

Covid-19 Lockdown Preventive Measure: How Compliant Was The Compliance Among Rural Dwellers In A Developing Milieu?

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Abstract

Against the backdrop of multifaceted global dislocation occasioned by Covid-19 pandemic, this study probed Covid-19 lockdown compliance, as well as factors that influenced compliance, and the impact of compliance among rural dwellers in Anambra State, Nigeria. Our survey analysis (n=400) revealed that a majority of these rural dwellers complied with the lockdown preventive measure not because of perceived severity of getting infected with the virus or perceived health benefits of complying with the lockdown preventive measure, but because of the palliatives promised by the government and the sanctions stipulated by the government for non-compliance. This study therefore concluded that lockdown restrictions cannot be effective because individuals do not comply due to perceived severity, perceived susceptibility and perceived health benefits, and are therefore likely to easily switch to non-compliance when the lockdown is prolonged and when the palliatives that motivate them to stay at home are not forth-coming. We therefore recommended that governments within the context of Covid-19 pandemic should focus less on restrictive measures like lockdowns and more on health campaigns aimed at changing health beliefs as a way to motivate individuals to adopt non-restrictive public health measures like washing of hands, use of hand sanitizers and wearing of nose masks.

Keywords: *Coronavirus, compliance, health beliefs, lockdown, public health measures*

Introduction

The coronavirus or COVID-19 is an infectious disease that has ravaged the world. It is caused by a newly discovered coronavirus (WHO, 2021). Since a new strand of the virus was identified in Wuhan, China in December 2019 (Xiao, Dai, Huang, Zhang & Chen, 2020), over 112 million people have been infected, out of which over 2 million have died (John Hopkins University, 2021). The first official case of coronavirus in Nigeria was recorded on Feb 27, 2020. He was an Italian citizen who had recently arrived in Lagos from Europe and who tested positive for the disease a few days later (Kalu, 2020). Since then, the number of cases has increased to 153, 189 with 1874 deaths (NCDC, 2021). With the rapid global spread of coronavirus as well as the rising number of infections and related deaths, different strategies were instituted to combat it. The World Health Organization provided guidelines including handwashing with soap under a running tap, cough etiquette, use of alcohol-based hand sanitizers, wearing of nose masks, observing the 1m – 1.5m social distancing and avoiding social gatherings among others (Cowling et al., 2020; Lewnard & Lo, 2020; Liu, He, Rong, & Tang, 2020; Leung, Lam & Cheng, 2020; Zhao, Li, Liu, Zhu, Ma & Wang, 2020; Earle, Prusaczyk, Choma & Calogero, 2021). Furthermore, different countries went on to adopt measures like self-isolation, quarantine, and lockdowns to control the spread of the virus in line with prevailing country-specific situations (Xiao & Torok, 2020).

The lockdown, in particular, restricted people from stepping out of their homes. It also meant that all road, air and rail transport services were suspended, with exceptions for transportation of essential goods and emergency services. More so, educational institutions, industrial establishments and hospitality services were shut down; only food shops, banks and ATMs, petrol pumps, and other facilities that provided essential services were exempted. Furthermore, several punishments for violation of the lock down order

were also stipulated.

In Nigeria, an initial 2-week nationwide lockdown was announced by the federal government on March 30, 2020 with immediate effect in Lagos, Ogun, and Abuja and, on April 13, it was extended by another 2 weeks before it was gradually eased in phases (including at the state level where the various state governments had also adopted the lock down measure (Ibrahim, Ajide & Julius, 2020).

One thing is the announcement or provision of such public health measures as lockdown and another is compliance with the measures. Compliance here means the acceptance and effective application of measures that are put in place by governments to curb the spread of the COVID-19 disease (Ekpenyong et al., 2020; Ovenseri-Ogbomo et al., 2020; Plohl & Musil, 2020). Mass compliance with public health measures such lockdowns can help reduce the transmission of the novel coronavirus and, by extension, reduce the number of COVID-19-related hospitalizations and deaths. Therefore, this study asks: Was there a lockdown among rural dwellers in Anambra State? Which factors determined compliance with the lockdown among the rural dwellers? Were there consequences for compliance or non-compliance with the lockdown? This study argues that answers to these questions are fundamental to understanding which groups within the population complied with the lockdown directives, and what motivated them to do so or not.

