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SCHOOL OF GRADUATE STUDIES AND RESEARCH (SoGSAR)

KNOWLEDGE, ATTITUDES, AND PRACTICES OF UNIVERSITY STUDENTS TOWARDS COVID-19 AND COVID-19 VACCINATION: THE CASE OF GHANA INSTITUTE OF JOURNALISM.

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DECLARATION

I hereby declare that this dissertation is the result of my original research, and that no part of it has been presented for another (Degree or Diploma) in this Institute or elsewhere. Where others' references are made, full acknowledgement have been given. I am responsible for any shortcoming.

…… …14th December, 2021……..

Emma Wiafe Date

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CERTIFICATION

I hereby declare that the preparation of this dissertation was supervised by me in accordance with the guidelines of supervision of dissertation laid down by the Ghana Institute of Journalism.

…… ……. 14th December 2021 ……..

Dr. Joseph Obeng Baah **Date**

(Supervisor)

DEDICATION

To my family.

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ABSTRACT

The COVID-19 pandemic has emerged as a serious public health threat, prompting countries throughout the world to take extraordinary infection prevention and control (IPC) efforts to halt the virus's spread. People's knowledge, attitudes, and behaviours (KAP) concerning COVID-19 are crucial for understanding the disease's epidemiological dynamics, as well as the efficacy, compliance, and success of IPC measures implemented in a country. The goal of this study was to find out how many Ghana Institute of Journalism (GIJ) students have high levels of KAP toward COVID-19 and COVID-19 vaccines/vaccination. A cross-sectional internet survey with a structured questionnaire was conducted utilising the Convenience/Haphazard sampling approach. Descriptive statistics: bar graphs, crosstabulation, clustered bar graphs and frequency tables were used to investigate the data. 58 percent of the 100 replies received were from men between the ages of 18 and 39 who were from level 200 to 400 and either Christians, Muslims, or Atheists. COVID-19 was well-understood by 99 percent of respondents, who learned about it primarily from the internet/social media (60%) and friends/family (39%). Most of the respondents (77%) were already vaccinated. However, not all the remaining 23 percent of unvaccinated were ready to take a jab if it was made available. It emerged from the findings that factors such as centre unawareness, adverse effects from getting inoculated and respondents perceived self-efficacy (18.5) were the barriers hindering the intension to vaccinate. The study also found that religion did not play a role in respondents' attitude towards COVID-19 and the intention to vaccinate. Although the participants in this study had strong knowledge and attitudes, community-based health campaigns are needed to maintain positive attitudes and implement appropriate intervention strategies that are free of misunderstandings.

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CHAPTER ONE

INTRODUCTION

1.0 Chapter Overview

This chapter provides a summary of the problem under study. It encompasses the background of the study, statement of the problem, objectives of the study. In addition to these are particular areas or questions the research is to find answers to and how pertinent the study is to academia and other fields.

1.1 Background of the Study

In recent years, several viruses have drawn the medical and scientific community's attention as presenting a significant risk to international public health. Among them are the coronaviruses,

with excellent international projection due to the severe respiratory syndromes they cause, like the middle east respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS) being the best known (Al-Hazmi, 2016).

A recent outbreak of human infection by a novel coronavirus (2019-nCoV, now named SARS-CoV-2) was reported in the Chinese city of Wuhan in Hubei Province. Until January 10, 2020, there were 41 reported cases of SARS-CoV-2 infection between December 8, 2019, and January 2, 2020 (Qureshi et al., 2020). The World Health Organisation (WHO) officially named the 2019-nCoV infection coronavirus disease 2019 (COVID-19) (Zhang et al., 2020; Wang et al., 2020). It subsequently declared COVID-19 a pandemic of public health concern globally in February 2020.

Reasons for its rapid spread are attributable to its highly contagious nature, asymptomatic carriers, and inadequate preventive measures.

Before the WHO's pronouncement of COVID-19 as a global public health challenge and pandemic, many Ghanaians regarded the disease as a distant infirmity of the white man who could never inch close to them. Health officials identified the first two cases of COVID-19 in Ghana on March 12, 2020 (Ghana Health Service, 2020). By April 19, 2020, more than 1,000 confirmed cases of COVID-19 and nine deaths had been reported. To reduce person-to-person transmission, the Government of Ghana adopted and promoted the WHO's recommendations (WHO, 2020), which include avoiding or limiting physical contact (including handshake and other forms of usual contact), regular handwashing with soap under running water, rubbing of hands with alcohol-based sanitisers with 70 percent alcohol volume, and reducing/limiting large gatherings among the general populace. Coughing into the elbow or tissue and disposing of it immediately into a bin has also been recommended. Preventive behavioural change messages were developed and disseminated nationwide through various media (radio, television, social media, and print media).

The government's inability to sustain the social distancing policy and ban on large gatherings, including religious and cultural activities, funerals, weddings, and sports, may have undeniably created accelerated COVID-19 super-spreading scenarios (Ghana Medical Association, 2021). Effective control and mitigation of COVID-19 actional and timely epidemiological data generated from the populace will inform health authorities to design robust interventions.

As a result of the easy mobility across countries, COVID-19 cases spread to other countries rapidly and intensely. This has led authorities from several countries to adopt non-pharmaceutical control measures to avoid transmission, such as self-isolation.

The number of COVID-19 is steadily rising among the Ghanaian populace – with public spaces and students in educational institutions getting infected at an accelerated rate (Graphic Online, 2021) – chiefly of metropolitan areas, including greater Accra and Kumasi urban areas. Uncertainties, profound fear amidst misinformation regarding COVID-19 characterised the state of the residents of these regions.

Therefore, understanding the determinants responsible for people's resistance to protective measures against the virus spread is of great importance for the effectiveness of social isolation-based public policies, avoiding or reducing non-adherence to the proposed social controls.

1.2 Statement of the Problem

The COVID-19 pandemic continues to ravage the world, with Ghana being significantly affected. A vaccine affords the best hope for a permanent solution to controlling the pandemic. Several COVID-19 vaccines like AstraZeneca, Sputnik V, and Pfizer BioNTech have been rolled out and in use. Nonetheless, to be efficacious, a vaccine must be accepted and used by a large majority of the population. In Ghana, however, barely one per cent of the general population has been inoculated owing to vaccine hesitancy (Head, Bracstone & Boateng, 2021). While vaccines are accessible, especially in developing countries, there is also the issue of acceptability by the general population. This study, therefore, aims to investigate the knowledge of COVID-19 and the attitudes towards the disease and its vaccines among university students.

Although education on COVID-19 has been rife, especially on traditional media – television, radio, and print – statics as of July 2021 point to non-adherence and thus a looming third wave (Graphic Online, 2021).

Many studies like the cross-sectional ones carried out by Spinewine et al. (2021), Islam et al. (2021), Mannan and Farhana (2020), and Reuben et al. (2020) focused on knowledge, attitude, and or acceptance of COVID-19 vaccines by a general population or health professionals in Europe and Asia with Reuben et al. (2020) being Nigeria. Other studies like that of (Adanu 2010) focused on the extent of knowledge and awareness of tertiary students in Ghana. Despite these studies, avenues still exist for further enquiry into the knowledge and awareness level and attitudes of other groups such as university students, where much attention has not been focused. Not much is known about Ghanaian university students' knowledge and attitude toward COVID-19 and COVID-19 vaccination, yet this information is vital to winning the fight against COVID-19 (Reuben et al., 2020). This research seeks to fill that knowledge gap by assessing the level of awareness and knowledge of COVID-19among university students and its effects on vaccination uptake.

1.3 Objectives of the Study

The study aims to ascertain university students' knowledge of and attitude towards COVID-19 and its vaccination in the Ghana Institute of Journalism. Below are the specific objectives of the proposed study:

1. To determine university students' knowledge and awareness of COVID-19 vaccination.
2. To examine university students' attitudes about COVID-19 vaccination.
3. To ascertain the barriers preventing the uptake of COVID-19 vaccines among university students.
4. To establish the effect of beliefs on vaccination intentions.

1.4 Research Questions

1. To what extent does the knowledge, beliefs, and awareness of COVID-19 affect the decision of university students to get the COVID-19 vaccination?

2. What is the extent of knowledge and awareness of COVID-19?

3. How do beliefs and misconceptions of university students affect their decision to take up COVID-19 vaccination?

4. What are the barriers that hinder the acceptance of COVID-19 vaccines?

1.5 Significance of the Study

This study is required as it will afford further literature in addition to limited studies that have been conducted on COVID-19 in Ghana. It will also serve as the ground for further research on improving the patronage of COVID-19 vaccination services in Ghana and, by extension Africa. Therefore, it is necessary to determine the level of knowledge among students of the Ghana Institute of Journalism and how their knowledge, beliefs, and barriers affect their decision to take up COVID-19 vaccination. This will advise policy formulation and practice among educationists and health practitioners alike on how the interventions to implement to ensure that majority of the population is vaccinated when vaccines are made available.

1.6 Operational Definition of Terms

Knowledge: this is where a student knows the risk factors of COVID-19, symptoms, and the name of some COVID-19 vaccines.

Attitude: this refers to the general approach and behaviour of women towards COVID-19, whether they attach seriousness to COVID-19 or are lackadaisical and or unconcerned.

Barriers: this refers to beliefs, misconceptions, and any other issue preventing the target group from taking up COVID-19 vaccines.

COVID-19 vaccination: the processes a one goes through to be inoculated.

1.7 Organisation of the Study

This study will encompass five chapters; the first chapter, which is the study's introduction, entails the background of the study, statement of the problem, objectives of the study, and scope of the study. The second chapter of the proposed research will focus on reviewing related literature that supports the investigation. Chapter Three will provide the methodology, research design, the population of the study, sample and sampling techniques, the instrument for data collection, validity, ethical issues, and procedures for the administration of instruments. Chapter Four of the proposed study will show the analysis of gathered data. In contrast, the fifth chapter will summarise the study, the conclusion drawn, and some recommendations to address the problem under discussion.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section examines and discusses the literature that relates to the study. This chapter includes the relevant theories or models, concepts, and a review of related empirical studies.

2.1 Theoretical Framework

Just as a ship's anchor gives it support, a theoretical framework offers the basis for predictions about the relationships among the variables of research work. Thus, providing a context for examining a problem. The Health Belief Model, a health-behaviour-related theory, serves as the guiding principle for this study. The choice is based on the topic under investigation as well as its objectives.

