

AN ANTIDOTE FOR INVENTIONS OR A CURSE? THE COVID 19 PANDEMIC IN AN AFRICAN COUNTRY

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DOI No. – 08.2020-25662434

Abstract

The main objective of the paper is to assess the topic 'an antidote for inventions or a curse?', the Covid 19 pandemic in an African country'. Survey research design was employed in this study. The scope of the study was limited to Ghana, while the accessible population was inhabitants of Greater Kumasi and Greater Accra Metropolis since they are the metropolitans that were locked down for 3 weeks during the pandemic. The sample size selected was 60 respondents whilst the convenient sampling technique was used. Questionnaire was used as a data gathering tool while data was analysed using both descriptive and inferential statistics. The study found out that corona virus has caused serious negative impacts on individuals/citizens in Ghana including high cost of living, psychological trauma, mobility challenges, low income/profit and job losses. On the national level, the virus is causing drain to the nation's existing resources, loss of national revenue, stagnation of development and fall in overall production. Furthermore, the study found out that covid-19 presented opportunity to Ghana as a country for invention of personal protective equipment (PPE's), Invention of vaccines and other medications, invention of health related machines and capital goods. However, since the mean mark for the virus as a curse is a little above the threshold of neutrality (thus 3.0), the statement that 'Covid 19 is a curse' cannot be totally overruled. The study recommended that government in African states should empower more local firms to produce local products: PPEs, hand sanitizers, ventilators, and equally venture into producing vaccine of possible cure of Covid 19. This can be done by supporting them financially through tax free productions within this pandemic period. They must also give tax waiver to private enterprises during the corona virus period to ensure continual production and prevent job losses.

Keywords: Covid 19, Antidote, Inventions

BACKGROUND OF THE STUDY

Throughout history, humanity has experienced numerous disease outbreaks of which the severity of their catastrophic nature to humanity differs from one to the other. Some were however extremely devastating to mankind according to literature (Warwick & Roshen, 2020). The world has now been plagued with a dangerous pandemic called the corona virus with SARS-CoV-2 virus remaining its cause. It is a new type of novel coronavirus first recorded in China (specifically Wuhan) in 2019 hence the name Covid 19. The virus was declared as an international pandemic by the World Health Organization (WHO) on 11 March 2020 (Warwick & Roshen, 2020). Experts say that one unique thing about the virus is that its pre-human host remains so far unknown (but possibly can be pangolins) and it has distorted human activities to a greater extent comparably to other disease outbreaks that has occurred in human history

(Nadeem, 2020). It is of this that IMF in its article entitled "crisis like no other" described the Covid 19 pandemic as the greatest since the 1930 Economic Depression. World Health Organization however cautions the African continent that it might equally become an epicentre (Warwick & Roshen, 2020).

STATEMENT OF THE PROBLEM

Covid 19 cases in Africa, like most continents seems to be on a geometric rise, as the continents case rose from 1 positive recorded case on 14 February 2020 to a total of 49, 155 cases on 6th of May, 2020 making an average of 600 cases approximately recorded daily on the continent. According to the **World Food Programing Insight (WFPI- 2020), poor continents such as Africa will be severely hit should the continent record higher cases.** It is of the above that researchers such as Issahaku (2020) asserted that COVID-19's economic and health effects are particularly alarming in Africa as the virus is causing more disruption to people's lives already smashed apart by conflict, corruption and insurgence. Researchers asserted that, the real impact of the novel Covid 19 virus however transcend beyond mortality rate to socio- economic impacts on all countries due to interdependency (Warwick & Roshen, 2020: Nadeem, 2020). Economic downturn, collapse of businesses, unemployment due to lay-offs, higher price resulting from low productivity were some identified economic impacts which will transcend to economic hard-ship (Warwick & Roshen, 2020). **It is of the above that WHO (2020) asserted that the virus will test the resilience of African leadership relating to economic management, health infrastructural and machinery readiness and social welfare. Particular emphasis was laid on the heath effect where the organization described Africa as having ill-equipped** health infrastructure with minimal or no intensive care unit (ICU), beds and other laboratory and health equipment (WHO, 2020). Despite the numerous devastating and harmful effects of the virus as described by several researchers, organizations and experts, many are of the view that the virus is a wake-up call for Africa to be self-reliant, invent and produce its needs internally (Welsing, 2020; Yeboah, 2020 and Issahaku, 2020). Yeboah (2020) for instance asserted that the pandemic though a calamity to the world, it presents economies that are overly dependent on advanced nations with some unexpected benefits. In the words of Issahaku (2020), he argued that, now is the opportune time for Africa as a continent to be self-reliant rather than waiting on giants of the world that have undermined her invention and innovation for all these while. The discussions above provided a swing stand on Covid-19 as a curse with several hardships brought about by the pandemic and as an opportunity for inventions. This paper thereby aimed to investigate the topic '*an antidote for inventions or a curse? The Covid19 pandemic in an African country*'.

