



**RESEARCH AND GRANT
INSTITUTE OF GHANA (REGIG)**

A CROSS-SECTIONAL SURVEY REPORT ON COVID-19 VACCINE ACCEPTANCE-HESITANCY IN GHANA



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TABLE OF CONTENT

About Research And Grant Institute Of Ghana.....	1
Covid-19 Acceptance-hesitancy Project Team Members.....	1
Executive Summary.....	2
Introduction.....	3
Specific Objectives Of Study.....	4
Methodology.....	5
Results.....	5
Knowledge/information On Covid-19 Vaccine.....	7
Covid-19 Vaccine Readiness.....	8
Regulatory Approval And Trust In Covid-19 Vaccine.....	9
Country Of Origin And Trust In Covid-19 Vaccine.....	10
Employers And Religious Leaders Role In Covid-19 Vaccination.....	10
Side-effects Of Covid-19 Vaccine.....	11
Discussion.....	12
Recommendations.....	13
Limitations.....	14
Limitations.....	14
References	14

About Research and Grant Institute of Ghana

The study was funded by the Research and Grant Institute of Ghana (REGIG) to generate evidence to support the mass COVID-19 vaccination initiative by the Government of Ghana and development partners.

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EXECUTIVE SUMMARY

The COVID-19 pandemic is causing considerable destruction to human life, threatening both fragile and robust healthcare systems and bringing both developed and developing economies to their knees. Efforts to contain the pandemic have hovered around what has been termed ubiquitously as COVID-19 protocol. Protocol, prescribes hand washing with soap under running water, social distancing, application of alcohol-based hand sanitizer and the use of nose/face masks as effective, interim measures to control the spread of the COVID-19. Through the unrelenting efforts of the scientific community, pharmaceutical companies and funding agencies, COVID-19 vaccines have been produced to enable mass vaccination of the population to achieve herd immunity against the COVID-19. The government of Ghana received the first consignment of the COVID-19 vaccine under the special purpose vehicle; COVAX, an initiative of WHO and GAVI, to ensure that resource constraint countries are not left behind in the struggle for the vaccine. The success of the mass vaccination exercise is largely dependent on the citizens' acceptance of the vaccine. In this regard, the Research and Grant Institute of Ghana (REGIG) conducted an online survey to collate the views of Ghanaians on the COVID-19 vaccine; findings of which may influence policy and programs relating to the mass vaccination program. The main findings of the study involving 544 respondents are summarized below;

- I. As many as 99.6% of the respondents indicated that they have heard about the COVID-19 vaccine. More than half (54%) listed radio/television as the source of COVID-19 vaccine information, followed by social media platforms (33.90%).
- II. Less than half (48.70%) of the respondents were ready to receive the COVID-19 vaccine. Individuals who were ready to be vaccinated were also more likely to pay for the vaccine as well as encourage family members or friends to receive the vaccine.
- III. An overwhelming majority of the respondents (85.60%) wants more education on the COVID-19 vaccine. These individuals are likely to state that the vaccine has too many side-effects and/or worried about the future negative effects of the vaccine.
- IV. More than half of the respondents would trust COVID-19 vaccine approved by the WHO and FDA (Ghana). Also, 45.20% trusted that the government of Ghana would procure the best COVID-19 for Ghanaians.
- V. In terms of trust in vaccine based on the country of origin, 41.10% would trust COVID-19 vaccine produced in Ghana, whereas 40.90% would trust a vaccine from UK/Europe.
- VI. Less than 30% of the respondents indicated that directives from their employers and religious leaders will influence their decision to be vaccinated.
- VII. Majority of the respondents (72.40%) were worried about the future negative effects of the vaccine, whereas 54.40% were uncertain about the side-effects of the vaccine.

Elaborate and coordinated public awareness and education on the COVID-19 vaccine on radio, TV and social media should be carried out and/or enhanced (where it has already started). This education should be centred on the essence of accepting and taking the vaccine, safety issues and dealing with fear of any unknown future negative effect(s) that may emanate from taking the vaccine. The ultimate goal is to increase readiness to accept the COVID-19 vaccine.

INTRODUCTION

The 2019 Coronavirus Disease (COVID-19) is a highly infectious disease caused by a novel beta-coronavirus known as the Severe Acute Respiratory Syndrome Coronavirus (WHO, 2020). The disease which was first reported in December 2019 in China was declared a pandemic by the World Health Organization (WHO) in March, 2020 (WHO, 2020). Globally, there are over 124.8 million confirmed cases of COVID-19, with more than 2.7 million deaths as at 26 March 2021 (WHO, 2021). Ghana registered her first COVID-19 case in March, 2020. About a year on (March 26, 2021), data by Ghana Health Service (GHS) revealed that the country has recorded over 90 thousand confirmed COVID-19 cases with 740 deaths and 87 thousand recoveries (GHS, 2021).