2.2 The Health Belief Model

In the 1950s, public health researchers in the United States began constructing psychological models to improve the efficacy of health education programs (Hochbaum 1958; Rosenstock 1966). Demographic factors such as socioeconomic level, gender, ethnicity, and age have long been linked to preventative health-related behaviour patterns (i.e., patterns of behaviour that predict disparities in morbidity and death) and differential health-care utilization (Rosenstock 1974). Socioeconomic status was linked to health-related behavior patterns even when services were provided by the government. Although demographic and socioeconomic characteristics could not be changed through health education, it was hypothesised that other potentially modifiable

individual characteristics linked to health-related behaviour patterns could be altered through educational interventions, resulting in population-level shifts in health behaviour patterns.

Beliefs serve as a vital link between socialization and action. Beliefs are long-term personality traits that impact behaviour and can be learned through primary socialization. Beliefs can also be changed, and they can distinguish between people of similar backgrounds. If persuasion tactics can be used to influence behaviour-related beliefs, and such interventions result in behaviour change, evidence-based health education has a theoretical and practical foundation.

The relationship between health attitudes and behaviours was primarily conceptualized using Lewin's (1951) concept of 'valence.' It was considered that certain ideas made certain behaviours more or less appealing. This led in an expectancy-value model of belief–behaviour interactions, in which people rated events that they thought were more or less likely positively or negatively. Key beliefs that affected health-related behaviour patterns included the likelihood of encountering a health problem, the severity of the disease's repercussions, and the perceived advantages of a preventative behaviour, in combination with its potential costs. Early research discovered that these health beliefs were linked to differences in health-related behaviour patterns (referred to as 'health behaviours or 'health behaviour patterns' below) and could thus be used to distinguish between persons who did and did not engage in such behaviours.

The model was initially used to discover the correlates of preventative behaviours, but it was later effectively extended to identify the correlates of health-care utilization and adherence to medical advice (Becker et al., 1977). Hochbaum's (1958) studies on tuberculosis X-ray screening uptake

were credited by Rosenstock (1974) as the first health belief model (HBM) research. Hochbaum discovered that those who had and did not have chest X-rays were distinguished by their perception of vulnerability to tuberculosis and their opinion that those with the disease could be asymptomatic (making screening advantageous). Similarly, Kegeles (1963) found that perceived sensitivity to the worst possible dental issues and awareness that visits to the dentist could avoid these problems were useful predictors of dental visit frequency over the next three years in a prospective study. Over an eight-month follow-up, Haefner and Kirscht (1970) demonstrated that an HBM-based health education intervention designed to increase participants' perceived susceptibility, perceived severity, and anticipated benefits resulted in a greater number of check-up visits to the doctor than no intervention. By the early 1970s, a number of research had concluded that the HBM defined a set of key health beliefs that could be used to analyze individual differences in health behaviour patterns and to construct behaviour modification strategies.

The HBM had the advantage of defining a specific set of common-sense beliefs that appear to explain or mediate the effects of demographic variables on health behaviour patterns and are changeable through educational intervention. The approach might be extended to a variety of health behaviours, providing a framework for both changing public health behaviour patterns and training health care providers to work from their patients' subjective impressions of sickness and treatment. Consensus on the HBM's value was critical for public health research, and it also positioned cognitive modeling at the center of health service research.

Becker et al. (1977) produced a consensus statement from the Carnegie Grant Subcommittee on Modification of Patient Behaviour for Health Maintenance and Disease Control, which

consolidated the HBM. This research endorsed the HBM framework after considering a variety of other methods to explaining the social psychological determinants of health and sickness behaviour. The model's components were identified, and more research into the links between individual beliefs and health behaviours was recommended.

According to the National Cancer Institute (2003) and reiterated by Glanz, Rimer, and Vizwanath (2008), the Health Belief Model (HBM) is by far the most frequently applied theory in health education and health promotion. The HBM was initially developed in the 1950s by social psychologists Hochbaum, Rosenstock, and Kegels in the Unites States Public Health Service to elucidate the extensive failure of people to engage in programmes to prevent and detect diseases. The model was later extended to study peoples' reactions to symptoms and their responses to detected illness, particularly adherence to medical routines (Glanz et al., 2008). According to Ben-Natan and Adir (2009), this model illustrates preventive health behaviours rather than behaviours in a time of illness. Significant health behaviours emphasized by the HBM focus on averting exposure to diseases at their asymptomatic phase (Lee, 2000). The HBM comprises several basic concepts that envisage why people will prevent, test for, or control disease conditions and or circumstances. In effect, this model assumes that health behaviours are driven by five components of perceived susceptibility, perceived seriousness, perceived benefits and perceived barriers to behaviour, cues to action, and the just added factor of perceived self-efficacy (Champion & Skinner, 2008). The five elements that motivate people to vaccinate for diseases will enable the researcher to ask the necessary questions to establish concordance or otherwise in COVID-19.

2.3 Key Tenets

The HBM is anchored on six chief concepts. The following excerpted with minor alterations from "Theory at a Glance: A Guide for Health Promotion Practice" (1997), offers clarification and applications for each of the initial vital concepts, viz: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy.

2.3.1 Perceived Susceptibility

Perceived susceptibility refers to beliefs about the likelihood of getting a disease or condition. Perceived risk of getting a disease refers to an individual's conception of their vulnerability to the disease. The subjective risk of developing an illness or finding oneself in a scenario with a poor health result, such as cavities or fracturing a leg, is reflected by perceived susceptibility. These beliefs can range from outright denial of the potential of contracting an illness or suffering a negative health outcome, to admitting that a statistical risk exists, to believing that it is only a matter of time (Rosenstock, 1974). For instance, people must believe that there is a probability of contracting COVID-19 before being convinced to get vaccinated. According to Costa (2020), the HBM presages that people will be more inclined to respond to COVID-19 vaccination if they feel or think that they are at risk of developing the disease.

Given the impact of perceived susceptibility on routine health-protective behaviors such as taking prescribed medication or wearing face masks (Janz & Becker, 1984; Sim, Moey, & Tan, 2014), it is no surprise that health psychologists have been studying this construct during epidemics (Leppin & Aro, 2009). During the SARS epidemic in 2003, for example, it was discovered that Chinese residents with a low perceived risk of infection with SARS practiced much less personal hygiene

(i.e., hand sanitation, sneezing in elbow and the wearing of face masks; Tang & Wong, 2003). In light of the COVID-19 epidemic, further research has confirmed these conclusions (e.g., Abdelrahman, 2020; Jose et al., 2020; Wong et al., 2020). Furthermore, reduced perceived vulnerability to coronavirus infection has been linked to low acceptance for government-imposed laws (De Coninck, d'Haenens, & Matthijs, 2020). People who do not believe they are at risk of being ill are less likely to take precautions, putting themselves and others in danger.

It is only reasonable that when people believe that there is the propensity of contracting a particular disease, they will be more bent on putting measures to avert its occurrence. Contrarily, the reverse also occurs. This is to say that unhealthy behaviours result when a person believes they do not risk or have a low chance of vulnerability. Perception of not being at risk for COVID-19 has been corroborated as a motivation for not obtaining vaccination in previous studies by Agyekum (2021), for instance, about 60.7 percent of the respondents specified that they had not been in contact with any COVID-19 patient, and a higher proportion of those who had not been in contact with a COVID-19 patient indicated no acceptance of the COVID-19 vaccines compared to those who had contacted a patient.

Turner et al., (2004), note that it is not always the case that perception of increased susceptibility or risk is linked to healthier behaviours and decreased susceptibility to unhealthy behaviours. In this regard, individuals might consider themselves susceptible to a specific illness and yet would not adopt a healthy lifestyle. This means that perception of susceptibility does not explain behaviour in all situations.

On the other hand, if this perception of susceptibility is to severe disease, the consequences are damning, then there is the likelihood of a behaviour conversion. In the light of the above, the perceived severity of disease points to the seriousness of a health problem as weighed by the individual. For example, suppose university students consider that COVID-19 is a severe ailment and believe that contracting it would have, for instance, grim medical and socio-economic consequences for them. In that case, it is more likely they will obtain the COVID-19 vaccine.

People's perceived susceptibility to illnesses is influenced by a variety of factors, although objective vulnerability (i.e., scientifically calculated risk factors) is just a minor one. Smokers, for example, assessed their risk of lung cancer to be just slightly greater than nonsmokers; however, both smokers and nonsmokers underestimated their true risk (McKenna, Warburton, & Winwood, 1993; van der Pligt, 1998). In truth, most people have a general propensity to assume that bad things happen to other people more often than they do to themselves, such as getting sick or being in an accident (Klein & Weinstein, 1997; Sharot, 2011). The optimism bias, often known as unrealistic optimism, has proven difficult to overcome (Weinstein & Klein, 1995). Researchers discovered that people only updated their risk estimates when presented with favourable objective risk information, but not when the information revealed that they were more at risk than they thought, in a study where people reported their perceived susceptibility to various negative (health) outcomes (Sharot, Korn, & Dolan, 2011). While having a positive perspective might be advantageous in the sense that it acts as a coping mechanism to keep people from worrying excessively about all possible threats (e.g., Moritz & Jelinek, 2009), it becomes problematic when preventative health behaviors are deemed unneeded.

When asked to evaluate one's vulnerability to a specific ailment, a stereotype of a high-risk group may come to mind (Davidai & Gilovich, 2016; Weinstein, 1980; Weinstein & Klein, 1995). This initiates a social comparison process in which one evaluates how similar or distinct this stereotype is to oneself (Wood, 1996). Self-enhancement goals, on the other hand, can skew the accuracy of these judgments. Even though they were judged at risk objectively, senior UK people who did not identify as old and weak were less likely to adhere to the governments' Heat Protection Plans to safeguard elderly from dehydration and the repercussions of overheating (i.e., based on age and medical conditions; Abrahamson et al., 2009). This example shows how pride and self-integrity (i.e., an unwillingness to identify with the traditional image of a weak person who relies on others for protection, Hughes et al., 2008; Aminzadeh & Edwards, 2000) can influence a person's perceived sensitivity to social comparison (Taylor & Lobel, 1989). In fact, both the tendency to engage in downward social comparisons (i.e., assuming that the person who is worse off is unlike oneself) and the optimism bias are thought to be ways to reinstall a positive perspective of oneself when it is threatened (Sherman & Cohen, 2006; Rogers, 2006). As a result, most people's biases will surface only when their favorable self-image is threatened (Lynch & vanDellen, 2020), such as when they receive a poor performance review at work. Individuals with strong narcissistic features, on the other hand, are not just motivated to restore a good picture of themselves when they are threatened; they actively seek out opportunities to enhance their grandiose conceptions of themselves (Grapsas et al., 2020).

