



Acceptance of Covid-19 Vaccination: Perspectives of an Urban Community in Ghana

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ABSTRACT

Since the start of the COVID-19 pandemic, research on the adoption and spread of the COVID-19 vaccination has been conducted all over the world. However, studies on the spread of the COVID-19 vaccine and its subsequent acceptance have received little attention in Ghana. This study investigated how the general population reacted to the Government of Ghana's COVID-19 vaccination diffusion strategy as well as the motivating factors for its acceptance. In-depth interviews with thirty (30) purposefully selected respondents were conducted. The interview data were thematically analysed. Themes that emerged from the analysis included: conspiracy theory, vaccine as free lunch, misconception about susceptibility of COVID-19, misinformation and public education and lack of trust in the Government and the health system. The study's findings show that reluctance to receive vaccine is a significant obstacle to establishing effective vaccination efforts during the pandemic. We conclude that conspiracy theory, vaccine as free lunch, misconception about susceptibility of COVID-19, misinformation and public education and lack of trust in the Government and the health system as factors resulting in vaccine hesitancy. The study's conclusions can also give the Ghanaian government ideas for approaches to adopt in order to allay respondents' worries. This may significantly lessen vaccine hesitancy among Ghanaians.

INTRODUCTION

In December 2019, there was an outbreak of a strange disease which was accompanied by dry cough, fatigue, fever and occasional gastrointestinal symptoms. This occurred at a seafood wholesale market in Wuhan, Hubei in China. The outbreak was initially reported to have affected about 66% of the staff in the wholesale market. The market was subsequently shut down on January 1, 2020 after an epidemiologic alert was given by the local health authority on December 31, 2019. In the ensuing months, thousands of people, including many living in provinces in China, were however, infected with the virus (World Health Organization, 2019).

Shortly, the disease spread to other countries such as Japan, Germany, United States and so many other countries. Globally by February 6, 2020, a total of 28,276 cases, in at least 25 countries, had been confirmed with 565 deaths (WHO, 2019).

The disease was later identified as the 2019 novel coronavirus (2019-nCoV) also known as SARS-CoV-2 which causes the coronavirus. The advent of coronavirus SARS-CoV-2 strain has had a devastating impact on global health, the world economies and major pharmaceutical companies all over the world have made it a top priority to develop effective and safe vaccines for this disease (Padron-Regalado, 2020). As of December 8, 2020, over 65.8 million cases and 1.5 million deaths had been reported all over the globe (World Health Organization, 2020). There is no doubt that vaccination will be one of the most effective strategies to prevent the further spread of the disease. However, the extent to which COVID-19 spread across the world has made it impracticable to produce adequate vaccines for the global population. Subsequently, it became necessary for governments to prioritise categories of their citizenry for vaccination. Notable among those prioritised were high risk-groups such as health care workers, older people with underlying health issues (co-morbidity conditions) and essential service workers (Kaur & Gupta, 2020).

At the beginning of November 2020, the first results of COVID 19 vaccine trials were announced (Polack, et al., 2020, Ramasamy et al., 2020). At the same time, more than 30 different types of vaccines had been assessed through advanced clinical testing all over the world (Jain et al., 2020). Most recently, several countries around the world have now started to vaccinate their citizenry while many more have begun preparations to do so. The role of vaccination in the control of morbidity and mortality from infectious diseases are documented in the literature. According to Larson and Schulz (2021), vaccination will help to prevent lots of fatalities, illness and million cases of long-term impairment. The largest benefit will be felt in low and middle-income nations. According to Ozawa et al., (2017) vaccine coverage is still optional despite the fact that there are significant advantages. There are a number of explanations for non-vaccination or inadequate immunization, but vaccine reluctance stands out. According to published research, a high reluctance rate will ultimately result in a drop in vaccination coverage rates and all the benefits that should be experienced by communities and individuals (Hickler et al., 2017). As a result, experts concur that vaccination hesitancy is a serious issue on a global scale (Hickler et al., 2017). The dilemma of how to effectively address the expanding epidemic of vaccine reluctance remains (Peretti-Watel et al., 2015). Adverse effects following vaccination, vaccine recalls or replacements, media stories or local myths about vaccines that may or may not be true, vaccine suspension, and even the threat of a vaccine shortage are all things that could negatively affect vaccination programs (WHO, 2013). The public's confidence in receiving vaccines may decrease as a result of these vaccine-related problems. The safety of vaccines and mistrust of pharmaceutical firms have been identified as significant concerns in vaccination reluctance (Boom & Cunningham, 2014; Grabenstein, 2013).