RESEARCH OBJECTIVES

The main objective is the topic '*an antidote for inventions or a curse? the Covid 19 pandemic in an African country*'. The various specific objectives include:

- To identify the overall negative impacts of the coronavirus on Ghanaian citizens and the country at large.
- To identify the various opportunities for invention posed by the corona virus to Ghana as well as other African State.
- To evaluate the cost-benefit (curse or invention opportunity) analysis of Covid 19 in Ghana

RESEARCH QUESTIONS

The research questions developed from the possible specific objectives stated above are as follows:

- What are the negative impacts of the coronavirus on the Ghanaian citizens and the country at large?
- What are the various opportunities for invention posed by the corona virus to Ghana as an African State?
- Should the covid 19 be regarded as a curse or invention opportunity for Ghana and other African states?

SCOPE OF THE STUDY

The study is limited to Ghana, a West African state and in the African continent. The country recorded its first two cases on 12th March, 2020 which were all imported cases. Within a matter of just 56 days after it recorded the first case, the total cases recorded increased to 3091 on 7th May, 2020 implying 55.2 cases recorded on the average per day, ranked as 6th in Africa with most cases (Ghana Health Service-GHS, 2020). The total recovery cases as at 7th May was 303 implying an average of 5.4 recoveries recorded each day, with a death toll of the virus at 18 (Ghana Health Service-GHS, 2020). In the midst of the pandemic the country initiated several steps to contain the virus as well as combat it such as announcing lockdown of two regions regarded as epicenters for three weeks (thus from 30th March to 20th April), closure of schools, churches and social gatherings exceeding 25 members, mass usage of hand sanitizers and nose mask, advocating for regular washing of hand with soap and closure of its borders. These measures, experts say, brought hardship and inconveniences to citizens particularly the urban poor in the informal sectors. It is of this that Ghana's Finance Minister in his address to parliament asserted that there will be job losses, hardship, low productivity during this pandemic periods (Issahaku, 2020). However, in the midst of these hardships, Ghanaians begin to see the opportunity as a wake-up call for inventions (Welsing, 2020). Local production of face mask begun in large quantities on 13th April, invention of ventilators, solar powered hand washing machine was invented by Jude Osei, and Electronic hands-free tap was invented by Owusu Dapaa & Richmond Boateng, Electronic sanitizers invented by Assuah Robotic company and among others (Welsing, 2020).

METHODOLOGY ANALYSIS

Research design:

The research design used in this paper is the descriptive research design. The particular method of descriptive research employed is the survey research design. A survey research design is a design which aims to collect primary data from respondents at a point in time (Asiamah *et al.*, 2017). The method was chosen because it has been described as the best research design for assessing the opinions and views of individuals on specific issues such as the aim of this study; 'assessing whether *the Covid 19 pandemic is an antidote for inventions or a curse to African nations*'.

Population of the study:

There are three categories of population in a research; general, target and accessible.

- The scope of the study was limited to Ghana and therefore all citizens in the state are part of the general population. Hence the current population of Ghana which is 30,968,338 individuals remains the general population of the study.