2.3.2 Perceived Benefits

The idea of perceived benefits is a person's estimation of the value of a novel behaviour in reducing the risk of contracting an ailment. When people believe that adopting a new behaviour will reduce

their chances of developing a disease, they will likely readily adopt that behaviour. For instance, if people think that adopting preventive behaviours such as regular handwashing, wearing a nose mask, and physical distancing will lead to not contracting the disease, they will readily adopt those behaviours. Consequently, it is not expected of people exhibiting optimum beliefs in susceptibility and severity to accept any recommended health action unless they also realise that adopting the suggested behaviour is probably positive in decreasing their risk.

2.3.3 Perceived Barriers

Perceived barriers to action refer to the undesirable aspects of health-related actions that serve as barriers to action and arouse conflicting incentives to avoid activity. Perceived barrier refers to the potential negative aspects of a particular health action that may impede undertaking recommended behaviours. A kind of non-conscious, cost-effective analysis occurs wherein individuals weigh the expected benefits with perceived barriers such as it could help them. This could be related to cost, adverse side effects, unpleasantness, inconvenience, or misinformation and conspiracy theories. Thus, combined levels of susceptibility and severity provide the energy of force to act, and the perception of benefits (minus barrier) provide a proffered path of action (Glanz et al., 2008). For example, suppose people believe that the anticipated use of practising behaviours to prevent COVID-19 outweighs the barriers to or cost of the preventive behaviours. In that case, they are more likely to obtain COVID-19 vaccination.

2.3.4 Cues to Action

In addition to the four beliefs or perceptions, HBM suggests that cues to action also influence behaviour. Cues to action are events, people, or things that move people to change their behaviour.

Examples include the illness of a family member and media reports (Graham, 2002). Other examples are mass media campaigns, advice from others, reminder postcards from a healthcare provider (Ali, 2002), or health warnings on a product. Various early information of the HBM included the concept of cues that can trigger actions.

Readiness to take action, that is perceived susceptibility and perceived benefits could only be potentiated by other factors, particularly by cues to instigate action such as bodily events or by environmental events such as media marketing (Glanz et al., 2008). For example, people would be more likely to accept preventive behaviour like up-taking COVID-19 vaccination if they are prompted by their family members, media campaigns or health care providers.

Respect for authority is a significant feature of Ghanaian culture. Most Ghanaians, for instance, regard physicians as influential authority figures and have a propensity to take heed to what doctors say; however, a good number seldom show voluntary health care behaviours. Again, it is public knowledge that the media also serves as cues to action for most Ghanaians. A good number of the population regard the media as objective, especially with health-related issues. Therefore, a constant reminder by the media on the need to take a jab, the purpose of the vaccination, and information on COVID-19 can help immensely.

2.3.5 Perceived Self-efficacy

Perceived self-efficacy, the last component of the HBM defined as the belief that one can effectively execute the behaviour required to produce the outcomes. Essentially, the belief in one's own ability to achieve a task is known as self-efficacy. The idea was first defined as a personal

capability judgment (Bandura, 1986), and then expanded to include a person's opinion that he or she has the ability to control a set of talents required to execute a certain task (Maddux et al., 1995).

Self-efficacy differs from perceived advantages in that a person may feel that wearing nose mask and washing one's hands with soap under running water or better yet, adhering strictly to all the COVID-19 protocols will lessen his or her risk of contracting the disease (perceived benefit), but not believe that he or she is capable of adhering strictly to them (perceived self-efficacy). The distinction between general and domain-specific measures of self-efficacy (e.g., "I am capable of adhering strictly to all the COVID-19 protocols") and domain-specific measures of benefits (e.g., "If I strictly adhere to all the COVID-19 protocols, I will reduce the likelihood that I will have contract COVID-9") has been shown to predict better than measures assessing a general sense of efficacy For example, "If I strictly adhere to all the COVID-19 protocols, my health will improve" (Bandura, 1982; pp.3).

In the opinion of Kotler and Lee (2011), for behaviour change to succeed, people must feel endangered by their current behavioural pattern (perceived susceptibility and severity) and believe that transformation of a particular kind will culminate in an appreciated outcome at an acceptable [perceived benefit]. Again, they also must feel capable or self-efficacious to take action by surmounting perceived barriers (ibid).

In sum, if someone believes that adopting new behaviour is beneficial yet does not think of themselves as capable of taking action, there is a high probability of not adopting it.

2.4 Limitations of the Health Belief Model

There are several limitations of the HBM which limit its utility in public health. Limitations of the model include the following:

It does not account for a person's attitudes, beliefs, or other individual determinants that dictate a person's acceptance of a health behaviour.

- It does not take into account behaviours that are habitual and thus may inform the decision-making process to accept a recommended action (e.g., smoking).
- It does not take into account behaviours that are performed for non-health related reasons such as social acceptability.
- It does not account for environmental or economic factors that may prohibit or promote the recommended action.
- It assumes that everyone has access to equal amounts of information on the illness or disease.
- It assumes that cues to action are widely prevalent in encouraging people to act, and that "health" actions are the main goal in the decision-making process.

The HBM is more descriptive than explanatory and does not suggest a strategy for changing health-related actions. In preventive health behaviours, early studies showed that perceived susceptibility, benefits, and barriers were consistently associated with the desired health behaviour; perceived severity was less often associated with the desired health behaviour. The individual constructs are useful, depending on the health outcome of interest, but for the most effective use of the model it should be integrated with other models that account for the environmental context and suggest strategies for change.

Indeed, for more than 50 years, the HBM has given a valuable theoretical framework for identifying modifiable beliefs that predict health-related behaviors (Rosenstock, 1974). Non-psychologists may easily understand the model's common-sense constructs, which can be easily and inexpensively operationalized in self-report questionnaires. The HBM has focused the attention of researchers and health care practitioners on changeable psychological antecedents of behavior and offered a foundation for effective interventions across a variety of behaviors. However, most research have used cross-sectional correlational designs, and more experimental investigations are needed to determine the causal influence of modifying HBM-specified beliefs on a variety of health behaviors (e.g., Sheeran et al., 2014). Health beliefs' claimed mediation of socioeconomic factors on health behavior is likewise questionable. It would be particularly useful to find out which ideas or cognitions mediate the effects of socioeconomic position on specific health behaviors (e.g., Orbell et al., 1995).

The HBM's common-sense expectancy-value paradigm makes health-related representational processes easier to understand. As observed in Weinstein's (1988) cautious adoption process, more elaboration of HBM structures may be required. Cognitions that have been found to be powerful predictors of behavior are also excluded from the model. It fails to emphasize the importance of intention formation or the influence that others' approval may have on our behavior, in contrast to the idea of reasoned action. It portrays people as asocial, economic decision-makers, and hence fails to account for behavior that is influenced by social and affective factors. This is obvious in applications to sexual behavior, where it has failed to discern between 'safe' and 'unsafe' behavior patterns, despite initial hope.

The model is also constrained in that it lacks hierarchical and temporal links between cognitions. The model has not distinguished between proximal and distal antecedents of behavior, despite King's (1982, 1984) novel expansion. Models like the theory of planned behavior (Ajzen & Madden 1986) and the protection motive theory (Prentice-Dunn & Rogers, 1986) offer direct and indirect cognitive influences on behavior. This allows for a more sophisticated data analysis as well as a clearer idea of how treatments might work. If a specific level of perceived severity must be achieved before perceived susceptibility becomes dominant in guiding behavior, this would explain why severity has such a poor relationship with behavior and suggest that this variable should be considered a more distal cognitive antecedent (Schwarzer, 1992). Intentions and perceived self-efficacy may mediate the effects of health beliefs on behavior (Cummings et al., 1979; Warwick et al., 1993), confirming Rosenstock's (1974) suggestion that HBM constructs can be thought of as "the setting for... subsequent responses at other stages in the decision process" leading to action. More recent study has focused on defining cognitions that discriminate between people who intend to do something and then accomplish it and people who have similar intentions but don't do anything (Abraham et al., 1999; Gollwitzer 1999; Sheeran 2002; Sheeran and Abraham 2003). As a result, health beliefs may appear to be disconnected from action facilitation and self-regulation processes.

Even if other models specify greater predictors of behaviour, beliefs about vulnerability, advantages of precautions or treatments, or barriers to completing health behaviors may still be essential in some cases if variability in these beliefs is necessary for motivation to act. A more comprehensive review of evaluations of HBM-inspired therapies could shed light on patterns of efficacy in the literature. Given the diversity of assessment designs, intervention methodologies,

target behaviors, and populations, reviews concentrating on interventions to change specific behaviors for specific populations are likely to be the most helpful (Kelley et al., 2001). For example, Yabroff and Mandelblatt (1999) found that four theory-based interventions based on the HBM (Champion 1994) increased mammography utilization by an impressive 23 percent on average when compared to usual care in a review of 63 interventions designed to increase mammography use. The study also found that theory-based cognitive therapies that did not require interpersonal connection (for example, those that sent letters or films) were ineffective. This form of meta-analysis can discover the types of interventions and delivery methods that are most effective in modifying specific health behaviors. This knowledge might then be utilized to create experimental investigations that isolate certain approaches and combinations of techniques, as well as measure potential mediators such as pre- and post-intervention beliefs. Such findings would allow for the discovery of approaches that are effective in modifying certain beliefs that are crucial to specific health behaviors, as well as the comparison of various techniques (Hegel et al., 1992). Much work remains to be done; however, evaluation studies and meta-analyses show that the HBM continues to be beneficial in the design and evaluation of behavior modification interventions.

2.5 Related Studies

2.5.1 Knowledge of COVID-19 and COVID-19 Vaccines

In a study by Islam et al (2021) the knowledge regarding COVID-19 vaccinations was low among more than half of the population. In this study, knowledge was substantially connected with education, family type, monthly income of a family, and past vaccine uptake experience. Notably, the majority of participants (78 percent) exhibited a good attitude towards the COVID-19 vaccination. Knowledge of COVID-19 vaccination was not significant in terms of participants'

sex. This finding is similar to other studies in Bangladesh, revealing no significant sex differences in knowledge of COVID-19 (Banik et al., 2021).

According to the study, participants with a greater level of education were shown to have more information about COVID-19 vaccinations, which is also validated by prior research. A cross-sectional study of the knowledge, attitudes and practices towards COVID-19 in North-Central Nigeria found 99.5% COVID-19 awareness of COVID-19 by college/bachelor's degree holders and above (90.4%) with an overall 99.5% awareness of COVID-19 thus, illustrating that the respondents were knowledgeable about the COVID-19 pandemic. This outcome is in agreement with previous studies conducted in Bangladesh (Banik et al., 2021), Egypt and Kenya (Abdelhafiz et al., 2020; Austrian et al., 2020). It may be the case that more educated people are more knowledgeable and worried about their health and well-being through access to more information sources and become more active in life events that could affect them (Mirowsky & Ross, 1998), such as COVID-19 vaccines.