In addition to behaviour change practices such as the use of face mask and alcohol-based hand sanitizers, vaccination presents another avenue to tackle and stop the COVID-19 pandemic, (Koirala, Joo, Khatami, Chiu, & Britton, 2020). Vaccination is an important and successful public health intervention in the control of diseases that were once common and fatal across the globe (WHO, 2013). Global vaccination efforts have led to the eradication of smallpox, polio, measles, and rubella whereas vaccines for other infectious diseases such as rotavirus and hepatitis A have reduced illness and prevented transmission to others (Schuchat, 2011).

On 24 February 2021, Ghana received 600, 000 doses of the AstraZeneca/Oxford COVID-19 vaccine under the COVAX facility supported by WHO and the Global Alliance for Vaccine Initiative (GAVI). Thus, Ghana became the first country to receive part of the 2 billion scheduled COVID-19 vaccine under the COVAX facility proposed for low- and middle-income countries (LMIC).

The country commenced the vaccination exercise on 1st March 2021, with priority targets such as top government officials, health workers, security officials, media practitioners and the aged.

More importantly, it is noted that citizens' acceptance of the COVID-19 vaccine is an important factor in the quest of Government of Ghana and her development partners to tackle the pandemic in the country. Anecdotal and media reports suggest that people have concerns over the COVID-19 vaccine. While some of the concerns are focused on the side-effects of the vaccine, others are rooted in conspiracy theories associated with the vaccine production, including the view that the vaccine is intended to control population growth among black communities. The safety of the AstraZeneca vaccine has dominated public discourse in Europe and some other places where, for example, the vaccine has been linked to the formation of blood clot. These side-effects and conspiracy theories coupled with already existing healthcare bottlenecks may threaten the acceptance and uptake of the COVID-19 vaccine in Ghana.

The Regional Immunization Technical Advisory Group (RITAG) and the African COVID-19 Vaccine Readiness and Delivery Taskforce (ACREDT) have admonished countries to prepare for a successful deployment of COVID-19 vaccine. Key among the recommendations proposed by the RITAG and ACREDT is to build a robust community engagement and communication strategy to enhance the uptake of the vaccine (WHO, 2020b). However, there is paucity of local data to support policy makers and practitioners in their effort to enhance the vaccine uptake. Empirical data on the acceptance and risk perception of COVID-19 vaccine as well as bottlenecks which may lead to a delay or refusal to accept the vaccine (the so-called vaccine hesitancy) may feed into intervention programming to enhance vaccine uptake and to ultimately curb and eliminate COVID-19 in Ghana. This study, therefore, seeks to generate preliminary data on the acceptability and risk perception of COVID-19 vaccine in Ghana.

Specific Objectives of Study

1. Estimate the number of people who are ready to receive the COVID-19 vaccine as well as factors influencing their readiness.
2. Determine the impact of regulatory approval and trust in COVID-19 vaccine.
3. Investigate whether and to what extent directives from employers and religious leaders will contribute to COVID-19 vaccine acceptance.
4. Determine self-reported COVID-19 vaccine literacy.
5. Investigate the perceived side-effects of COVID-19 vaccine.
6. Examine the country of origin and trust in COVID-19 vaccine.

METHODOLOGY

Data were gathered using a cross-sectional survey and a self-report methodology. The data collection tool consisted of 23 items pre-determined by the research team to be relevant to vaccine hesitancy/acceptance study.

The items were culled from the existing literature as well as discussions with experts in public health and immunization. The items were administered via online platform powered by Google Form.

A dedicated link to the survey was shared on social media platforms over the period 28 February – 7 March, 2021; a period that coincided with the inception of the roll-out of COVID-19 vaccine in Ghana.

Data collected were cleaned to remove duplicates, coded and analyzed with the Statistical Package for Social Sciences (SPSS) and excel. Both descriptive (frequency, percentages and graphical representation) and inferential statistics, namely chi square were conducted.

RESULTS

Demographic Characteristics of Respondents

A total of 544 respondents took part in the study. The demographic characteristics of the respondents are summarized in Table 1. Figures 1 and 2 contain data on whether the respondents have heard of COVID-19 before, as at the time of the study, and the various sources of COVID-19 vaccine information. Figures 3 and 4 also provide data on whether the respondents or someone close to them contracted COVID-19.