As a result of significant discrepancies or gaps between individual knowledge attitudes toward an invention, having the necessary information and attitude can lead to behavioral adoption which will ultimately lead to behavior and behavioral adoption practices (Rogers, 2003). Social networks and other types of interpersonal contact, according to the idea of innovation diffusion, facilitate an innovation's expansion inside a social system (Rogers, 2003). According to some studies, the knowledge, attitude, and practice gaps for adopting a preventative innovation may

also be influenced by self-efficacy (Rimal, 2000), as well as external variables including social pressure and access issues (Rogers, 2003). Therefore, this study analyzes how variations in people's knowledge and attitudes toward the COVID-19 vaccine adoption practices may influence it. According to Rogers (2003), adoption patterns for vaccines may be influenced by how the perceived qualities of innovations affect their rate of acceptance. According to the diffusion and innovation theory, researchers should take into account how behavior changes may occur before attitudes and knowledge about vaccination change. Knowledge and attitudes may also change after individuals have received vaccinations (i.e., first dose of the vaccine in the case of COVID-19). It is significant to remember that changes in knowledge and attitudes might not happen before vaccination procedures. Health interventions can be made more efficient and focused with the help of a better understanding of the knowledge, attitude, and habits within a group of people. By examining the factors that influence people's willingness to receive the COVID-19 vaccine, we can make useful suggestions for patient decision-making and health education. The COVID-19 pandemic has raised awareness around the world on the significance of comprehending complex political, social, and behavioral factors influencing the general populace's acceptance of effective, rigorous scientific, and morally sound recommendations to reduce transmission, including the acceptance of future vaccines. Since the earliest smallpox vaccination campaigns, people's reservations about vaccines and vaccine resistance have not been new (Li et al., 2020). According to Allington et al., (2020) one of the top 10 dangers to world health in 2019 is vaccine hesitancy, which is the refusal to get recommended vaccinations due to reservations and worries about vaccines.

COVID-19 IN GHANA

Ghana's first COVID-19 case was reported on March 12, 2020 (Ghana Health Service, 2020), and by May 9, 2021, there had been 92,856 confirmed cases and 783 fatalities. The Ghanaian government implemented a number of initiatives to stop the virus's spike and spread, including the closing of borders and schools, the requirement that citizens wear masks, and targeted lockdowns. The decision to purchase the first batch of Oxford/AstraZeneca vaccines for citizens was also made public by the Government of Ghana (GoG). Since then, opinions on the vaccinations received by Ghanaians have been divided. The Ghana Health Service, the Ministry of Health, and other organizations, including the media, have put in place initiatives to urge the populace to get immunized in order to increase patronage and end the spread of the virus. The results would aid academics and decision-makers in creating the best approaches to lessen public hesitation around vaccination. Studies looking into how vaccines are received such as those investigating influenza vaccinations have found that a number of interpersonal and personal factors influence how vaccines are received (Okoli et al., 2020).

Numerous demographics, cognitive, and psychosocial factors, including education, attitude toward the vaccine, age, gender, feeling confident in the government, perceived susceptibility to COVID-19, and potential vaccine side effects have been identified in other studies on the subject of factors relating to willingness to receive COVID-19 vaccination (Williams et al., 2020). Due to the fact that COVID-19 has spread worldwide and killed millions of people, research in this area has increased over the period. Being vaccinated against COVID-19 is a novel behavior, so it goes without saying that a suitable framework is required to explain the spread and acceptance of the novel vaccine. The adoption of an innovative behavior, according to Padron-Regalado, (2020) is best explained by the Diffusion of Innovation theory. Although there have been studies on COVID-19 conducted all over the world, little is known about Ghana in

particular and Africa in general. Due to the paucity of studies in the field of vaccine acceptance and by extension, its diffusion, we seek to add to the body of knowledge by analyzing the acceptance of the COVID-19 vaccination in Ghana, where the phenomena is still taking place. The following goals serve as the study's guiding principles: to investigate how the public responds to the government's vaccination diffusion strategy and the elements that either increase or decrease people's desire to get the COVID-19 vaccination. What is the public's response to the government's vaccination campaign, and what are the factors that either increase or decrease people's willingness to get the COVID-19 vaccine? These are the research questions that drive this study.