2.5.2 Awareness of COVID-19 and COVID-19 Vaccines

COVID-19 and COVID-19 vaccination awareness are tantamount to education. That is, awareness can be informal and or formal.

It must be mentioned, though, that the success of awareness generation is dependent on a variety of factors. These involve the channels or media for the production of consciousness; the group targeted, the content of the communications, the language in which the message is transmitted, and the individual actually creating the awareness. The decrease of the threat of COVID-19 infections demands the active engagement of those mentioned above. A study conducted by Agyekum et al.,

(2021) found that health workers have a vital role in COVID-19 awareness generation or education and prevention. This underlines the consequence of awareness as an urgent variable in the control of COVID-19. Because health care workers are a reliable source of health information, their acceptance or rejection of COVID-19 vaccines can influence the general population's uptake of COVID-19 vaccines.

Medical staff or nurses have an essential role since they are in the know of information in the medical field and are accustomed to the technical facets of medicine; hence it would be only proper to have them in control to educate for better understanding. However, the fight against the disease would be an exercise in futility if people in charge of the process are not adequately informed of what they need to know.

For the channels of knowledge provision, it was found out that in Nigeria, the use of social media and the internet formed the major source of information about COVID-19, followed by other sources of mass media like television and radio (Reuben, 2021). This finding is consistent with others that reported the use of social media as the major tool for COVID-19 information (Abdulhafiz et al., 2020; Zhong et al., 2020; Saqlain et al., 2020). These outcomes are however based on the calibre of respondents; youthful and the educated. The essence of technology therefore, in terms of awareness creation and formal and informal education cannot be overlooked. This might not fit for a variety of circumstances because much of Africa's population is rural-based and may not have internet and access to mass media. However, the springing up of community radio stations that transmit messages in local dialect could offer a fantastic tool for awareness building.

In the same vein, Anwar (2020) found that in the United States of America, the Centre for Disease Control's (CDC) many beneficial guidelines for preventing COVID-19 were reinforced among people through prominent advertisement on commonly used social media platforms. Facebook, Instagram, and television media posted the importance of "social distancing" and "stay home" through free of cost and frequent, widespread advertisements. This repetition was essential to consolidate the role of them in preventing the disease spread. This campaign was run extraordinarily by the media. (Anwar et al., 2020).

2.5.3 Determining Factors and Hindrances of COVID-19 vaccination

Experience from infectious disease control has recognised a range of barriers that can interfere with vaccine uptake, resulting failure in disease control. The barriers can be broadly segmented two categories: structural and attitudinal (Fisk, 2021). In this review, attention is focused on one, attitudinal barriers.

Attitudinal barriers are beliefs or perceptions that may reduce one's willingness to seek out or accept a vaccine service. Addressing these barriers involves working with individuals and communities to build partnerships, listening to concerns and allaying fears, combatting misinformation, providing education to allow people to make fully informed decisions, and building trust. A survey recently conducted by the Pew Research Center found that 39 percent of US adults did not intend to get vaccinated against COVID-19. It is instructive to know that 53 percent out of this number would not change their minds with more information about the vaccines (Funk & Tyson, 2020). If someone thinks that the disease being prevented is serious or a big hoax, then they are not likely to get a vaccine protecting them from that disease. If someone thinks that

vaccines are hazardous and they are likely a scheme to make money, they will be highly likely to skip the vaccination. If someone thinks that government agencies and medical communities involved in recommending and distributing a vaccine are not trustworthy, they are unlikely to listen to recommendations and get vaccinated. These beliefs can be reinforced or introduced by the wealth of conspiracy theories about COVID-19, its origins, and the measures taken or not taken to control its spread and vaccines in general. In one study, conspiracy theories about COVID-19 were endorsed by a third of the study participants (Romer & Jamieson, 2020). These beliefs are not without impact as these individuals were less likely to get a vaccine even if it is free and widely available Earnshaw, 2020; Romer & Jamieson, 2020). Unfortunately, these beliefs appear to be stable across time.

Most of the HBM constructs were found to be significantly associated with vaccine acceptance in a study by (Islam et al., 2021). In particular, respondents who perceived COVID-19 as severe, the vaccine as conferring benefits, and received cues to action were substantially more likely to accept the vaccine. On the other hand, the perception of access barriers and potential harm induced by the vaccine were negatively associated with their acceptance. Similar HBM outcomes were also found in a study performed in Malaysia. In addition, they found that the public values the efficacy and safety of vaccines more than the cost of the vaccines (Harapan et al., 2016). These findings suggested that the constructs of HBM could be used to explain vaccine uptake behaviour, as in previous studies demonstrating the capability of the HBM constructs in predicting behaviours related to influenza vaccination (Harapan et al., 2016).

While cues to action are an essential element of HBM, and they were found to be a significant driving force of vaccine acceptance, (Islam et al., 2021) found a remarkable pattern for the COVID-19 vaccine. The recommendation from the government stood out as the most important cue, far more potent than others, such as those from doctors and family members. Furthermore, in a study by (Islam et al., 2021), people who had required vaccinations earlier in life showed more extraordinary favourable sentiments regarding COVID-19 vaccinations. This finding is similar to a study conducted in Hong Kong which found that the primary determinants influencing the desire to get the A/H7N9 influenza vaccination had been past vaccine uptake history (Chan et al., 2015) which is also confirmed by an earlier study in China (Wang et al., 2021).

A study by Callaghan (2020) revealed that trust in vaccination contributes to explain vaccination uptake. This is attributed to the enormous demand for the COVID-19 vaccine, with many new manufacturers entering the market. However, because of the lack of knowledge and too many manufacturers penetrating the market simultaneously, it is more likely for potential vaccine recipients to doubt the legitimacy of more minor well-known manufacturers, which could, in turn, lower their vaccine acceptance.

Islam et al. (2021) also found that a critical component of HBM perceived susceptibility to infection was not associated with acceptance.

2.6 Summary and Gaps Identified

Research work on COVID-19 and related vaccines is scanty but still ongoing. This could be attributed to the relative newness of the disease. Although the literature on the subject is not extensive, such is on the medical staff and general populations. Barring general populations, results pointed to a substantial level of awareness and knowledge among medical staff. This is

understandable because medical staff have a high level of education, and thus reading to understand would not be a challenge. However, some studies are necessary to establish the level of knowledge, attitudes, and perception of university students. They are also not exempted from the risk factors of COVID-19, nor are they immune.

In addition, regardless of the considerable high level of awareness among medical staff and general populations, the outcome of studies focused on them revealed low patronage of COVID-19 vaccination. In the same vein, the literature did not give the whys and wherefores regarding low patronage of vaccination by people who are regarded as having a high level of consciousness and knowledge of COVID-19.

Finally, there is not much literature focusing on university students' beliefs on COVID-19 and its vaccines. The available literature mainly focused on access and availability of the vaccines. Other factors such as religious beliefs, apprehension, and other elements not discussed could be looked at. Again, the literature did not show the extent to which beliefs held on COVID-19 could prompt vaccination or not.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The previous chapter provided a literature review of topical issues related to university student's knowledge, attitudes and practices towards COVID-19 and its vaccination. Research Methodology is a process that involves the gathering, recording, analysing, and interpretation of data.

This chapter discusses the nature of the research approach, design, describes the population, sample and sampling procedure and data collection method, data analysis, validity and reliability, limitations, bias, and ethical considerations. The fundamental objective of this study is to explore university students' knowledge, attitudes and practices toward COVID-19 and its vaccination.

3.1 Research Approach

The quantitative research design would be employed in this study. The quantitative research design involves the description of phenomena by collecting numerical data that are analysed using mathematically based methods (particularly statistics) (Aliaga & Gunderson, 2002).

The researcher would use this approach to ensure verification and assurance. Again, the nature of the study may be quite affecting, thereby inducing some bias. To reduce bias, the researcher would employ this research design using the descriptive survey method.

3.2 Research Design

Survey research offers a numeric description of a population's tendencies, opinions, or attitudes by reviewing a sample of the said population. It includes cross-sectional and longitudinal studies

employing structured interviews or questionnaires for data collection to generalize from a sample to a people (Fowler, 2008).

In this procedure, researchers collect quantitative data by employing questionnaires. The questionnaire would be designed in English and according to the conceptual framework for answering the specific objectives of the research study. The questions would include open-ended and close-ended questions in which the respondents would have to provide answers and choose from various possible solutions given, respectively.

3.3 Study Setting and Population

The population refers to a collection of people who are the focus of a research study and which the outcomes would denote (Hassan, 2017). The target population for this study thus includes all undergraduate students at the Ghana Institute of Journalism. The investigation aims to find out their knowledge of COVID-19 and their attitudes and practices towards COVID-19 vaccination. The population for the study was Level 100 to Level 400 undergraduate students of GIJ.

3.4 Sampling Size and Sampling Technique

According to Sekaran (2016), a sample is a subdivision of the population under study and entails selecting members from the population. Sampling is the procedure of selecting units (people, organisations, etc.) from a population of concern. It is basically conducted in order to permit the detailed study of part, rather than whole, of the population. It is mostly not feasible to include all the units of the population and for this study, money and time constraints are the hurdles. By

studying the sample, the researcher may objectively generalize results back to the population from which they were chosen mainly to make forecasts based on the population sample frame.

The requisite sample for a study is contingent on at least one or more of the following dynamics: project type, project purpose, project complexity, amount of error tolerated, time constraints, financial constraints, and previous research in that area (Wimmer & Dominick, 2010). Respondents for the study were sampled based on the project purpose. Convenience sampling, also known as accidental or haphazard sampling method was used. This non-probability sampling technique is based on the judgement of the researcher and ease of accessibility and proximity to respondents as well as willingness to respond (Gravetter & Fazarno, 2010). Again, this sampling technique is timelier and less laborious as compared to other 29 probability sampling techniques. The respondents completed an e-questionnaire via online survey due to COVID-19 protocols. Respondents in the study included 100 class representatives from the various year levels.

3.5 Sources of Data and Data Collection Instrument

The researcher collected secondary data concerning the research topic and related discussions from health-related books, online publications, and previous studies done on the subject. The researcher gathered statistics about the study population from interactions with the respective class representatives.

Primary data consist of all the information sought from the target sample. The researcher gathered preliminary data through a survey questionnaire designed to seek specific information concerning the phenomenon under study.