Table 1: Descriptive Statistics of Demographic Characteristics of Study Respondents

Variables	Frequencies	Percentages (%)
Gender		
Male	321	59.0
Female	223	41.0
Age		
18- 24	101	18.6
25-34	220	40.4
35-44	184	33.8
45+	39	7.2
Occupation		
Student	115	21.2
Health workers	237	43.6
Non-health workers	168	30.9
Unemployed	23	4.2
Religion		
Christianity	502	92.6
Islamic	31	5.7
Traditional & Others	9	1.7

Contracted COVID-19

Of the 543 respondents, only 6.40% indicated that they had contracted COVID-19 at the time of the study (see Figure. 1).

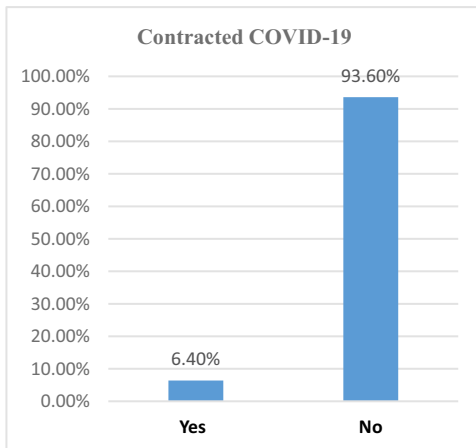


Figure 1. Contracted COVID-19

Someone Close Contracted COVID-19

Whether the respondents knew someone close to them who contracted COVID-19, 38.30% indicated yes, whereas 61.70% did not know. The result is summarized in Figure. 2.

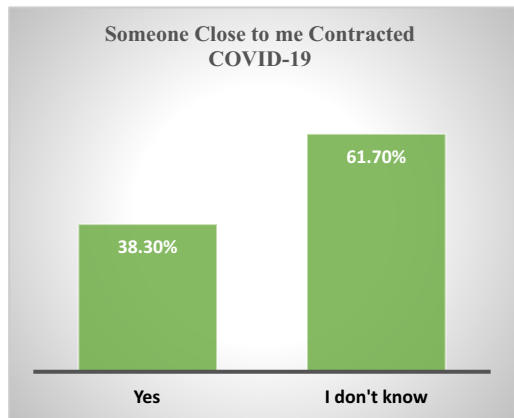


Figure 2. Knowing someone who contracted COVID-19

Information about COVID 19 Vaccine

As many as 99.6% of the respondents indicated that they have heard about the COVID-19 vaccine (Figure 3).

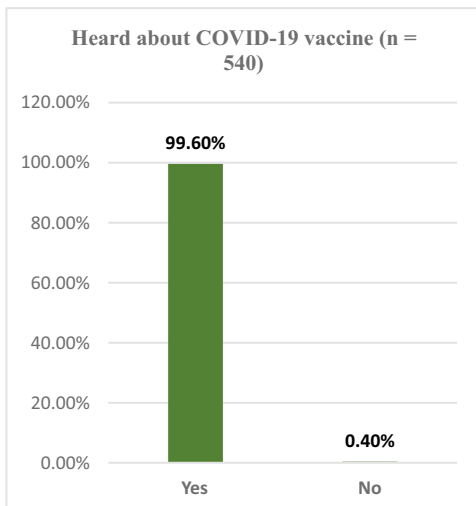


Figure 3. Hearing about COVID-19 vaccine

Sources of COVID 19 Vaccine Information

As shown in Figure 4, more than half of the respondents (54%) listed radio/television as the source of COVID-19 vaccine information, followed by social media platforms (33.90%).

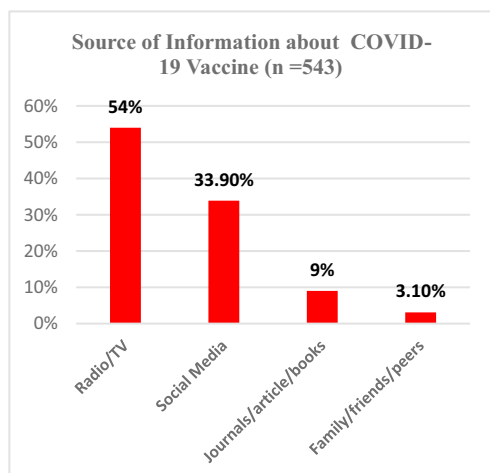


Figure 4. Medium of hearing about COVID-19 vaccine

Knowledge/Information on COVID-19 Vaccine

The respondents' responses regarding COVID-19 vaccine knowledge/information are summarized in Figure 5. Firstly, just a little over half of the respondents (55.70%) asserted that the COVID-19 vaccine will protect them against COVID-19 while 18.70% stated that the vaccine will not offer any protection against the viral disease.