THEORETICAL FRAMEWORK

In order to explain how certain technologies, affect or are adopted by social groups, a sociologist proposed the diffusion of innovation hypothesis in the 1960s (Rogers & Shoemaker, 1971). Although the theory has received a number of critiques and modifications throughout time (Christensen, 1997; Rogers & Shoemaker, 1971), a lot of the more recent work on consumer behavior still largely references the original ideas. Being vaccinated against COVID-19 is a novel activity hence it is obvious that a suitable framework is required to understand individual's acceptance or rejection of this novel vaccine. The most suitable concept for explaining how an inventive behavior gets adopted is the diffusion of innovation, according to (Padron-Regalado, 2020). The theory puts forth four key elements that adequately represent the acceptance of a novel behavior. These include social systems, communication channels, characteristics of adopters, and attributes of innovation. The adoption of information technologies in healthcare (Helitzer et al., 2003; Zhang et al., 2015); the development of diabetes management programmes (De Civita & Dasgupta, 2007) and, the use of HIV Pre-exposure Prophylaxis are just a few innovative health behaviors that have been subjected to the application of the Diffusion of Innovation Theory (Holt et al., 2019).

In terms of features like the relative advantage, complexity, compatibility, trialability, and even observability of the innovation, attributes can be examined. Concerns surrounding the COVID-19 pandemic immunization focused on its effectiveness, safety, and the need for additional vaccines (Dube et al., 2013; Rhodes et al., 2020). High perceived benefits and perceived efficacy of the vaccine were linked to greater COVID-19 vaccine acceptance (Neumann-Bohme et al., 2020; Wang et al., 2020), whereas fear of side effects and unfavorable views on vaccine efficacy and safety have been suggested as factors for COVID-19 vaccine hesitancy (Williams et al., 2020).

Information Dissemination on COVID-19

Communication channels are the medium through which people learn about innovation and its perceived use. In particular during the outbreak when social media platforms were used as a substitute for conventional means for sharing information. These networking sites played a crucial role in the spread of information on Covid 19 (Hausmann et al., 2017). eliminating the potential for infection through personal touch (Chan et al., 2020). By increasing their understanding of the illness, people may make better decisions about their health care which can encourage healthy habits. However, it is impossible to ignore the way that conspiracy theories and false information are spread using social media (Li et al., 2020).

According to (Allington et al., 2020), the use of social media as a source of information on COVID-19 was positively associated with COVID-19 conspiracy ideas and negatively associated with COVID-19 health preventative behaviors. However, there is growing concern that using social media to disseminate information about COVID-19 could cause vaccine reluctance (Puri et al., 2020).

In addition, the theory's concept of "adopter qualities" relates to a person's adaptability and receptivity to new ideas. Early adopters and innovators in the diffusion of innovation are typically more daring, adaptable, and drawn to novel concepts and methods (Rogers, 2003). In addition to being more active in their search for novel concepts, they also receive a lot of exposure to the media. Along with intellectual curiosity, aesthetic sensitivity, liberal principles, and emotional difference, openness to experience is a basic aspect of personality (McCrae, 1987). Those who like and inquire for novelty and diversity can be distinguished from those who prefer familiarity by their openness to new experiences. A high level of openness to experience is associated with behavioral and mental flexibility, whereas a low level of openness is associated with being more closed-minded, less inquisitive, and preferring familiar people, places, and things (McCrae, 1994; McCrae & Costa, 1997). Previous studies have repeatedly demonstrated a favourable relationship between openness to experience and creativity and innovation, and that those who were very open to experience were more likely to exhibit inventive behaviors (Parrerson & Zibarrase, 2017). Furthermore, it was discovered that openness to experience was linked to the use of preventative healthcare, such as influenza vaccination, and behaviors that promoted health (Pandhi et al., 2016).