- The study was aimed at seeking views on covid 19. Hence, regions in Ghana with no recorded cases as at 6th May, 2020 (thus the Savannah, Bono East, Ahafo and Bono East regions) were excluded from the population of study. The target population of the study remains the 12 out of the 16 regions with positive covid-19 cases.
- The accessible population remains inhabitants of Greater Kumasi and Greater Accra Metropolis. Providing a clear assessment of whether the corona virus pandemic is a curse or an opportunity for inventions will probably be done accurately by those that felt harsh policies implemented during the period. Hence, the two metropolis were selected as accessible population since they are the only metropolitans that were locked down for 3 weeks during the pandemic.

Sample Size and Sampling Technique

Banerjee, & Chaudhury (2010) defined a sample size as the actual number of element a researcher is interested in choosing as respondents in a specific study. In this research the sample size selected was 60 respondent. There are varied forms of sampling technique, however this study choose the convenient sampling technique, which can be categorized under the non-probability sampling methods. It is defined by Banerjee, & Chaudhury (2010) as the sampling where individuals selected to form the sample are chosen because they seems to be readily available and also keen to contribute to data gathering. In this study, the researchers sampled respondents from Greater Kumasi and Greater Accra that were eager to contribute to the success of the study and were not highly busy during the time of visit.

Data gathering tools

This study used questionnaires as the tool to gather data for this study. The questionnaire was chosen in this study because it was appropriate considering the limited time the researcher has to conduct a thorough study on the subject matter of this paper. Questions in the questionnaire were structured to cover all the areas of the research objectives.

Validity and Reliability of Data gathering tools

In ensuring validity and reliability of the data gathering tool used, the researchers used Crobach Alpha statistical test for the former whilst expert proof reading was used for the latter. The Crobach Alpha test was run on each section of the questionnaire aside the bio-data to check whether the questions address consistent enough, thus section of questions with results above 70% (0.7) implies it is very reliable. Results show that altogether, the items used were very consistent in measuring the stated objective they are purported to address.

Data gathering procedure

The researchers adopted varied formats in data gathering due to the fear of getting people that will be willing to partake in data provision as a result of the dangers of Covid 19 to which social distancing regulations and use of hand-sanitizers remain highly advocated. The first procedure was the use of online Google forms. The researchers also administered some questionnaires in person but in those cases the questions were read to respondents by the researchers and as they provide their answers, the researchers tick them or write them as such. In this case, the respondents were not allowed to touch the questionnaire but rather remain as listeners and equally given feedback. This part was done with 100% respect for social distancing directive by the Ministry of Health.

Data analysis

The 5-scaled Likert Scaling was used with the highest number (5) representing strongly agree, 4 represent agree, 3 represent Neutral response, 2 represent disagree whilst 1 represent strongly disagree. In instances of measuring severity, the code used were; 5 to represent profound, 4 to represent severe, 3 to represent moderate, 2 to represent mild and 1 to represent totally not a curse. Data successfully coded were computed into a statistical software (SPSS version 23). Responses were computerized based on the category they belong to.

FINDINGS

In all, 60 participants (thus all respondents' sampled) selected provided up to date information required in the questionnaire. The bio-data is as shown below:

i. Bio Data

Table 1: Gender and Age range of respondents

Category	Variable	Frequency	Percentage	Mean
Gender	Male	35	58.3%	
	Female	25	41.7%	
Age Range	18-35 years	30	50%	35.54 years
	35 -50 years	25	41.7%	
	> 50 years	05	08.3%	
Education	No formal	10	16.7%	
	Basic	20	33.3%	
	Tertiary	30	50%	
Sector of Employment	Private Sector	33	55%	
	Public Sector	20	33.3%	
	Unemployed	07	11.7%	

Source: Study Area, May, 2020

Result from table 1 above result shows that most of the sampled respondents are males (thus a total of 35 males indicating 58.3%). The result also shows a mean age of 35.54 years with a modal class of 35 to 50 years showing a youthful respondent rate. This result conforms to the age categorization of Ghana's 2020 population where it was analysed that the country's population is a youthful population (source, *Worldometer, Retrieved, 2020*). Result from the table 1 also shows that majority of the respondents have either completed tertiary or currently at a tertiary institution (n= 30, signifying 50%). The table above also presented result on the employment status of respondent where majority agreed to be employed and are working in the private sector (n= 33, representing 55%).

