between organization on social media and public doubts of vaccine safety. It also shows a substantial relationship between foreign disinformation campaigns and declining vaccination rate” (p. 5).

The finding is in line with the Cultivation Theory, especially the area where new media messages are designed to set narratives that cultivate users’ perception and social reality as argued by (Morgan, Shanahan, & Signorielli, 2015).

9. Conclusion

This research concludes that COVID-19 hesitancy is quite significant in Nigeria and its pervasiveness includes health workers and educated people, male and female, young and old. The researchers also concluded that social media is facilitating the spread of anti-vaccination messages about the COVID-19 vaccines, which can be argued that it is helping fuel the hesitancy. Finally, the researchers conclude that while vaccine hesitancy is to some extent attributable to the frequency of exposure to anti-vaccination messages on social media, the link is weak and could not be proved when the hypothesis was subjected to statistical analysis using Ordinal Regression.

Recommendations

1) Users of social media should be aware that a lot of fake news and misinformation about the COVID-19 are spreading online. They must learn to fact-check information received on social media and understand that some of the anti-vaccination messages are the work of disinformation merchants.

2) The Nigerian Centre for Disease Control (NCDC), medical health workers and the National Primary Health Care Development Agency must leverage social media, alongside traditional media to propagate vaccine campaigns to negate the misinformation spreading online.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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