Study Purpose

Despite the adoption and modification of several measures to combat coronavirus, the number of cases of infection and related deaths continue to rise in Sub-Saharan African countries (Timothy et al., 2021). In Nigeria, the number of cases has risen since the first official case of the virus was recorded in the country on Feb 27, 2020 to 153, 189 with 1874 deaths (Kalu, 2020) (NCDC, 2021), with reports indicating that much more have been infected but are unidentified due to lack of testing supplies (Akinwotu, 2021). This situation raises questions as to compliance with the measures provided to control the virus such as the lockdown.

Following a 2018 report by the World Poverty Clock that Nigeria is the poverty capital of the world, with over 40% of its citizens living below the poverty line, there were insinuations that a large proportion of the country's population, especially those who live on daily income with no savings to act as a financial buffer during the lockdown, would find it difficult to comply with the lockdown (Kalu, 2020). This means that the fear of economic hardship or hunger, may have dissuaded individuals from staying at home or complying with the lockdown directives. For scholars like Timothy et al (2021) the outbreak of coronavirus has indeed created a global public health crisis and non-compliance with public health measures to contain the infection poses a huge challenge to countries like Nigeria.

However, there seems to be a paucity of systematic studies that examine compliance with the lockdown directives in south-east Nigeria as well as the impact of the lockdown. This would mean that the government and other relevant bodies may lack relevant insights on factors that may have contributed to non-compliance with the lockdown and how to enhance compliance with public health measures going forward.

The purpose of this study is to examine compliance with lockdown directive as a public health measure against coronavirus among rural dwellers in Anambra State as well factors that influenced compliance and impact of compliance. In precise terms, the study was guided by the following objectives:

1. To determine the proportion of rural dwellers in Anambra State who complied with the lockdown directive.
2. To examine the impact of compliance with the lockdown directive among rural dwellers in Anambra State.
3. To examine the impact of non-compliance with the lockdown directive among rural dwellers in

Anambra State.

4. To determine factors that influenced compliance with the lockdown directive among rural dwellers in Anambra State.

Literature

A plethora of studies has been conducted to examine individuals' compliance to coronavirus preventive and control measures and the impact of these measures on individuals. Kayrite, Hailu, Tola, Adula and Lambyo (2020) examined the compliance to coronavirus preventive and control measures among food and drink establishments in selected towns of Bench-Sheko and West-Omo zones of Ethiopia. The study adopted a mixed-methods approach involving survey and face-to-face interviews. Findings from the study showed that the overall compliance level with COVID-19 preventive and control measures was 55.5%. The majority (89%) of the food and drink establishments had functional hand washing facilities at the main entrance gate. More so, less than half of the food and drink establishments had posted written materials promoting handwashing and arranged tables and chairs in a manner that they accommodate not more than 4 people at once with a 2-meterspacing; carried out daily cleaning and disinfection of frequented touched surfaces, and provided education or training for their workers about COVID-19. The researchers concluded that, overall, compliance level with COVID-19 preventive and control measures among food and drink establishments were very poor and recommended that the federal government of Ethiopia, the federal ministry of health, and local health authorities should consider a move towards more solid, strict, and comprehensive compulsory measures, including fines that can lead up to the closure of non-compliant establishments.

Nnama-Okechukwu, Chukwu and Nkechukwu (2020) explored knowledge of COVID-19 and compliance with preventive measures among community members in Anambra State, Nigeria, using in-depth interviews (IDI) of 36 persons comprising 30 household heads aged 48 years and above and six children aged 13–17 years. The results of the study showed that a greater number among the respondents saw COVID-19 pandemic as more of a hoax than reality and this made them not comply with the preventive measures. Findings also suggest this poor knowledge as having negative impact on compliance with preventive measures among the respondents. The study concluded that there was the need for accurate dissemination of information on the Covid-19 pandemic in order to ensure compliance with mitigating measures.