ii. Result on the first specific Objective

The first specific objective was aimed to identify the overall negative impacts of the coronavirus on Ghanaian citizens and the country at large. Questions under this section were coded using the scale; 5 representing Profound, 4 representing Severe, 3 representing moderately severe, 2 representing mild severe and 1 representing Less severe. The descriptive statistics result is as shown below. Interpretation was done using the mean results with a higher mean value approaching 5 interpreted as a severe/profound impact whilst a lesser mean value below 3 is interpreted as moderate or mild severe impact.

Table 4.2 Descriptive Statistics on the possible negative impacts of the coronavirus on Ghanaian citizens

Possible effects of Covid 19 on individuals	Minimum Value	Maximum Value	Sum	Mean	Standard Deviation
Job losses to individuals	2	5	246	4.10	1.037

Mobility challenges to citizens	3	5	263	4.38	0.666
High cost of living to Ghanaians	3	5	283	4.72	0.585
Increased psychological trauma	3	5	275	4.58	0.591
Low income/profit to individuals	3	5	252	4.20	0.798

Source: Study Area, May, 2020

Result from table 4.2 shows that the statement that corona virus is causing high cost of living to Ghanaian citizens recorded the highest mean value (\bar{x}) of 4.72 with standard deviation (σ) of 0.585. Increased psychological trauma as a possible impact of Covid 19 recorded the second highest mean value (\bar{x}) of 4.58 with standard deviation (σ) of 0.591. Mobility challenges and causing of low income/profit to citizens equally recorded high mean values (\bar{x}) of 4.38 and 4.20 respectively with standard deviations (σ) of 0.666 and 0.798 respectively. The statement that the virus is causing job losses also recorded a high mean (\bar{x}) of 4.10 with standard deviation (σ) of 1.037. Each of the statements has mean values above the moderately severe threshold (3.0) and hence can be regarded as severe impacts of the corona virus on Ghanaian citizens. The findings are in line with the views expressed by Warwick & Roshen (2020) that *'economic downturn, collapse of businesses, unemployment due to lay-offs, higher price resulting from low productivity were some identified economic impacts which will transcend to economic hard-ship'*.

**Table 4.3 Descriptive Statistics on the possible negative impacts of the coronavirus
On the nation (Ghana)**

Possible effects of Covid 19 on the Nation (Ghana)	Minimum Value	Maximum Value	Sum	Mean	Standard Deviation
Fall in the nation's productivity	3	5	266	4.43	0.722
Loss of National revenue	3	5	274	4.57	0.593
Stagnation of Development	3	5	268	4.47	0.676
Drain the nation's existing revenue	3	5	275	4.58	0.671

Source: Study Area, May, 2020

Result from table 4.3 shows that the statement that the virus is causing drain to the nation's existing resources recorded the highest mean value (\bar{x}) of 4.58 with standard deviation (σ) of 0.671. Loss of national revenue as a statement recorded a very high mean value (\bar{x}) of 4.57 with standard deviation (σ) of 0.593. The statements that it causes stagnation of development very high mean values (\bar{x}) 4.47 and 4.43 respectively with standard deviations (σ) of 0.676 and 0.722 respectively. Each of the statements has mean values above the moderately severe threshold (3.0) and hence can be regarded as severe impacts of the corona virus on the nation-Ghana. The result is in line with the assertions of **World Food Programing Insight (WFPI- 2020)** that **predicted that there will be fall in remittances from overseas, loss of tourism revenue, no support from donor organizations, low overall productivity resulting in economic recession in developing nations. They are also in conformity to the views expressed by** Issahaku (2020) that COVID-19's economic and health effects are particularly alarming in Africa as the virus is causing more disruption to people's lives already smashed apart by conflict, corruption and insurgence.

i. Result on the second specific Objective:

The second specific objective is to identify the various opportunities for invention posed by the corona virus to Ghana as well as other African State. The results were coded using the scale where 5 represent strongly agree, 4 represent agree, 3 represent neutral, 2 represent disagree

whilst 1 represent strongly disagree. The descriptive statistics result is as shown below. Interpretation was done using the mean results with a higher mean value above 3.0 implies majority of respondents agreed to the statement whilst the otherwise is value below it.