As shown, of the 543 respondents, 53.40% stated they were well informed about COVID-19 vaccine. When asked whether they want more education on the COVID-19 vaccine, an overwhelming majority (85.60%) responded in the affirmative.

Readiness to receive the COVID-19 vaccine was significantly related to how much the respondents were informed about the vaccine ($\chi^2 = 85.58, p < .001$) but not on the need for COVID-19 vaccine education ($p > .05$).

Males were more likely to be well informed about the COVID-19 vaccine ($\chi^2 = 9.68, p = .008$), whereas respondents aged 18-24 ($\chi^2 = 14.28, p = .027$) and students ($\chi^2 = 26.61, p < .001$) were also less likely to be informed.

Graduates of SHS/technical and vocational schools were more likely to be uncertain about whether or not they need more education on COVID-19 vaccine ($\chi^2 = 14.29, p = .006$).

There was a significant relationship between the request for more education on COVID-19 vaccine and the claim that the vaccine has too many side-effects ($\chi^2 = 25.31, p < .001$) and future negative effects ($\chi^2 = 35.04, p < .001$). Respondents who were well-informed about the COVID-19 vaccine were more likely to disagree that the vaccine has too many side-effects ($\chi^2 = 47.23, p < .001$) and future negative effects of the vaccine ($\chi^2 = 15.42, p = .004$).

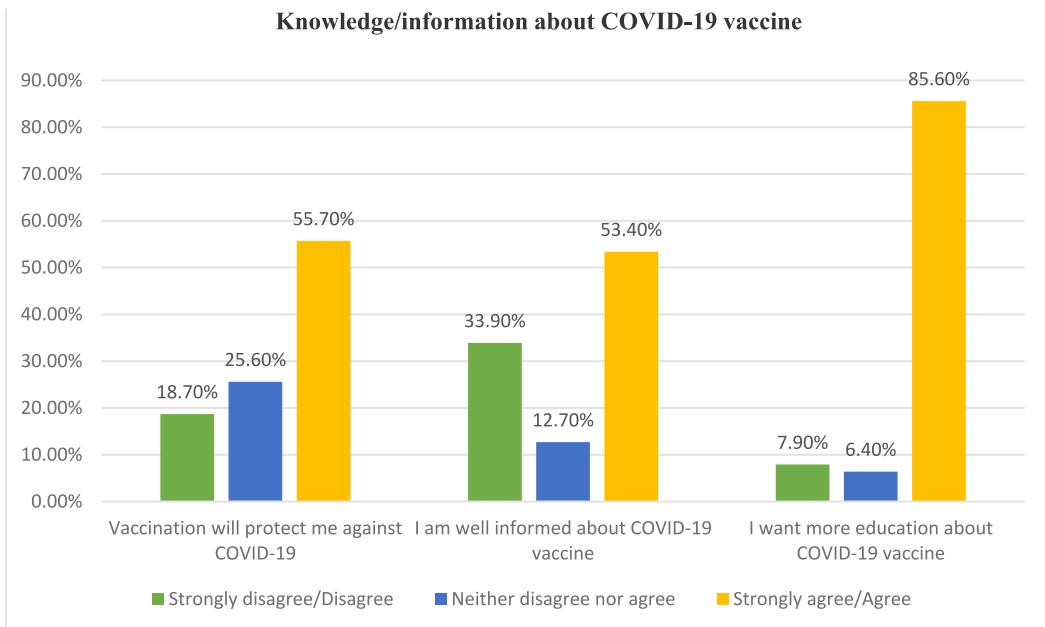


Figure 5: Knowledge/information on COVID-19 vaccine

COVID-19 Vaccine Readiness

The responses to the study items on readiness for the COVID-19 vaccine are summarized in Figure 6. Close to half of the 542 respondents (48.70%) indicated that they are ready to receive the COVID-19 vaccine.

Compared to males, females were significantly less likely to be ready to receive the vaccine ($\chi^2 = 10.87, p = .004$). The respondents aged 18-24 were also uncertain about their readiness to receive the vaccine ($\chi^2 = 13.27, p = .039$). Health workers, however, were significantly more likely to receive the vaccine ($\chi^2 = 42.61, p < .001$). Educational background and whether the respondents knew someone diagnosed with COVID-19 did not significantly influence their readiness for the COVID-19 vaccine.