On their part, Zhao, Wong, Wu, Choi, Wang and Lam (2020) analyzed compliance with social distancing and its associations with mental health in Hong Kong. The study was designed as a survey involving 1501 adults who were randomly sampled for landline telephone interviews ($n = 500$) and online surveys ($n = 1001$). Data were collected on social distancing compliance, lockdown compliance, stress, anxiety, and depressive symptoms (Patient Health). Findings from the study showed that of the 1501 respondents (52.5% female, 72.3% aged 18–59 years), 74.2%, 72.7%, and 59.7% reported avoiding going out, going to crowded places, and attending social gatherings of more than four people, respectively. Furthermore, findings from the study showed that most of the respondents had stayed-at-home for at least four of the past seven days (58.4%; mean 4.12, Standard Deviation 2.05). Adoption, perceived effectiveness and perceived compliance with social distancing were shown in the study to be directly related lower levels of stress levels, less anxiety and depressive symptoms (all $p < 0.01$). However, more days of staying at home were associated with more depressive symptoms.

Ejike MgboduMurphy, Williamson, Sargeant and McCarthy (2020) carried out a survey to examine the compliance with COVID-19 lockdown restrictions in the early stages of the pandemic among 1595 Australians. The study revealed that a greater number among Australians did not fully comply with the measures. The study further revealed that while self-interest and health concerns motivated compliance.

More recently, Timothy et al (2021) investigated the associations between compliance and public opinion on

COVID-19 public health containment measures across selected Sub Saharan countries (Ghana, Cameroon, Nigeria, South Africa, Tanzania, Kenya and Uganda). The study adopted an anonymous online cross-sectional survey involving 1779 adults (18 years and older) during the mandatory lockdown period in the selected African countries. Findings from the study showed that respondents who did not think that public health authorities in their countries were doing enough to control the COVID-19 outbreak were more likely to be found in crowded places. Findings from the study also showed that those who thought COVID-19 would not remain in their countries and those who thought self-isolation is not needed during the pandemic were less likely to encourage others to comply with the strategies put in place to prevent the spread of the virus. More so, findings from the study also showed that participants who thought the COVID-19 outbreak was dangerous and those wearing medical masks washed their hands with soap under running water. The researchers concluded that public opinion influenced the compliance of individuals to public health measures for the control of COVID-19.

Reviewed literature shows that there are instances of different levels of compliance and non-compliance with coronavirus prevention and control measure across regions and that compliance and non-compliance varied with age, gender and level of education. The reviewed literature also showed that self-interest, health concerns, normative concerns regarding duty to support the authorities determined compliance with the health measure. However, there seems to be a paucity of Nigerian studies that empirically assessed individuals' compliance with the lockdown directive, factors that determined compliance with the lockdown and the impact of the lockdown.

The Theoretical Basis of the Study

The Health Belief Model (HBM) underpinned this study. This Model was used to explain factors that can influence individuals' compliance with the lockdown. The Health Belief Model (HBM) is a psychological model that attempts to enlighten, and to a great extent, predict health behaviours. This model accomplishes this by focusing on the attitude and beliefs of individuals. HBM can be referred to as the brainchild of Hochbaum, Rosenstock and Kegels (Janz, Champion, & Strecher, 2002), who were public office health officers.

The health belief model is based on the assumption that individuals would apply health-related actions, for instance, decide to comply with the lockdown if they:

1. Perceive a negative health consequence such as disability or death can be avoided.
2. Have a positive expectation that by taking a recommended action they would avoid a negative health condition, for example, that complying with the lockdown directive would help to prevent infection with coronavirus.
3. Believe that they can take recommended health action, like staying at home.

According to the Health Belief Model, personal health behaviour is particularly influenced by at least three key factors: general health values, which include interest and concern about health; specific health beliefs about vulnerability to a particular health threat; and beliefs about the consequences of the health problem. Once an individual perceives a threat to his/her health and is simultaneously cued to action, and his/her perceived benefits outweigh the consequences of not taking action, then that individual is most likely to undertake the recommended preventive health action.