Table 4.5 Descriptive Statistics on the possible opportunities for invention presented by the corona virus to Ghana as well as other African State

Possible invention opportunities for Ghana during Covid-19 era	Minimum Value	Maximum Value	Sum	Mean	Standard Deviation
Invention of Health related equipment	1	5	267	4.45	1.287
Personal Protective Equipment	3	5	276	4.60	0.718
Invention of medicines/Vaccines	2	5	272	4.53	0.873
Invention of Capital goods	1	5	242	4.03	1.131

Source: Study Area, May, 2020

Table 4.5 result shows that the statement that covid 19 presented opportunity for invention of personal protective equipment (PPE's) or Testing Kits recorded the highest mean value (\bar{x}) of 4.60 with standard deviation (\acute{o}) of 0.718. Invention of vaccines and other medications also recorded a very high mean value (\bar{x}) of 4.53 with standard deviation (\acute{o}) of 0.873. Invention of health related machines and capital goods (machines) also recorded high mean values (\bar{x}) of 4.45 and 4.03 respectively with standard deviations (\acute{o}) of 1.287 and 1.131 respectively. The results shows that all the statements are possible opportunities for invention posed by the corona virus to Ghana as well as other African State. This findings was not surprising as they are in conformity to the views expressed by Yeboah (2020) that asserted that the pandemic though a calamity to the world, it presents economies that are overly dependent on advanced nations with some unexpected benefits as KNUST invented home-made ventilators in Ghana, the invention of solar-powered hand washing machine by a Ghanaian among others.

ii. Result on Objective Three:

The third and the main aim of the study is to evaluate the cost-benefit (curse or invention opportunity) analysis of Covis 19 in Ghana. The results were coded using the scale where 5 represent strongly agree, 4 represent agree, 3 represent neutral, 2 represent disagree whilst 1 represent strongly disagree. Descriptive and inferential statistics were used in analysing these results.

Table 4.6: Descriptive Samples Statistics

		Mean	N	Std. Dev.	Std. Error Mean
Pair:	Curse	3.18	60	1.039	0.134
	Invention	4.27	60	1.233	0.159

Source: Study Area, May, 2020

From table above, result shows that the mean mark for Covid 19 as an opportunity for inventions recorded higher mean value relative to the mean value for the virus as a curse.

Thus the opportunity for invention recorded a mean mark (\bar{x}) of 4.27 and standard deviation (\acute{o}) of 0.159 whilst the virus as a curse recorded a mean mark (\bar{x}) of 3.18 and standard deviation (\acute{o}) of 0.134.

The researchers then tested the following hypothesis

Null hypothesis: $H_0: \mu_1 = \mu_2$, where $\mu_1 =$ mean of Covid 19 as a curse test and $\mu_2 =$ mean of Covid

19 as an opportunity for inventions

Null hypothesis: $H_1: \mu_1 \neq \mu_2$

The Paired t-test statistics was used to test for the hypothesis with results displayed below:

Table 4.7: Paired Samples Test (The Paired t-Test)

	Paired Differences					t	Df	Sig. (2-tailed)
	\bar{x}	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair: Curse Invent	-1.12	1.814	0.234	-1.585	-0.648	-4.768	59	0.000013