More than half of the respondents ($n = 538$) also indicated that they are not ready to pay for COVID-19 vaccine. More importantly, respondents who indicated their readiness to be vaccinated were more likely to pay for the COVID-19 vaccine ($\chi^2 = 140.07, p < .001$). A total of 46.60% of the respondents indicated they would encourage their family members or friends to take the vaccine. This is, however, significantly influenced by whether or not an individual is ready to take the vaccine. More specifically, the result showed that those who indicated their readiness to be vaccinated were more likely to encourage their friends or family members to be vaccinated ($\chi^2 = 489.95, p < .001$).

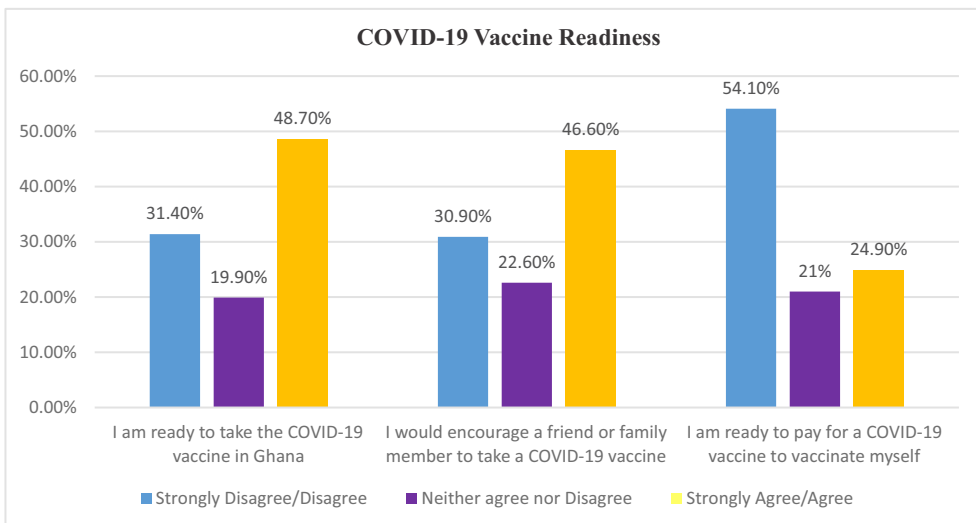


Figure 6: Readiness for COVID-19 vaccine

Regulatory Approval and Trust in COVID-19 Vaccine

Figure 7 contained a summary of the results on trust of COVID-19 vaccine approved by the WHO and Ghana's FDA as well as trust in the Government of Ghana to obtain the best vaccine for Ghanaians.

A total of 62.30% ($n = 544$) and 54.40% ($n = 540$) respondents would trust COVID-19 vaccine approved by WHO and FDA, respectively. However, less than half of the 544 respondents (45.20%) trusted government to obtain the best COVID-19 vaccine for Ghanaians.

Health workers were more likely to trust COVID-19 vaccines approved by WHO ($\chi^2 = 36.84, p < .001$) and FDA ($\chi^2 = 39.74, p < .001$). They were also more likely to trust the government of Ghana to obtain the best COVID-19 vaccine for Ghanaians ($\chi^2 = 37.63, p < .001$).

Respondents who indicated their readiness for the COVID-19 vaccine were more likely to trust vaccines approved by WHO ($\chi^2 = 333.12, p < .001$), FDA ($\chi^2 = 330.99, p < .001$) and also trust government of Ghana to obtain the best vaccine for Ghanaians ($\chi^2 = 261.12, p < .001$).

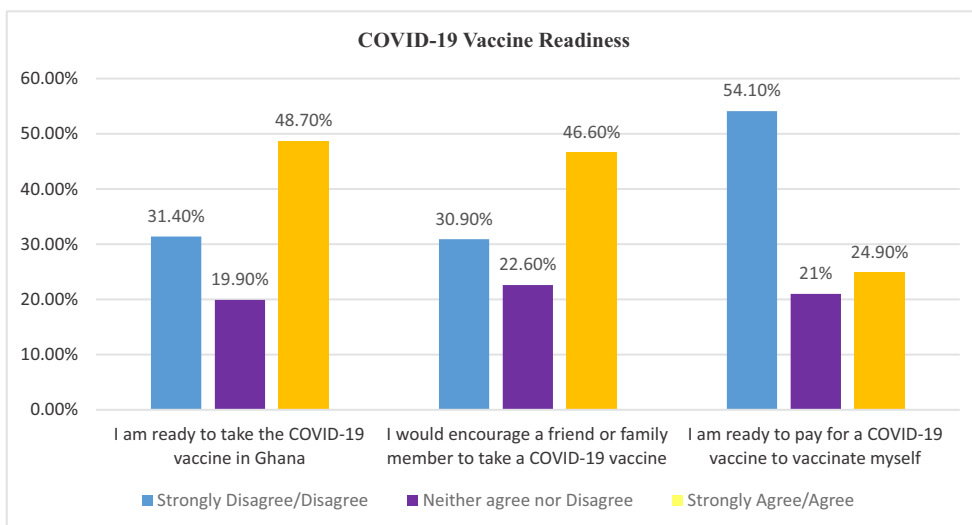


Figure 6: Readiness for COVID-19 vaccine

Country of Origin and Trust in COVID-19 Vaccine

Of the 511 respondents (see Figure 8), 41.10% would trust COVID-19 vaccine produced in Ghana, whereas 40.90% would trust a vaccine from UK/Europe. The data for India, China and Russia were merged to obtain adequate sample size for the subsequent analysis below.