Social System

The social systems, in Rogers' view, are connected parts that work together to address issues or achieve objectives. The adoption of innovation has been found to be significantly influenced by the awareness of the behavior that the majority of the population inside the social system will engage in (Smith et al., 2018). One's intentions to embrace and uphold the innovation may increase in response to the social pressure a descriptive norm creates. According to research influenza and HPV vaccinations are two examples of health practices that have been linked to social norm. The social system is composed of entities like formal organizations, people, unofficial groupings, etc. It is essential for everyone to cooperate in order to address a common issue and achieve a shared objective since diffusion occurs throughout social systems (Rogers, 2003).

According to Dearing's (2008) theory, early adopters and innovators are typically motivated to adopt new ideas because they have an innate desire to do so.

As a result, only minimal persuasion is required to get these people to change their behavior. People who are less receptive to innovation, on the other hand, are more susceptible to societal pressure and other factors. Additionally, those who are open to new things are more likely to act in ways that are unconventional (McCrae, 1997), which may cause people to reject purportedly objective knowledge from conventional authority sources and favor a personal, emotional, and spiritual approach to making health decisions (Browne, 2015).

METHODOLOGY

The research was conducted in Winneba which is located in the Central Region of Ghana, some 65.5 kilometers west of Accra, the country's capital. It is the capital of Effutu and home to 55,331 people. Winneba is traditionally referred to as Simpa, and the community's residents are primarily fishermen. Data collection and analysis for the study were done using semi structured interviews and qualitative content analysis. A purposive sample of thirty (30) university employees were chosen for the study. The use of purposive sampling was acceptable for this study since it is employed when a researcher seeks out individuals who are willing and capable of providing meaningful information as a result of their experience with and knowledge of the issue (Bernard, 2002). This is also in line with Creswell's (2013) assertion that the goal of using the purposive sample technique is to identify individuals who are willing to help the researcher learn more about the phenomena. Again, this study adopted semi-structured interview. This is to enable the researchers gain a deeper understanding of the phenomenon that is the acceptance or reluctance of the COVID-19 vaccine. Subsequently, data saturation was reached when the researchers observed that no fresh information was coming from the social actors (Abdul Majid, 2018). To look for significant themes and patterns in the data, qualitative content analysis approaches were used to analyze the data. This entails locating, classifying, and coding the major patterns in the data. To elicit themes for the analysis and for simple interpretation, qualitative content analysis was used (Hsieh & Shannon, 2005; Schreier, 2012). The researchers carefully read over the interview transcripts several times to become familiar with them. The researchers then examined the data in accordance with Braun & Clarke's (2006) study of qualitative data, seeking for patterns and meanings that would facilitate thematic categorization and interpretation. As a result, themes were generated based on the concepts that came out of the close readings.

Ten (10) female and twenty (20) male staff of the university made up the thirty participants. The participants were interviewed to explore their perspectives on the acceptance or hesitancy (Clandinin & Connolly, 2000) of the COVID-19 vaccination being rolled out by the Government. Prior to the interviews, all the interviewees were assured of confidentiality and anonymity; they were assured that the information provided would be used for research purposes only. Consequently, during the transcription and analysis of data, we adopted pseudonyms to safeguard the anonymity of the participants. The interview guide was given to the participants in advance to peruse before they were interviewed. Again, we sought permission from the participants to record the interviews via a mobile phone in order to ensure content validity and also facilitate transcription. We later typed the recorded interviews of the thirty participants and later analyzed the data thematically using the contents of narratives from the interviewees.

FINDINGS AND DISCUSSIONS

After engaging in a close reading of the interview transcripts, the following themes emerged: conspiracy theory; vaccine as free lunch; misconception about covid-19 susceptibility; public education and trust in the Government and the health system.

Conspiracy Theory

Conspiracy theories about COVID-19 have flourished on social media since the onset of the global pandemic a year ago. This resulted in an unprecedented "misinfodemic" on these numerous platforms hence a vast amount of pandemic related misinformation appeared which

in turn influenced people's response to the virus (Li et al., 2020). Given the absence of the exact social and scientific knowledge about the origin of the virus, many conspiracy theories quickly emerged, seeking to provide explanations to the origin of the COVID-19 vaccine in many countries including Ghana. This ultimately resulted in many people assuming entrenched positions as far as the virus and vaccination were concerned. Some of the participants averred:

- All the information circulating on social media has made me to have a rethink of the vaccination process going on. I'm not sure I want to be part of the vaccination process. I know for sure it is the mark of the anti-christ. (W9)
- I heard that COVID-19 was created as a biological weapon aimed at wiping all of us out especially those of us in Africa so that is what the vaccine is coming to do to us. Kill us all. (M 7)
- COVID-19 is a hoax it is a means for the big big pharmaceutical companies to make money all in an attempt to make a vaccine. (M1)

Social media is the source of these sentiments concerning COVID-19 which are similar to pieces of misinformation about health that people had received and read from the platforms (Hausmann et al., 2017). Comments from those participants corroborate (Allington et al., 2020) view that the use of social media as a platform for assessing COVID-19 related information is associated with conspiracy beliefs which is negatively influencing COVID-19 health protective behaviors as well as vaccine hesitancy (Puri et al., 2020).