The HBM revolves around six assumptions (Glanz et al., 2002) which include:

Perceived Susceptibility – Individuals have their own perception of the likelihood of experiencing a condition (in this case, coronavirus) that would adversely affect one's health

Perceived Severity – This refers to the beliefs individuals hold with regards to the effects a given disease or

condition would have on their health. These effects can be considered from the point of view of the difficulties that a disease would cause in one’s life; for instance, loss of work time, pain and discomfort, difficulties with family, financial burdens, relationships, and susceptibility to future conditions.

Perceived Benefits of Taking Action – Taking action toward the prevention or treatment of a disease is the next step to expect after an individual has accepted susceptibility to a disease and recognized its severity. Compliance or non-compliance with the lockdown is likely to depend on perceived benefits of taking action like protection from the virus.

Perceived barriers to taking action ? Action may not take place, even though an individual may perceive the benefits of taking action. This may be due to perceived barriers. Regarding the lockdown directive, individuals may see compliance as likely to lead to financial losses, depression, anxiety and stress. These factors may deter an individual from complying with the lockdown.

Cues to Action – An individual’s perception of susceptibility and seriousness of a disease, in addition to perceived benefits provide the force to act. However, it may require a ‘cue to action’ for the desired behaviour to occur. These cues may be classified as internal or external.

Self-Efficacy– This refers to the required confidence and ability to take action (for instance, comply with the lockdown). Rosenstock added this angle of the health belief model in 1988.

Methodology

We adopted the survey method which involved the selection of a sample of respondents (n=400) from a population, administering a standardized questionnaire to them, and thereafter generalizing the result to the whole population.

Results

Of the participants (n=400) responding to demographic questions, 50% (n=200) were males, while another 50% (n=200), this is due to the sample procedure adopted by the researcher which made for even distribution of gender. Regarding age, 20.2% (n=75) fell within the age bracket of 25-40; 51.2% (n=205) within the age bracket of 41-56 and 30.0% (n=120) within the age bracket of 56 and above. With regard to educational qualification, 15.0% (n=60) had First School Leaving Certificate as their highest educational qualification while it was SSCE/Equivalent for 50.2% (n=201) of the respondents. In addition, 7.5% (n=30) had NCE (National Certificate of Education)/OND (Ordinary National Diploma) as their highest educational qualification; 17.5% (n=70) had First degree/ HND as theirs and it was Postgraduate degrees for 5% (n=21) of the respondents. About 4.5% (n=18) stated that they had no formal education. Results on the respondents’ demographics also showed that 22.5% (n=90) were artisans, 25.2% (n=101) traders; 22% (n=88) civil servants; 5.2% (n=21) professionals employed in a private firm; 15% (n=60) farmers; and other professions 10% (n=40).

Table 1 Respondents’ compliance with the lockdown

	Frequency	Percent
Yes	279	70
No	121	30
Total	400	100

Table 1 presented data on the proportion of respondents who complied with the lockdown. As shown in the table, 70% of the respondents (n=279) stated that they complied with the lockdown, while 30% (n=121) stated that they did not. This results indicates that the lockdown compliance level was high among the rural dwellers.

Table 2 Major motivating factor for compliance with lockdown

	Frequency	Percent
Perceived severity	31	11.0
Perceived health benefits	22	8.0
Penalties/sanctions	88	31.0
Governments' palliatives	138	50.0
Total	279	100.0

Table 2 presented data on the major motivating factor for compliance among the respondents (n=279) that stated that they complied with the lockdown. Results on this table showed that of this category of respondents, 11% (n=31) stated that they complied due to their perceived severity of the virus; 8% (n=22) due to perceived health benefits (protection from contracting the virus and associated inconveniences from contracting the virus like financial cost of getting treatment and loss of productive time due to ill-health); and 31% (n=88) stated that they complied due to the penalties/sanctions stipulated by the government for failure to comply. More so, 50% (n=138) of them stated that their major reason for compliance was palliatives promised by the government. This result shows that the respondents who stated that their major reason for compliance was palliatives promised by the government were more than those who stated other major reasons.