3.6 Data Collection Procedure

As a data collecting instrument, a self-administered questionnaire was developed after reviewing previously validated questionnaires from similar published studies and online published surveys. To guarantee clarity, relevance, and compliance, a pilot study of ten university students was undertaken, after which appropriate revisions were made. The final results did not include these responses. The questionnaire consisted of 23 questions divided into three sections: 1) Sociodemographic variables, 2) COVID-19 knowledge and views, and 3) COVID-19 attitudes and practices.

The researcher administered the questionnaire online via Google Forms, a free online survey administration software. The period of the administration of the questionnaires was one week, and after the expiration of the period, submissions ceased and all the submitted questionnaires were downloaded.

3.7 Data Analysis Techniques

Primary data collected was systematically sorted, coded, and entered into PSPP Data Editor (a free alternative for IBM SPSS Statistics). Coding, which involves assigning numbers to labels concerning the variables, was done while cleaning up to ensure that no response was entered incorrectly on the computer. Data presentation was done pictorially using frequency tables, graphs, and charts. This was to ensure simple interpretation and clear presentation of data.

3.8 Ethical Considerations

According to Kusi (2002), ethics in research are the issues that relate to the way and manner researchers comport themselves and the consequences of their actions on people who participate in their study. Ethical considerations have to do with the right to free consent, anonymity, confidentiality, etc. The study was conducted without any breach of ethics, and thus, none of the respondents was treated wrongly or forced to answer the questionnaire. Again, the names of the respondents were not recorded to assure them of their anonymity. They were also given assurance regarding the true intentions of the study, which is for academic purposes only. The study adequately maintained the non-negotiable value of honesty and fairness and respect for persons.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

The chapter presents the results and discussion of the study in relation to knowledge, attitudes, and practices of GIJ students towards covid-19 and covid-19 vaccination. It covers the demographic profiles of the respondents, knowledge of COVID-19 and COVID-19 vaccines/vaccination as well practices and attitudes toward COVID-19 and COVID-19 vaccine/vaccination. The results of the findings from this study are discussed in line with research objectives outlined at the beginning of the study.

4.1 Discussion

Demographic Profile of Respondents

This section presents the profile of the respondents used in this survey. In all a total number of 100 people were involved in the survey. These were drawn from the Ghana Institute of Journalism and from various levels. The respondents were asked to provide their sex, age, level, and religion. This was against the backdrop of studies such as (Reuben et al., 2020) that have attributed religion for example to attitude towards COVID-19.

Table 1. Demographic Data of Respondents

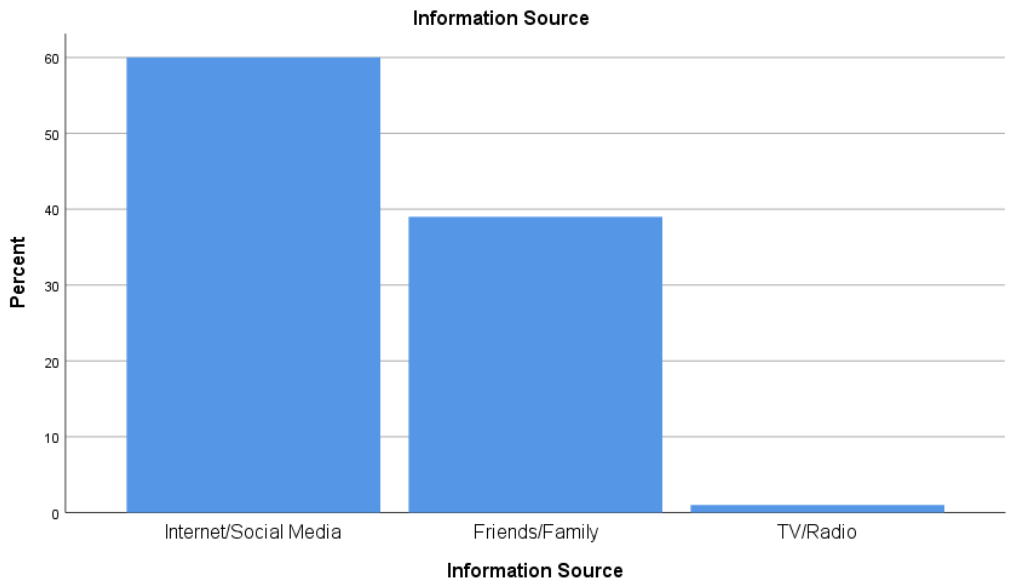
		Frequency	**Percent**
Sex	Male	58	58.0
	Female	42	42.0
	Total	**100**	**100.0**
Age	18-24	50	50.0
	25-29	50	50.0

	Total	**100**	**100.0**
Religion	Atheism	3	3.0
	Christianity	82	82.0
	Islam	15	15.0
	Total	**100**	**100**
Level	200	27	27.0
	300	22	22.0
	400	51	51.0
	Total	100	51.0

Field Survey, 2021

Table 1 shows the demographic characteristics of the respondents. Majority of the respondents (58%) were while the rest accounted for female respondents. In addition, the percentage of those within the age bracket of 18-24 years (50%) was the same as those between 25 and 29 years. In the majority of respondents (51%) were Level 400 students. Those in level 200 followed with 27 percent with the remainder being respondents in level 300. Worth noting is also the fact that Christians accounted for most respondents for this study, representing 82 percent.

Figure 1. Knowledge of GIJ students about COVID-19



Field Survey, 2021

The researcher enquired the source of COVID-19 information to determine the respondents' understanding of COVID-19. The internet/social media was the most often mentioned source of information (60%), as seen in Figure 1. This is due to the age group and quality of respondents who were recruited for the study. The outcome is also consistent with Ghana's present internet usage situation. Ghana had around 16 million internet users in 2021, up from 14.76 million the previous year (Sasu, 2021). In general, the percentage of people who use the internet has been rising. Furthermore, Ghana has around 8 million social media users, up from 6 million the previous year. There were an estimated 8.9 million Facebook users in August of 2021. However, this did not outnumber WhatsApp users, who accounted for 83.9 percent of all internet users in the country by the third quarter of 2020.

To support the aforementioned statement, the internet is by far the most popular source of information and news, surpassing television, newspapers, and radio in popularity. Eight out of ten

Americans acquire news via the internet/social media, according to a Pew Research study performed between August 31st and September 7th, 2020.

Furthermore, the respondents were asked specific questions to elicit their overall knowledge of COVID-19. Generally, the respondents showed high level of knowledge of COVID-19. They were abreast with the symptoms. However, majority (81%) did not know that touching or eating wild animals was a COVID-19 risk factor. In light of this, only 6 percent were abreast with this fact. Table 2 below illustrates the various questions posed to elicit respondents' knowledge about COVID-19 along with responses:

Table 2. Knowledge of COVID-19

What causes COVID-19?			Does eating or contacting wild animals result in COVID-19?				Is it possible for a COVID-19 positive person to show no symptoms?		
Virus	I don't know	**Total**	Yes	No	I don't know	**Total**	Yes	No	**Total**
99	1	**100**	6	13	81	**100**	98	2	**100**
99.0	1.0	**100.0**	6.0	13.0	81.0	**100.0**	98.0	2.0	**100.0**

Table 2 (continued)

Which is a symptom for COVID-19? (Select all that apply)

	Frequency	Percent
Runny nose; Dry cough; Breathing difficulty; Muscle pain; Fatigue	2	2.0

Dry cough; Breathing difficulty; Muscle pain; Fatigue	4	4.0
Runny nose; Dry cough; Breathing difficulty; Muscle pain	11	11.0
Dry cough; Breathing difficulty; Fatigue	76	76.0
High fever; Dry cough; Breathing difficulty	3	3.0
High fever; Dry cough; Breathing difficulty; Fatigue	1	1.0
High fever; Runny nose; Dry cough; Breathing difficulty	1	1.0
High fever; Breathing difficulty	1	1.0
Dry cough	1	1.0
Total	**100**	**100.0**

How does the virus spread? (Select all that apply)

	Frequency	Percent
Air droplets (from patient sneezing/coughing)	6	6.0
Air droplets; Contact with contaminated surfaces; Close contact with people who have the virus	88	88.0
Air droplets (from patient sneezing/coughing); Close contact with people who have the virus	6	6.0
Total	**100**	**100.0**

What can kill the virus? (Select all that applies)

	Frequency	Percent
Alcohol-based sanitizers	2	2.0
Clean surfaces with diluted chlorine; Alcohol-based sanitizers; Soap/detergents	20	20.0
Alcohol-based sanitizers; Soap/detergents	50	50.0
Soap/detergents	27	27.0
I don't know	1	1.0
Total	**100**	**100.0**

Is hand-washing important to prevention coronavirus infection?

	Frequency	Percent
Yes	100	100.0
No	0	0.0

If you answered yes to question 12 above, how long should you wash your hands to kill the virus?

	Frequency	Percent
20s to 1 min	84	84.0
Less than 20	10	10.0
I don't know	6	6.0
Total	**100**	**100.0**

Field Survey, 2021

Attitudes and Practices towards COVID-19.

Table 3. Crosstabulation of respondents' adherence to government imposed COVID-19 protocols

		In recent days, have you been wearing a face mask when leaving home?		
		Yes	No	Total
To what extent are you following the COVID-19 protocols imposed by the government?	To some extent	0	91	91
	To a moderate extent	3	1	4
	To a great extent	4	1	5
Total		**7**	**93**	**100**

Field Survey, 2021

From Table 3 above, there is a relationship between not adhering to the COVID-19 protocols imposed by the government and respondents' wearing of nose masks (one of the major safety protocols) when they leave home. Ninety-one percent of those who adhered to the government's laid down protocols to some extent, did not wear nose masks when they left home. It is worth noting however that, out of the 5 percent who indicated that they adhered to the COVID-19 protocols to a great extent, one percent did not wear a nose mask when they left home. This could imply that they were observing the other protocols such as the washing of hands with soap under running water, using alcohol-based hand sanitizer and social distancing. Findings from Table 3 above is particularly not surprising because in a survey conducted by the Ghana Health Service (2020) showed a sharp increase (72%) in the number of people who do not wear nose masks in public from 18 percent, from August to October 2020 although the number of daily infections was on the ascendancy. Currently, the Ghana Health Service does not conduct media briefings on the

state of the coronavirus spread in Ghana as it used to during the early days of the spread. This may have given people a false sense of security and the assumption that the country is out of the COVID-19 pandemic woods.

Table 4. Barriers preventing the uptake of COVID-19 vaccines GIJ students.

What is/are your reason(s) for not taking the COVID-19 vaccine?