Source: Study Area, May, 2020

Result from the table 4.9 shows that the p-value (0.000013) is far lower than the significant level (0.05); Thus mathematically: $0.000013 < 0.05$, hence the null hypothesis is rejected based on 95% confidence level, making way for accepting the alternative hypothesis that there is a significant difference in the mean scores of corona virus as a curse and corona virus as an opportunity for Ghana and other African nations to invent; thus accept $H_1: \mu_1 \neq \mu_2$. Combining results in table 4.6 and table 4.7 it can be concluded that indeed the findings proved that corona virus is an opportune time for invention rather than a curse. However since the mean mark for the virus as curse is a little above the threshold of neutrality (thus 3.0) it can also be stated that its regarded as a curse cannot be totally overruled. The results conforms to the views expressed by the president of Ghana, Nana Addo (cited by Welsing, 2020) that '*necessity is the mother of invention*' and hence this opportune time presents a wake-up call for Africa and Ghana for that matter to invents and produce most of its imported goods.

CONCLUSION

The main objective of the paper is to assess the topic '*an antidote for inventions or a curse? the Covis 19 pandemic in an African country*'. Survey research design as a form of descriptive research was employed in this study. The scope of the study was limited to Ghana and therefore all citizens in the state are part of the general population. The accessible population was inhabitants of Greater Kumasi and Greater Accra Metropolis since providing a clear assessment of whether the corona virus pandemic is a curse or an opportunity for inventions will probably be done accurately by those that felt harsh policies implemented during the period. Hence, the two metropolises were selected as accessible population since they are the only metropolitans that were locked down for 3 weeks during the pandemic. In this research the sample size selected was 60 respondents whilst the convenient sampling technique, which can be categorized under the non-probability sampling methods was used as a sampling technique. Data was gathered using questionnaire distributed online using Google form or self-distributed whilst ensuring all Covid 19 directives: use of hand sanitizers, washing of hand, and social distancing. Questionnaire was analyzed using both descriptive and inferential statistics. The first specific objective of the study is to identify the overall negative impacts of the coronavirus on Ghanaian citizens and the country at large. It can be concluded that corona virus is causing serious negative impacts on individuals/citizens in Ghana with effects including high cost of living, psychological trauma, and mobility challenges, causing of low income/profit and causing job losses. On the national level, the virus is causing drain to the nation's existing resources, loss of national revenue, stagnation of development and fall in overall production.

The second specific objective of the study is to identify the various opportunities for invention posed by the corona virus to Ghana as well as other African State. It can equally be concluded that covid 19 presented opportunity to Ghana as a country for invention of personal protective equipment (PPE's) or Testing Kits, Invention of vaccines and other medications, invention of health related machines and capital goods (machines)

The last and the ultimate objective of the paper is to evaluate the cost-benefit (curse or invention opportunity) analysis of Covis 19 in Ghana. The study can conclude that indeed the findings proved that corona virus is an opportune time for invention in Ghana as well as other African states rather than a curse. However, since the mean mark for the virus as curse is a little above the threshold of neutrality (thus 3.0) it can also be stated that regarded it as a curse cannot be totally overruled based on the study.

RECOMMENDATIONS

The following were recommended:

- i. Government must empower more local firms to produce local products : PPEs, hand sanitizers, ventilators, and equally venture into producing vaccine of possible cure. This can be done by supporting them financially through tax free production within this pandemic period.
- ii. Government must welcome and assist new and amateur inventors both technologically and financially to improve their local inventions. This will help encourage more Ghanaian individuals and firms to attempt to invent new products or equipment which can be used locally and surplus exported to sister neighboring nations.
- iii. Government must set up import substitution firms or encourage local producers to improve their yield both in quality and quantity to help feed support local needs. This will be very effective if adequate citizenry education is done for Ghanaians too appreciate locally produced products.
- iv. Government giving tax waiver to private enterprises during this corona virus period. This will encourage most private enterprises to at least have some reserve cash to ensure continual production and retaining of its workers, hence reducing job losses.
- v. Government supporting the urban poor with regular income using their mobile money accounts during the corona virus period. This will help mitigate the economic hardship of urban poor. However the problem about this recommendation is availability of data on the Ghanaian citizenry relating those who are urban poor.
- vi. Government must intensify education of the public on the virus to help reduce the erroneous impressions people hold about the virus as a death sentence. This will go a long way to reduce the psychological trauma associated with it.

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