Table 3 Major motivating factor for non-compliance with lockdown

	Frequency	Percent
Perceived non-severity	36	30.0
Perceived insusceptibility	25	20.0
Economic/income situations	60	50.0
Total	121	100.0

Table 3 presented data on the major motivating factor for non-compliance among the respondents (n=121) that stated that they did not comply with the lockdown. As shown in the table, 20% (n=25) of the category of respondents stated that they did comply mostly because they did not perceive themselves as susceptible to the virus, while 30% (n=36) did so because they did not perceive the virus as severe. More so, there was a perceived barrier for not complying with the lockdown as stated by 50% (n=60) of this category of respondents which was their economic/income situations. This result shows that the respondents who stated that their major reason for non-compliance with the lockdown was their economic/income situations were more than those who stated other major reasons.

Table 4 Major impact of compliance with lockdown

	Frequency	Percent
Economic hardship	201	72.0
Stress	12	4.0
Anxiety	34	12.0
Depression	8	3.0
Protection from the virus	24	9.0
Total	279	100.0

Table 4 presented data on the major impact of compliance with the lockdown on the respondents who stated that they complied with the public health measure. As shown in the table, of this category of respondents, 72% (n=201) stated that they suffered economic hardship as a result of staying at home, while 4% (n=12); 12% (n=34); and 3% (n=8) stated that the major impact the lockdown had on them was stress, anxiety and depression, respectively. More so, 9% (n=24) stated that they were protected from the virus as a result of complying with the lockdown. This result shows that majority of the respondents who stated that they complied with the lockdown suffered economic hardship as a result of adhering to the public health measure.

Table 5 Major impact of non-compliance with lockdown

	Frequency	Percent
Economic gains	82	68
Exposure to the virus	2	2
Punishment/sanctions from the government	37	30
Total	121	100

Table 5 presented data on the major impact of non-compliance with the lockdown on the respondents who stated that they did not comply with the public health measure. As shown in the table, majority of respondents in this category (68%; n=82) stated that they benefitted economically from not complying with the lockdown. However, 30% (n=37) stated that they faced punishment/sanctions from the government, while 2% (n=2) stated that they were exposed to the virus.

Table 6 Respondents' age and compliance with lockdown

	Respondents' Age				Total
		25-40	41-56	56 and above	
Compliance with lockdown	Yes	15	163	101	279
		20%	80%	84%	
	No	60	42	19	121
		80%	20%	16%	
	Total	75	205	120	400

Table 6 presented data on the relationship between the respondents' age and their compliance with the lockdown. As shown on the table, 20% (n=15) of the respondents aged between 25-40 stated that they complied with the lockdown, while it was 80% (n=163) of the respondents aged 41-56 and 84% (n=101) of those aged 56 and above. This result shows more respondents aged 56 and above complied with the lockdown compared to those in the other age categories.

Table 7 Respondents’ education and compliance with lockdown

	Compliance with lockdown		Total
	Yes	No	
No formal education	2	16	18
	11%	89%	
First School Leaving Certificate	7	33	60
	12%	88%	
SSCE/Equivalent	45	156	201
	23%	77%	
NCE/OND			30
	21	9	
	70%	30%	
First Degree/HND			70
	66	4	
	94%	6%	
Postgraduate degrees	20	1	21
	95%	5%	
Total	279	121	400

Table 7 presented data on the relationship between respondents’ education and their compliance with the lockdown. As shown in the table, only 11% (n=2) and 12% (n=7) of the respondents who had no formal education complied with the lockdown respectively. More so, data presented in the table showed that 23% (n=45) of the respondents who had SSCE/Equivalent as their highest educational qualification complied with the lockdown, followed by 70% (n=21) of those who had NCE/OND; 94% (n=66) of those who had first degree/HND and 95% (n=20) of those with postgraduate degrees. This result shows that more respondents with postgraduate degree complied with the lockdown compared with those with other academic qualifications.

Regarding the relationship between respondents’ occupation and their compliance with the lockdown, findings from this study showed that only 36% (n=32) and 33% (n=20) of the respondents who stated that they were artisans and farmers, respectively, complied with the lockdown, while 85% (n=75) of the civil servants complied. In addition, 78% (n=156) of the male respondents complied with the lockdown, while 91% (n=187) of the females did so.