		Frequency	Percent
Responses	Unaware of vaccination centres	6	6.0
	A concern on the adverse effects of the vaccine	13	13.0
	I perceive myself not to be at considerable risk of developing complications if I am infected with COVID-19	4	4.0
	Total	23	23.0
Missing	System	77	77.0
Total		**100**	**100.0**

From table 4, 7 percent of the respondents had received a COVID-19 vaccine and thus were excluded from the above. The remaining 23 percent answered ‘‘no’’ to the question of whether they have been vaccinated. Out of this cohort, 6 percent were unaware of vaccination centres whereas 13 percent were worried about the adverse effects of the vaccines. The remaining 4 percent perceived themselves not to be at risk.

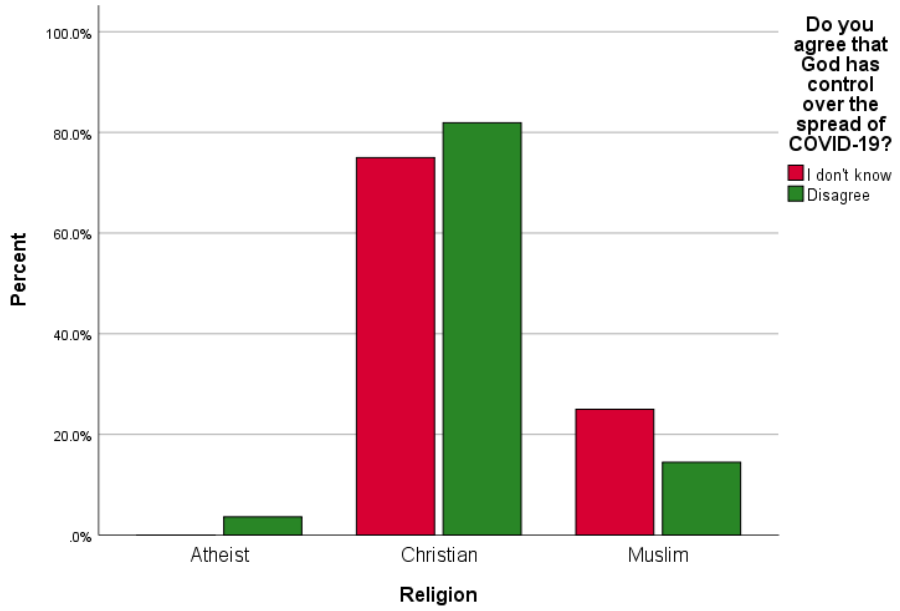
Effect of beliefs on vaccination intentions.

Respondents were further asked questions to elicit the effect of their beliefs on vaccination intention. This is illustrated in a clustered (Fig 2) and side-by-side bar graphs (Fig 2 & Fig 3) to

determine the relationship or otherwise of respondents' religious beliefs on their intention to take a COVID-19 vaccine.

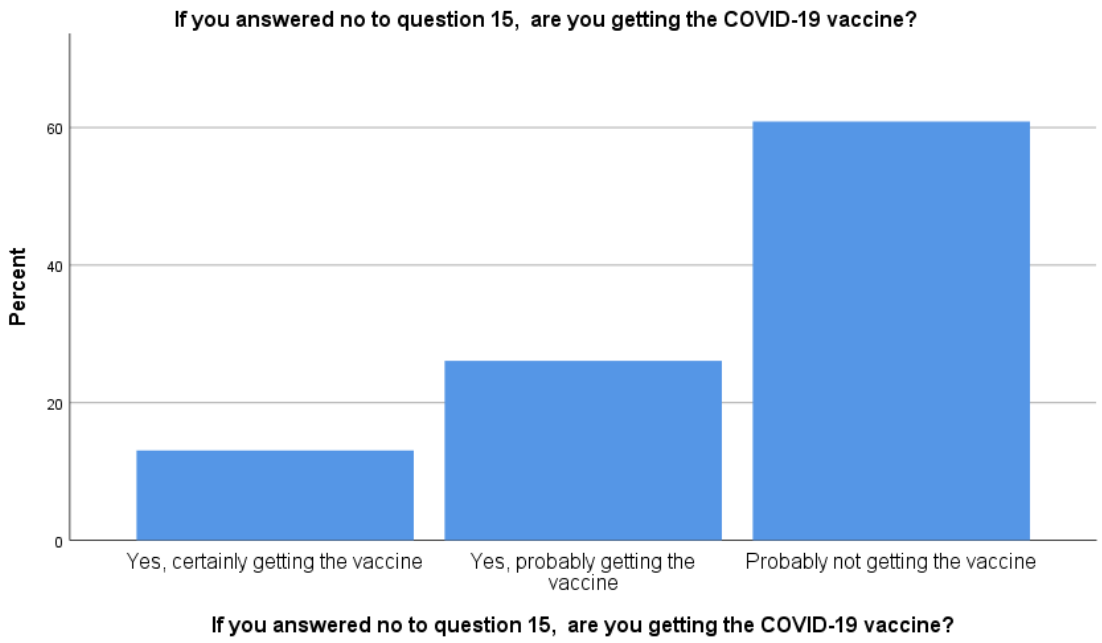
Although majority of the respondents are religious, they either disagreed or did not know whether God has control over the spread of COVID-19 (Fig 2). It may be argued that the level of education of the respondents may be having an effect on this outcome. This line of argument is supported by a 2001 study by Sacerdote and Glaeser, where they found that belief decreases with education. Essentially, people tend to think rationally as their education increases despite their deity of worship.

Figure 2. Relationship between respondents' religion and belief in the power of God to control the spread of COVID-19



Field Survey, 2021

Figure 3. Non-vaccinated respondents' intention to take up COVID-19 vaccine if made available



Field Survey, 2021

Discussion of Findings

Epidemics and pandemics are rare occurrences that pose numerous problems to the affected population. Due to a lack of understanding, careless behaviour may result, making it difficult to control the disease.

COVID-19, which emerged in the Chinese city of Wuhan in December 2019 and quickly spread throughout over 215 nations and territories, has become one of the most devastating and significant pandemics in recent memory, posing numerous severe and significant public health issues (WHO, 2020). Ghana's population could undoubtedly be related with a higher risk of increasing morbidity and mortality due to COVID-19 because it is one of the most vibrant economies in Africa, and as such a competitively expanding one in the globe. With the Centers for Disease Control (CDC) and the Ghanaian government adopting infection prevention and control (IPC) tactics to combat COVID-19, citizen adherence is primarily dependent on their level of awareness and information

about the pandemic (Zhong et al., 2020). Unconcerned attitudes and belief in incorrect and superstitious beliefs among the general people are frequently the result of a lack of understanding, which has an impact on the level of preparation and proper execution of IPC measures at the national and subnational levels. This is the first epidemiological survey aiming at determining the KAP of tertiary students, and hence the Ghana Institute of Journalism, in relation to the COVID-19 pandemic and immunization. The collection of such data is required for the promotion of key preventative behaviours such as personal hygiene and social distance. With the unique nature of COVID-19, as well as its clinical and epidemiological uncertainty, a study of KAP at this level is essential for effective public health planning, implementation, and management.

This survey was dominated by males (58%), level 400s (51%) and Christians (80%) with an overall 99.5 percent awareness of COVID-19 thus, illustrating that the respondents are knowledgeable about COVID-19 pandemic. In agreement with this study's findings, previous studies conducted in different Asian countries (Zhong et al., 2020; Azlan et al., 2020; Saqlain et al., 2020), Egypt, Kenya and Nigeria (Abdelhafiz et al., 2020; Austrian et al., 2020; Olapegba, 2020) indicated high COVID19 knowledge among the population. The high level of COVID-19 knowledge recorded in this study could be attributed to the calibre of respondents who participated in the survey. In the study area, apparently made up of a literate population who widely use the internet and social media, it is of no surprise that they were highly knowledgeable about COVID-19 and COVID-19 vaccination.

This result is backed by a Bangladeshi study (Islam et al., 2021) in which the mean knowledge score was 2.83 (SD = 1.48) out of 5, with a 57 percent overall accurate rate. Participants who

reported having a university/higher level of education had a considerably higher mean knowledge score. Although the high level of COVID-19 awareness among the respondents signifies a positive predictor in curtailing COVID-19 pandemic, the result however glaringly excludes the underprivileged (uneducated and vulnerable) individuals. The use of social media (55.7%) and TV (27.5%) constitute the major sources of information about COVID-19. This is consistent with other findings that reported the use of social media as the major tool for COVID-19 information (Abdelhafiz et al., 2020; Zhong et al., 2020; Saqlain et al., 2020). In Ghana, the use of the social media especially WhatsApp, Facebook and the internet constitute the main sources of information with about 8.9 million users recorded within the first quarter of 2020 of which more than 70 percent are youth (Internet World Stat, 2020) (who constitute the majority of the respondents in this study). Right from the WHO declaration of COVID-19 as pandemic, several guidelines and information on COVID-19 have been uploaded online by WHO and the Ghana Health Service which are easily accessible by internet users. Access to such reliable information could help dispel the pandemic of misinformation, misconception and citizenry ignorance about COVID-19.

Despite the fact that 99 percent of respondents believe COVID-19 is caused by a virus, one respondent, representing one percent indicated that he or she did not know what causes COVID-19. This was quite surprising; seeing that information about the novel coronavirus and thus, COVID-19 abound on both traditional and new media. Hence, it would be highly unlikely for anyone to miss any information such as this. However, the respondents were familiar with COVID-19's transmission pathways, and symptoms. In addition, 100 percent of those polled believed that everyone is at danger of contracting the coronavirus. This also demonstrates the power of social media and the internet in raising awareness about the COVID-19 pandemic among GIJ students.

However, some media outlets frequently overestimate the dangers of a COVID-19 pandemic (Abdelhafiz et al., 2020). A common misconception during the early phases of the new coronavirus's spread was that the disease only afflicted the elderly and that younger people were less vulnerable. When the infection spread, however, this theory was disproved when younger people became affected, and some even died as a result. Respondents may have remembered this knowledge well, resulting in positive responses to the question of which group of persons is affected by the virus.

The findings of this study on respondents' knowledge of COVID-19 transmission and symptoms are similar to those of Saqlain et al. (2020) and Giao, et al., 2020) who reported that participants had an excellent comprehension of COVID-19 transmission and symptoms (93.2 percent and 89.51 percent, respectively). In another study conducted among the Iranian community (Nemati, Ebrahimi, & Nemati, 2020), a lower proportion of the study group (56.5 percent) had acceptable awareness regarding COVID-19 transmission and symptoms as compared to the current study.