Vaccine as Free Lunch

The fact that the vaccine is free to Ghanaians has also raised many concerns because of an adage which says "there is no free lunch". Some of the respondents felt there was a motive behind the free vaccine that the government has failed to reveal to the populace. This consequently has led to suspicion, doubts and misinformation among a section of the people about the fight against COVID-19. Some of the views of the participants have been encapsulated below:

- On what basis are they giving it to us for free? Are we going to be used as guinea pigs to test the vaccine's effectiveness? (F5)
- The source of the vaccine is questionable, we don't know whether the government purchased it or it was given to us for free. I don't trust this at all. (W1)
- Was the vaccine purchased or it was given to us free. Anything free is questionable so I will not encourage anyone to take the vaccine. Ghanaians should be very vigilant oo hmmm (M4)

Comments such as ...are we going to be used as guinea pigs? ...the source of the vaccine is questionable, ... I will not encourage anyone to take the vaccine... manifest participants' unwillingness and hesitancy due to doubts about the efficacy of the vaccine. These findings were not strange, from literature Nzaji et al., (2020) explained that the low willingness to receive COVID-19 vaccines could be attributed to misinformation about the quality of vaccines made available to the citizenry. This is interesting because there has been a huge outcry by some Ghanaians on the quality of the vaccines they are being injected with. As a result, the President of Ghana was captured on national television receiving the vaccine just to allay the fears of the section of the populace who still had doubts of the efficacy of the vaccine.

Misconception About Susceptibility to Covid-19

Interestingly, some of the participants argued that since they do not own passports and have not travelled out of the country, they could not be susceptible to contracting the virus because the disease affects those who often travel abroad. Hence, they would rather encourage all those who usually travel abroad to go for the vaccine:

- How can I get COVID-19? I don't travel outside the country like some people do; so, let them (those who travel) go for the vaccine so that we can be free. (W2)

Another issue worth considering was the portrayal of our belief system (spirituality). Although, only one participant made the comment about the supremacy and protective power of the blood of Jesus, it is typical of the Ghanaian to fall upon some spirituality or use superstition as the last resort, as shown in the statement below:

- Those who will get COVID-19 will get it. As for me and my family we won't get it because we are protected by the blood of Jesus so no fears koraa. (W1)

This is not surprising considering the fact that Ghanaians are very religious. A lot of religious leaders were hesitant to go for the vaccine. It is on this basis that several religious leaders were seen on national television advertising that they had taken the jab hence encouraging people to do same. Subsequently, the President of the republic of Ghana proclaimed a national day of fasting in order to ask God for mercy, a miracle, and for the nation's sins to be pardoned.

Apart from the issues raised, other concerns that emerged from the analysis boarder on misinformation and lack of education.

Misinformation and Public Education

Other respondents felt the government and relevant stakeholders had not provided adequate information to educate the citizenry about the efficacy and safety of the vaccine. They therefore not only doubted that the efficacy of the vaccine but they also doubted whether the vaccine was clinically safe and able to prevent those vaccinated from contracting the COVID-19 virus. These concerns were heightened by the fact that even those who were vaccinated still had to wear nose masks to avoid infection. Besides, some of the participants argued that for the known vaccines people required to take only one jab, why is there a variation in the vaccines for COVID-19? That is a particular type of vaccine require a single dose and another type requires double dose? These participants wondered why the government did not procure only a particular type and brought in the different types. Some of the comments were:

- You see education on the vaccine has not gone down well, all the government told us was how and when the vaccine will be distributed. We have not been educated on the possible side effects and if it so happens, where we should go so if I take it and something happens it means I'm on my own (M4)
- As for the vaccine I won't take it o, I don't know anything about it. So many information on the internet and I don't know what to believe anymore. (M10)
- This vaccine will not help us in any way the government is not giving us enough information on the vaccine that is why we are indecisive. The president should come clean on the real issues and I will entreat all Ghanaians to be very vigilant especially we the blacks. They will give us the fake ones and the president will get better ones. (F6)

In general, the sampled participants had lower levels of vaccine acceptability. With the country's recent start of vaccination distribution as well as an improved and well-coordinated public awareness campaign, the situation would have been different. Numerous platforms should be used for public campaigns, but media (TV and radio) and social media should receive special attention (Facebook, WhatsApp, Twitter, among others). These are the main places where most individuals get their information or knowledge. Campaigns that emphasize the vaccine's effectiveness and safety should also be seriously examined. These are the major causes for people's ambivalence or resistance to receiving the vaccine. These messages ought to take Ghana's population's demographic variances into account as well.

Lack of Trust in The Government and The Health System

Apart from doubting the sources and efficacy of the vaccine, participants also questioned the credibility of the government and the health system. Some participants remarked:

- I am not bothered that the President and the Vice President have all taken the jab. Who knows maybe what they are taking is completely different from what will be given to the rest of us. Probably what the President took can be a malaria vaccine hahahha, I even heard now malaria vaccine has been made available. (M 6)
- I think the ministry of health should come out clear concerning the vaccine, we don't know how it was procured and from where it is coming from. Only God knows when it comes to our leaders hmmm God save us. (M10)
- As for these politicians they are playing with our lives. They are all selfish and thinking of their individual pockets. That is why they are not making it clear as to information regarding the vaccine. (W4)
- I don't believe in the government let alone the vaccine, left to me alone nobody should take the vaccine. (M 3)

The Strategic Advisory Group of Experts of the World Health Organization have identified trust in governments by citizens as essential for vaccine confidence as this helps reduce vaccine hesitancy (Bunch, 2021). The trust of Ghanaians about the ability and motives of the government in the fighting the COVID-19 pandemic will go a long way to shape their perceptions of the vaccines. It is therefore imperative for the government and health authorities to be clear and transparent regarding measures in the fight against COVID-19 pandemic in order to attract the trust of and the citizenry.

The study also revealed that concerns about the safety of vaccines and their adverse side effects were the main reasons most people were unwilling to accept the COVID-19 vaccines. These findings are consistent with other studies (Dror et al., 2020; Roy et al., 2020; Shaw et al., 2021; Shekhar et al., 2021). For instance, a study in the Kingdom of Saudi Arabia found concerns about the safety of vaccines and concern about side effects as the main reasons for unwillingness to accept COVID-19 vaccines (Barry et al., 2020).

- I have heard that when you take the vaccine your blood clots and you can even die from that so I have decided I will never take the vaccine because I didn't die from contracting the disease so why should the vaccine kill me. (F5)

Others also responded:

- I heard that the vaccine can make you impotent, so I am not taking it until I'm very sure that is not the case. Impotency "den" (how) I will never take the vaccine. So as for the mask I will wear it paaaa(M3)
- I have heard so many negative information about the vaccine on TV and on the internet in fact I'm really scared of its side effect. My family and I have decided not to take it when it comes. (M11)

To enhance the acceptability of COVID-19 vaccination among the people of Ghana in general, policy-makers in the health sector and the government should address the concerns of all the various stakeholders about the safety and side effects of the COVID-19 vaccines to allay all possible fears.

CONCLUSION

This study sought to interrogate the reactions of the publics towards the role out of the vaccination by the Ministry of Health and the Government of Ghana and the citizenry's acceptance and or willingness to receive the COVID-19 vaccine. The study revealed that conspiracy theory, vaccine as free lunch, misconception about susceptibility of COVID-19, misinformation and public education and lack of trust in the Government and the health system are some of the factors leading to vaccine hesitancy. These findings present the fact that in the context of a pandemic, vaccine hesitancy is a major barrier to implementing successful vaccination campaigns. To maintain the benefits of vaccination programmes, understanding and addressing vaccine hesitancy will be crucial to the successful implementation of COVID-19 vaccination in Ghana. Subsequently, developing tailored strategies to address concerns identified in the study will go a long way to decrease vaccine hesitancy among the people of Winneba and other communities across Ghana.

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