The result showed that respondents who would trust COVID-19 vaccine from the UK/Europe were those aged 18-24 years ($\chi^2 = 14.28, p = .027$) and those who expressed readiness to receive the vaccine ($\chi^2 = 48.30, p < .001$). Occupation and gender did not influence trust in COVID-19 vaccine based on the origin of the vaccine.

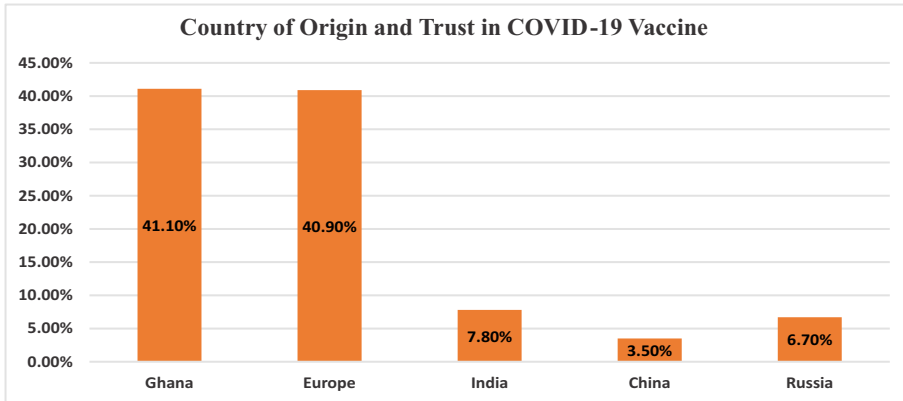


Figure 8: Country of origin and trust in COVID-19 vaccine

Employers and Religious Leaders Role in COVID-19 Vaccination

As shown in Figure 9, 27.70% (out of 496 respondents) and 21.60% (out of 542 respondents) respondents stated, respectively, that directives from their employers and religious leaders will cause them to take the COVID-19 vaccine.

Approximately 25% and 27% expressed uncertainty regarding the impacts of the directives from employers and religious leaders on their decision to be vaccinated, respectively.

The responses of the respondents in relation to the aforementioned variables were not significantly influenced by their gender, age and educational background ($p > .05$).

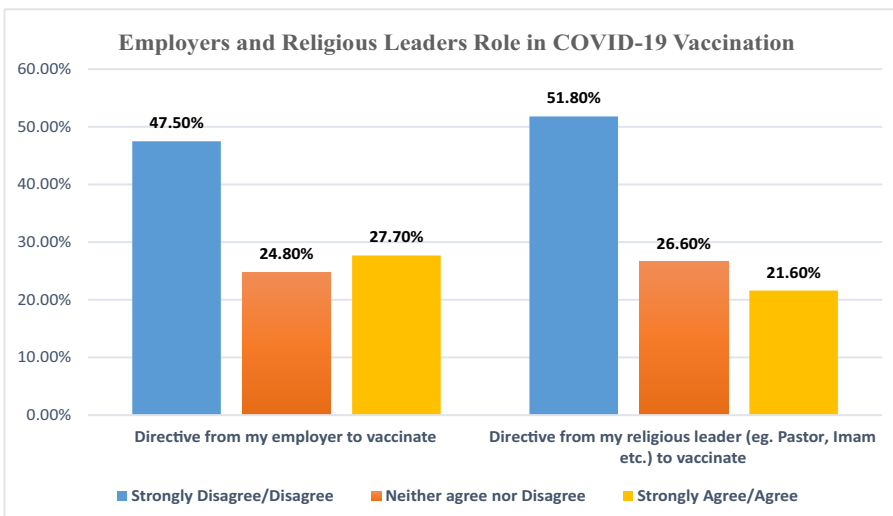


Figure 9: Role of employers and religious leaders in vaccination

Side-Effects of COVID-19 Vaccine

The summary of the results in Figure 10 showed that more than half of the 540 respondents were uncertain about whether the COVID-19 vaccine has side-effects. However, an overwhelming majority of the respondents (72.40%) were worried about the future negative effects of the vaccine.