Discussion

The first result of this study with regard to compliance with the lockdown is that majority of the respondents (70%; n=279) stated that they complied with the coronavirus preventive measure. This result is similar with findings from the study conducted by Wong et al (2020) in Hong Kong and contrasts with a similar study

conducted in Anambra State (Nnama-Okechukwu et al, 2020) and others in Australia (Murphy, et al, 2020) and India (Saurabh & Ranjan, 2020). Since instances of both compliance and non-compliance with lockdown, quarantine and other coronavirus prevention measures seem to cut across different regions of the world, lenses are to be focused on factors that determine compliance and non-compliance.

Regarding the major motivating factor for compliance with the lockdown, results from this study show that the respondents who stated that their major reason for compliance was palliatives promised by the government were more than those who stated other reasons; severity of the virus (11%; n=31) perceived health benefits 8% (n=22); penalties/sanctions stipulated by the government for failure to comply (31%; n=88). This result suggests that the rural dwellers' health beliefs are not factors that favoured the effective implementation of the lockdown. This argument is buttressed by other findings from this study which showed that some of the respondents did not comply with the lockdown due to the perception that they were not susceptible to the virus and perception that the virus is not severe. These are contrary to findings from the study conducted by Murphy et al (2020) which showed that health concerns and normative concerns regarding duty to support the authorities dominated compliance decisions. The reason for these unfavourable health beliefs could be a perception that the virus is a hoax as found in the study conducted by Nnama-Okechukwu et al (2020), making the government's palliatives and concerns about income the major determining factors for compliance and non-compliance or outweigh health concerns in the present study.

However, the respondents' interest in the palliatives and concerns about their income is understandable when considering the fact that most of them are artisans, traders and farmers who rely on daily income. This buttresses the argument of scholars like Kalu (2020) that the income situation of Nigerians who are mostly daily income earners was a major factor that determined their compliance with the lockdown directive. Unsurprisingly, due to the occupation of most of the respondents in this study, the major impact of compliance with the lockdown on majority of them was economic hardship with a few others experiencing psychological impact like stress, anxiety and depression as also found in the study conducted by Zhao et al (2020), while on the contrary, majority of respondents who did not comply with the lockdown stated that they benefitted economically.

Regarding the respondents' age and their compliance with the lockdown, data showed that more of the older respondents complied with the lockdown compared to the older respondents. This is similar to findings from the study conducted by Murphy et al (2020) in Australia. These findings are unsurprising given the fact that older people are at greater risk of serious illness from coronavirus, and health research (Murphy et al., 2020) often finds women and older people are more compliant with health directives.

Regarding the relationship between education and the respondents' compliance with the lockdown, findings from this study showed that more respondents the highest level of education (postgraduate degree) complied with the lockdown compared to those with lower academic qualifications. For the present study, however, it is argued that the compliance of most of the respondents with the highest educational qualification is due to the awareness and enlightenment that comes with a high level of education.

Conclusion

This study explored compliance with the lockdown directives as a public health measure against coronavirus among rural dwellers in Anambra State. Though findings from the study showed a high level of compliance among the respondents, they were not motivated by their health benefits but by the palliatives promised by the government and the sanctions/punishments stipulated for non-compliance. Moreover, while the compliance level shown in this study may seem like a positive result, it may not be a reflection of the real situation as it may be difficult to identify non-compliance through survey research because claiming to follow the rules is socially desirable.

This study argues that lockdown restrictions cannot be effective because individuals do not comply due to

perceived severity, perceived susceptibility and perceived health benefits, and are therefore likely to easily switch to non-compliance when the lockdown is prolonged and when the palliatives that motivate them to stay at home are not forth-coming. Based on the findings of this study, it is recommended that the government in climes like Nigeria, where majority of individuals are low income earners, should focus less on restrictive measures like lockdowns and more on health campaigns aimed at changing health beliefs. This will motivate individuals to adopt non-restrictive public health measures like washing of hands, use of hand sanitizers and wearing of nose masks based on perceived susceptibility to diseases, perceived severity of diseases, perceived benefits of taking health and perceived self-efficacy or ease of taking action.

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