On whether respondents believed God has control over the spread of COCVID-19, only 1 percent respondents answered in the affirmative, with the remaining disagreeing or not knowing albeit more than 90 percent did not agree Prayer is beneficial in COVID-19 prevention. By extension, respondents did not resort to the use of prayer as part of their COVID-19 prevention strategy. This finding contradicts Ghanaians' stringent religious beliefs, which generate a growing carefree and apathetic attitude among the community, prompting the majority of the people to rely primarily on prayers and religious rituals during illness epidemics rather than applying IPC measures. This is unlike in a study by Olapegba (2020), where a KAP survey on COVID-19 of a Nigerian

community showed religious respondents believing in the power of God and relying on prayers as a COVID-19 prevention strategy.

This means that, despite the fact that the majority of respondents have a thorough understanding of COVID-19, they are not swayed by media falsehoods, myths, superstitions, or religious beliefs. Before Ghana's first verified case of COVID-19 on March 12, 2020, it was commonly assumed on social media that the virus (SAR-CoV-2) could not thrive in the country's hot environment. This speculation is based in part on a misinterpretation of an interview given to a media outlet by a medical practitioner. People believed the disease would not be transported into the country, hence this belief worked as a risk reducer.

The government released a press release to counteract the myth's detrimental impacts. Warm temperature does not offer protection against the virus's survival, according to interviews with medical practitioners with knowledge in infectious disease.

Furthermore, it was commonly reported that black individuals are immune to the virus. With limited adherence to COVID-19 preventative efforts, this belief served as a risk attenuator. It was also frequently assumed that only people with chronic conditions such as hypertension, diabetes, or asthma were at risk of contracting the disease. During this time, it was discovered that eating garlic and drinking apple cider vinegar were both frequently advised as techniques to avoid getting sick. Furthermore, on WhatsApp and Facebook, the use of a locally produced alcoholic drink (akpetseshie) was marketed as a way to prevent the disease. Heavy drinking was misunderstood since the focus of health education was on the usage of alcohol-based hand sanitizer.

Very few respondents from the unvaccinated cohort (4%) considered themselves not to be at risk for COVID-19, hence, did not see the reason to take up vaccination. This essentially gives hope to the medical fraternity and does not paint a grim picture. This may be attributable to the fact that education and awareness creation have been exhaustive enough. Additionally, Ghana as a nation has rolled out a robust COVID-19 vaccination programme in major and community healthcare facilities. If this statistic was reflective of the general population, it can be said that it bolsters the hope and progress towards the effective control of the coronavirus.

On the barriers to vaccination, more than half of the respondent's unawareness of vaccination centres was the reason for not being screened whereas 18.5 percent citing self-efficacy as the reason. In a study conducted in the United States of America on the barriers to vaccination for coronavirus disease 2019 (COVID-19) control (Fisk, 2021), other factors were cited as barriers to COVID-19 vaccination. The study found that vaccine uptake is influenced by trust in vaccine development and delivery agencies, as well as their perceived competency. Furthermore, institutional mistrust is not always evenly distributed across a country's subpopulation groups. COVID-19 has also been linked to different levels of institutional mistrust in the United States. African Americans are more inclined than others to mistrust the agencies engaged in vaccine production and delivery, according to qualitative and quantitative studies, which could impair COVID-19 vaccine adoption (Quinn et al., 2017; Freimuth, et al., 2017; Malik, et al., 2020).

The aforementioned thus, lead to vaccine hesitancy; "the decision to postpone or refuse immunization despite the availability of vaccination services." It has been seen with influenza vaccines (Nyhan & Reifler, 2015), human papillomavirus vaccines (Fowler & Gollust, 2021), and pneumococcal vaccines (Fowler & Gollust, 2021). (Fowler & Gollust, 2021). Gatwood et al.,

2020). The researcher does note, however, that the intention to vaccinate against COVID-19 is similar to traditional vaccine aversion but conceptually distinct. Vaccine apprehension typically arises when vaccine safety has been established and the vaccine is widely available; however, this is not the case with COVID-19 immunisation. There have been several reports of safety concerns and reinfection especially with the AstraZeneca brand after inoculation against the coronavirus (Australian Government Department of Health, 2021.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5. 0 Introduction

This chapter summarizes the findings of the study based on the study objectives, draws conclusions in response to the aim of the research and makes recommendations where applicable.

The study sought to find out the knowledge, attitudes and practices of GIJ students toward COVID-19 and COVID-19 vaccines/vaccination.

5.1 Summary of Major Findings

The respondents for the study were students at the Ghana Institute of Journalism in Accra. Data was collected through the administration of an online survey using a questionnaire as the data collection instrument.

The study explored the knowledge, attitude and practices of GIJ students towards COVID-19 and COVID-19 vaccination. The study sought to assess the general knowledge of respondents in respect of COVID-19 and its vaccination and the relationship of demographic factors such as religion on respondents' attitude toward the said disease and the intention to vaccinate.

Although 77 percent of the respondents was vaccinated, not all of the remaining percentage of unvaccinated respondents were ready to get the vaccine if it was available albeit there were others who simply were unaware of the location vaccination centres.

The study revealed that respondents had impressive knowledge about COVID-19 and information about same was mainly sourced from the internet/social media. In addition, the study pointed out that respondents' religion did not have a bearing on their attitudes towards COVID-19.

Furthermore, the study also found out that some practices of the respondents like the non-adherence to governments imposed COVID-19 protocols to curtail the spread of the virus could mitigate against the efforts of the government to stop the spread.

5.2 Conclusions

This study offers a comprehensive assessment of the Knowledge, Attitudes and Practices of students of GIJ towards COVID-19 and COVID-19 vaccines/vaccination. The findings suggest that GIJ students who participated in this study have good level of knowledge on COVID-19 with a negative attitude and non-compliance with the necessary IPC measures outlined by the government, which are necessary for mitigating the spread of COVID-19. Despite their shortcomings, social media and the internet contributed substantially to the acquisition of the needed knowledge. The government can thus, channel its resources and efforts towards educating the less literate and underprivileged in the society and in their indigenous languages. Targeting every group of the Nigerian population would constitute holistic and viable approach in curtailing COVID-19.

To slow the pandemic, it will be necessary to develop targeted health communication tactics that effectively reach the subpopulations most likely to refuse COVID-19 vaccination and address the key concerns of those who are hesitant to vaccine based on scientific data (Goldstein et al., 2015).

As a result, identifying who in the Ghanaian public is least likely to pursue an eventual COVID-19 vaccine and their reasons for not doing so is a critical initial step in this process.

Last but not least, there was no significant relationship between once religion and attitude towards COVID-19 and or intention to vaccinate. While more than half of the respondents indicated their religion as Christianity, and a few Islam, most of them did not believe that God had control over the spread of coronavirus. In the light of this, ecclesiastical officers need to be commended and encouraged to delineate spiritual causes of events from purely scientific happenings so explained by authorities like the Ghana Health Service and the Ghana Medical Association. This will go a long way to fast-track curtailing the spread of the coronavirus. To buttress the aforementioned, the active involvement of religious leaders and clerics in the fight against COVID-19 by the Ghanaian government will tremendously aid in the dissemination of accurate COVID-19 information among their followers.

5.3 Recommendations

The focus of this study was to examine the knowledge, attitudes and practices of GIJ students towards COVID-19 and COVID-19vaccination. It is concluded from this study that religious beliefs do not have a bearing on attitudes towards COVID-19 and intention to vaccinate.

In light of the above, this study is essential to the healthcare sector in fashioning policies or revitalizing the effort to ensure strict compliance of COVID-19 protocols across all categories of citizens. It is recommended therefore that the Ghana Health Service migrate its media briefings that have become a pale shadow of itself onto social media, where it is assured to reach such people as the respondents for this study.

5.4 Suggestions for further studies

The objective of this paper was to find the knowledge level, attitudes and practices of GIJ students towards COVID-19 and its vaccination and use the findings to suggest strategies for implementation by those in the health sector.

The researcher could not give respondents ample time to respondents to complete the questionnaires. This was due to time constraints on the part of the researcher. Indeed, some respondents complained that this hampered the completion of their questionnaires. These respondents hurriedly completed same. They argued that their academic schedules especially during these COVID-19 times were quite overwhelming to prioritize other assignments not directly related to their academic responsibilities. The researcher consequently envisages that these respondents may have provided their responses under pressure. Further studies therefore should give ample time to respondents to complete questionnaires to avoid such instances.

Moreover, the researcher could not physically follow up on the progress of the questionnaire due to the university's strict adherence to COVID-19 protocols and their mission to encourage lower lecture hall gatherings as possible. As a result, the researcher could only monitor the progress of questionnaire completion via phone calls albeit this was not as effective.

The study however could not establish the relationship between other demographic factors apart from religion, and attitude towards COVID-19 and the intention to vaccinate. On the basis of this, further studies could research on these correlations.

Again, it is suggested that further study on the same or similar topic employs inferential statistics in developing the relationship between other demographic variables and the intention to take up COVID-19 vaccine. In addition, there is the need to replicate the study in broader terms such as tertiary institutions, and other facets of the Ghanaian economy.

Finally, it is suggested that further study could conduct a qualitative study to delve deeper into the factors influencing knowledge, attitudes and practices towards COVID-19 and COVID-19 vaccines/vaccination.

5.5 Limitation of the study

Despite its merits, there are a few limitations to this study. First, the convenience or the haphazard sampling method limits the findings' generalizability. Secondly, the scope of this study is restrictive because the sample is limited to students at Ghana Institute of Journalism, and it is therefore unlikely to conclude that the factors so cited for intention to take up COVID-19 vaccine/vaccination or otherwise is reflective of all university students in Ghana. This study therefore forms the basis for further studies.

APPENDIX

GHANA INSTITUTE OF JOURNALISM

SCHOOL OF GRADUATE STUDIES

QUESTIONNAIRE

Dear Respondent,

My name is Emma Wiafe from the Ghana Institute of Journalism, pursuing a Master's Degree in Development Communication. I am conducting a research project on ''Knowledge, Attitude and Practices towards COVID-19 and COVID-19 Vaccination among University Students: The Case of Ghana Institute of Journalism." The purpose of this study is to explore university students' knowledge of COVID-19 and the factors that influence COVID-19 vaccine uptake. I assure you that this is purely an academic exercise and the information provided will be treated with utmost confidentiality. Please complete this survey to enable me to gather the needed data for this research. Please tick the right answers in the bracket provided or write the answer in the space provided. The questionnaire is divided into sections to make understanding easier.