Significantly, more men are likely to indicate the vaccine has so many side-effects ($\chi^2 = 15.64, p < .001$). Health workers are more likely to disagree that the vaccine has too many side-effects ($\chi^2 = 28.40, p < .001$) as well as worry about the future negative effects of the vaccine ($\chi^2 = 14.81, p = .022$).

Respondents who disagreed that the COVID-19 vaccine has many side-effects were also more likely to express their readiness to take the vaccine ($\chi^2 = 112.33, p < .001$). This was also true for respondents who were uncertain about the side-effects of the COVID-19 vaccine and readiness to take the vaccine. In contrast, respondents who were worried about the future negative effects of the COVID-19 vaccine were less likely to receive the vaccine ($\chi^2 = 70.70, p < .001$). Respondents aged 18-24 expressed uncertainty regarding the side-effects of the vaccine.

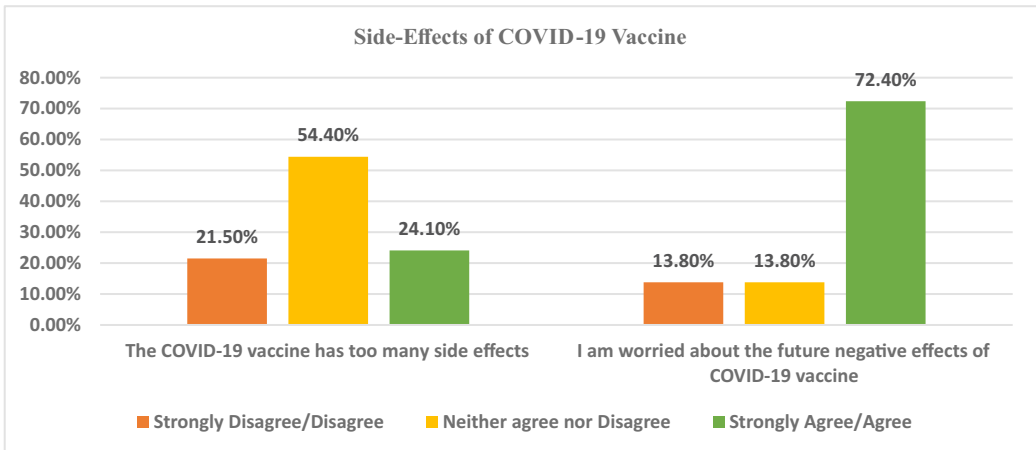


Figure 10: COVID-19 vaccine side-effects

DISCUSSION

The study was conducted to investigate the level of acceptance or hesitancy of the Ghanaian population towards the COVID-19 vaccine which is intended to complement other measures in fighting against the prevailing pandemic. Similarly, factors that may predispose people to accept or refuse the vaccine were also examined.

Respondents in this study included survivors of COVID-19 and those who knew someone who has contracted the disease (Figures 1 and 2). This group of respondents may have some appreciation of the intricacies of the disease as well as acknowledge the reality of the disease hence may provide some vital information. It was observed that almost all respondents have heard about the COVID-19 vaccine (Figure 3). This is of significant importance as knowledge of the existence of the vaccine is an important step in the vaccine acceptance-hesitancy continuum.

Radio and TV were the most traditional media through which respondents received information about the vaccine, followed by social media (Figure 4). Public education and awareness campaign delivered through these media, either concurrently or sequentially, will reach a lot of the various segments of the Ghanaian population.

Despite the overwhelming majority of the respondents who claimed they have heard about the vaccine, only half indicated that they are well-informed about the COVID-19 vaccine (Figure 5). Impliedly, about half of the respondents acknowledged they possessed insufficient knowledge on the vaccine. It is, therefore, not surprising that as many as 85.6% of the respondents stated that they will need more information on the vaccine. This is important as this knowledge may influence their decision to accept to take the jab or refuse same. More importantly, the amount and credibility of knowledge on COVID-19 vaccine is even of much essence if vaccine hesitancy can be fought against.

Almost half of the respondents indicated their readiness to accept the vaccine and almost same proportion are willing to encourage a friend or a family member to do same (Figure 6). Health workers were more likely to be ready to receive the vaccine largely because their job prescriptions increase their vulnerabilities to COVID-19. Also, health workers, given their training in medicine and health, are likely to appreciate the scientific basis of vaccines, in general. This knowledge may dispel any anti-vaccine information that they might have heard from the public domain.

However, that, only about 49% of the respondents was ready to take the vaccine was quite on a low side. This reinforces the urgent need for public education on the need to get vaccinated against the disease, with a particular focus on females and respondents who aged 18-24 years who were quite not ready to take the vaccine partly because of their perceived low vulnerability to COVID-19. However, as the second wave has so far shown, all age groups are highly susceptible to contracting and dying from the disease. The lack of readiness on the part of females and young people who form a significant proportion of the country's population to take the vaccine may hamper government's efforts aimed at achieving a high vaccination rate and the attainment of herd immunity.

The perceived side-effects of the COVID-19 vaccine could be one of the reasons affecting readiness for the vaccine. Indeed, in this study, respondents who disagreed that the vaccine has too many side-effects were more likely to register their readiness to be vaccinated.

To this extent, educational and awareness campaign programmes on COVID-19 vaccine should incorporate information about the side-effects of the vaccine to disabuse the mind of the populace or correct any misinformation about the vaccine.

More than half of the respondents indicated that they will trust COVID-19 vaccine approved by the WHO and FDA (Ghana). The finding relating to FDA is very promising as it indicates trust in a local regulatory authority's ability to test and approve effective vaccine for Ghanaians. It follows that a locally manufactured COVID-19 vaccine approved by the FDA is likely to be trusted by majority of Ghanaians. This deduction is largely supported by the finding suggesting that an overwhelming number of the respondents would trust COVID-19 vaccine produced in Ghana, compared with China, India and Russia. The preference for Ghana-made vaccine is almost equal to preference for European-made vaccines. This finding is quite instructive as respondents, by this, are demonstrating some level of confidence in Ghana-based scientific researchers and pharmaceutical industry. It is also a call for the government to resource and strengthen the research laboratories and researchers in the country to conduct cutting-edge research to address pressing health problems. The foregoing notwithstanding, this finding may as well be a reflection of the misconception that the vaccine may endanger the African population.

Notwithstanding the trust in FDA as a government institution, less than half of the respondents trusted the Government of Ghana to procure the best COVID-19 vaccines for Ghanaians. This is quite disturbing as it may be an indication of lack of trust of the citizenry in government in the fight against COVID-19.

Employers and religious authorities in Ghana may not exert enormous influence in persuading their employees and members to take the COVID-19 vaccine. This is because only about 28% and 22% of respondents opined that directives from these authorities could influence their decision to be vaccinated. This is quite surprising given the strong allegiance to religious practices in the country. The background of the majority of the respondents (i.e., medium to high education) may account for this finding. Perhaps, those with little or no education may be highly influenced by these leaders. Nevertheless, given that about 20% of the respondents were uncertain about the impact of such influence on them, it is important that stakeholders engage employers and religious leaders to persuade their members to accept to take the vaccine.

Recommendations

To increase vaccine acceptance and reduce hesitancy, government and its health agencies need to intensify public education on the safety and efficacy of the COVID-19 vaccine. In this education, it is essential to allay the fears of the public regarding the side-effects of the vaccine and more especially about the perceived future negative effect of the vaccine. Also, the production of vaccines, in general, and COVID-19 in particular, should be explained to the ordinary man on the street to engender their confidence in the vaccination. Employers and opinion leaders, especially religious leaders and health workers, should play essential role in this education as well.

More importantly, almost 9 out of 10 of the respondents indicated that they needed more information on the COVID-19 vaccine. It is likely that the availability of credible and timely information on the vaccine to the populace may positively change the mindset and opinions of many people towards the vaccine. Strategies must be put in place by health institutions

and NGOs in health to provide and intensify information flow to the populace on the vaccine.

The segment of the population who may be disinterested in the vaccination for reasons such as low vulnerability to COVID-19 should be targeted and reached with education on the vaccine. The larger the vaccinated population, the quicker the likelihood of attaining herd immunity.

Limitations

The study did not include the views of the majority of the Ghanaian population who do not have access to internet or use social media platforms. Incorporation of their views might have resulted in different findings. Lastly, we did not have any mechanism to determine the accuracy of data supplied by the respondents. Nevertheless, our findings generally support previous studies on vaccine acceptance-hesitancy.

Conclusion

In this study, we showed that almost half of the respondents are ready and willing to take the COVID-19 vaccine and almost three-quarter of the respondents are harbouring fear about future negative effects that may result from taking the vaccine. Importantly, about half of the respondents would trust COVID-19 vaccine if manufactured in Ghana.

Elaborate and coordinated public awareness and education on the COVID-19 vaccine on radio, TV and social media should be carried out and/or enhanced (where it has already started). This education may be centred on the essence of accepting and taking the vaccine, safety issues and dealing with the fear of any unknown future negative effect(s) that may emanate from taking the vaccine.

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