Please tick where applicable

SECTION A: Demographic Information

1. Sex

a. Male [ ] b. Female[ ]

2. Age

18-24years [ ] 25-29years [ ] 30-34years [ ] 35-39years [ ] 40years and above [ ]

3. Level

a. 100 [ ] b. 200 [ ] c. 300 [ ] d. 400 [ ]

4. Religion

a. Christianity [ ] b. Islam [ ] c. African Traditional [ ] d. Atheism [ ] e. Other……

SECTION B: Knowledge of COVID-19

5. How did you hear of COVID-19/COVID-19 Vaccination?

a. TV/Radio [ ] b. Internet/social media [ ] c. Newspaper [ ] d. Friends/family [ ]

6. What causes COVID-19?

a. Bacteria [ ] b. Fungi [ ] c. Virus [ ] d. I don't know [ ]

7. Does eating or contacting wild animals' result in COVID-19 infection?

a. Yes [ ] b. No [ ] c. I don't know [ ]

8. Is it possible for a COVID-19 positive person to show no symptoms?

a. Yes [ ] b. No [ ] c. I don't know [ ]

9. Who can get infected with the novel coronavirus?

a. Old people only [ ] b. Young adults only [ ] c. Anyone can be infected [ ]

d. Teenagers and children [ ] e. Only a and b [ ]

10. Which is a symptom for COVID-19? (Select all that apply)

a. High fever [ ] b. Runny nose [ ] c. Dry cough [ ] d. Breathing difficulty [ ]

e. Muscle pain [ ] f. Fatigue [ ] g. Bleeding [ ]

11. How does the virus spread? (Select all that apply)

a. Air droplets (from patient sneezing/coughing) b. Mosquitoes/flies [ ]

c. Contact with contaminated surfaces d. Close contact with people who have the virus [ ]

e. I don't know [ ]

12. What can kill the virus? (Select all that applies)

a. Clean surfaces with diluted chlorine [ ] b. Alcohol-based sanitizers [ ]

c. Soap/detergents [ ] d. Water alone [ ] e. I don't know [ ]

13. Is hand-washing important to prevention coronavirus infection?

a. Yes [ ] b. No [ ] c. Maybe [ ]

14. If you answered yes to question 13 above, how long should you wash your hands to kill the virus?

a. Less than 20 [ ] b. 20s to 1 min [ ] c. I don't know [ ]

SECTION C: Attitude and Practices towards COVID-19 and COVID-19 vaccination

15. 14. Have you been vaccinated?

a. Yes [ ] b. No [ ]

16. If you answered no to question 15, are you getting the COVID-19 vaccine?

a. Probably not getting the vaccine [ ] b. Yes, probably getting the vaccine [ ] c. Yes, certainly getting the vaccine [ ] d. I don't know [ ]

17. What is your reasons for not taking the COVID-19 vaccine?

a. Unaware of vaccination centres [ ] b. A concern on the adverse effects of the vaccine [ ]
c. I already had the COVID-19 disease d. I have faith in God and won't be infected [ ]
e. I perceive myself not to be at considerable risk of developing complications if I am infected with COVID-19 [ ]

18. In your opinion, how much of the news and information about COVID-19 is made-up?

a. A lot [ ] b. Some [ ] c. Not much d. Not at all [ ]

19. Do you agree that 'God has control over the spread of COVID-19'?

a. Agree [ ] b. Disagree [ ] c. I don't know [ ]

20. To what extent are you following the COVID-19 protocols imposed by the government?

a. Not at all [ ] To some extent [ ] c. To a moderate extent [ ] d. To a great extent [ ]

21. To what extent do you agree/disagree that the Government of Ghana is responding the COVID-19 situation very well?

a. Strongly disagree [ ] b. Disagree [ ] c. Neutral [ ] d. Agree [ ] e. Strongly agree [ ]

22. In recent days, have you been wearing a face mask when leaving home?

a. Yes [ ] No [ ] Never left home [ ]

23. To what extent do you agree or disagree with the following statement ‘I am afraid that I and someone in my household will be infected by COVID-19’?

a. Strongly disagree [ ] b. Disagree [ ] c. Neutral [ ] d. Agree [ ] e. Strongly agree [ ]

THANK YOU

REFERENCES

Abdelhafiz, A. S., Mohammed, Z., Ibrahim, M. E., Ziady, H. H., Alorab, M., & Ayyad, M. (2020). Knowledge, perceptions, and attitude of Egyptians towards the novel coronavirus disease (COVID-19). *Journal of Community Health*. https://doi.org/10.1007/s1090 0-020-00827-7

Abrahamson V., Wolf J., Lorenzoni I., Fenn B., Kovats S., Wilkinson, P., & Raine, R. (2009). Perceptions of heatwave risks to health: Interview-based study of older people in London and Norwich, UK. *Journal of Public Health, 31,* 119–126. doi: 10.1093/pubmed/fdn102.

Azlan, A. A., Hamzah, M. R., Sern, T. J., Ayub, S. H., & Mohamad, E. (2020). Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. PLoS ONE, *15*(5), e0233668. https://doi.org/10.1371/journ al.pone.0233668

Agyekum M.W., Afrifa-Anane G.F., Kyei-Arthur F., & Addo. (2021). Acceptability of COVID-19 vaccination among health care workers in Ghana. Advances in Public Health https://doi.org/10.1155/2021/9998176

Al-Hazmi, A. (2016). Challenges presented by MERS coronavirus and SARS coronavirus to global health. *Saudi Journal of Biological Science*, *23*(4), 507-11. https://doi.org/10.1016/j.sjbs.2016.02.019

Ali, N.S. (2002) Prediction of coronary heart disease preventive behaviors in women: a test of the Health Belief Model, *Women and Health, 35*, 83–96.

Aliaga, M., & Gunderson, B. (2002). *Interactive Statistics*. New Jersey: Prentice Hall.

Anwar A., Malik, M., Raees, V., & Anwar, A. (2020). Role of mass media and public health communications in the COVID-19 pandemic. *Cureus*, https://doi.org/10.7759/cureus.10453

Austrian, K., Pinchoff, J., Tidwell, J. B., White, C., Abuya, T., & Kangwana, B. (2020). COVID-19 related knowledge, attitudes, practices and needs of households in informal settlements in Nairobi, Kenya. *Bulletin of World Health Organization*. https://doi.org/10.2471/BLT.20.260281

Bandura, A. (1992). Exercise of personal agency through the self-efficacy mechanism, in R. Schwarzer (ed.) *Self-Efficacy: Thought Control of Action* (pp. 3–38). Washington, DC: Hemisphere.

Banik, R., Rahman, M., Sikder, M.T., Rahman QM., & Pranta M.U.R. (2021). Knowledge, attitudes, and practices related to the COVID-19 pandemic among Bangladeshi youth: A web-based cross-sectional analysis. *Jounal of Public Health* (Bangkok). https://doi.org/10.1007/s10389-020-01432-7

Callaghan T., Moghtaderi A., Lueck J, Hotez, P., Strych, U., & Dor, A. (2021). Correlates and disparities of COVID-19 vaccine hesitancy. *SSRN Electron Journal.* https://doi.org/10.2139/ssrn.3667971

Champion, V.L. (1984). Instrument development for health belief model constructs. *Advances in Nursing Science*, 6, 73–85.

Chan, E.Y-Y., Cheng CK-Y., Tam, GC-H., Huang Z., & Lee, P.Y. (2015). Willingness of future A/H7N9 influenza vaccine uptake: A cross-sectional study of Hong Kong community. *Vaccine, 33*, 4737–4740. https://doi.org/10.1016/j.vaccine.2015.07.046

Davidai, S., & Gilovich T. (2016). The headwinds/tailwinds asymmetry: An availability bias in assessments of barriers and blessings. *Journal of Personality and Social Psychology, 111*(6), 835–851. doi: 10.1037/pspa0000066.

De Coninck, D., d'Haenens L., & Matthijs, K. (2020). Perceived vulnerability to disease and attitudes towards public health measures: COVID-19 in Flanders, Belgium. *Personality and Individual Differences*. doi: 10.1016/j.paid.2020.110220.

Ditu, V. (2020). Silver linings of the COVID-19 Crisis in Ghana: IRC. Retrieved August 8, 2021, from https://www.ircwash.org/blog/silver-linings-covid-19-crisis-ghana

Earnshaw, V.A., Eaton, L.A., Kalichman S.C., Brousseau N.M., Hill, E.C., & Fox, A.B. (2020). COVID-19 conspiracy beliefs, health behaviors, and policy support. *Transl Behav Med*, *10*(4), 850-856. doi:10.1093/tbm/ibaa090

Ferdous, M.Z., Islam M.S., Sikder M.T., Mosaddek A.S.M., Zegarra-Valdivia J.A., & Gozal D. (2020). Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladesh: an online-based cross-sectional study. *PLoS One, 15*. https://doi.org/10.1371/journal.pone.0239254

Fisk, R.J. (2021). Barriers to vaccination for coronavirus disease 2019 (COVID-19) control: experience from the United States. *Global Health Journal, 5* (2021), 51–55. Retrieved on August 3, 2021, from https://www.keaipublishing.com/en/journals/global-health-journal/

Fowler, F.J. (2008). Survey research methods, 4th ed. California: Sage Publications

Frimpong, E.D. (2021). GHS confirms spread of 'Delta' variant of COVID-19 at Achimota School; 46 active cases on campus. *Graphic Online.* Retrieved August 1, 2020, from www.graphic.com.gh/news/general-news/achimota-school.amp.html

Funk, C. & Tyson, A. (2020). Intent to Get a COVID-19 Vaccine Rises to 60% As Confidence in Research and Development Process Increases. Pew Research Center Science & Society. Retrieved

on August 6, 2021, from https://www.pewresearch.org/science/2020/12/03/intent-to-get-a-covid-19-vaccine-rises-to-60-as-confidence-in-research-and-development-process-increases/

Gatwood J., Shuvo, S., Homhmeier, K.C., Hagemann, T., & Chiu, C-Y., Tong, R., & Ramachandran, S. (2020). Pneumococcal vaccination in older adults: An initial analysis of social determinants of health and vaccine uptake, Vaccine, *38*(35).

Ghana Health Service (2020). Ghana Health Service COVID-19 situation update. Retrieved August 5, 2020, from https://ghanahealthservice.org/covid19/

Ghana Medical Association (2020). Disregard of COVID-19 protocols [Press release]. Retrieved July 31, 2020, from https://ghanamedassoc.org/category/press-releases

Gravetter, F.J., & Forzano, L. (2010). Research methods for the behavioural sciences, 4th ed. Boston: Cengage Learning.

Guo X., Wang, J., Hu D., Wu L., Gu L., & Wang Y. (2020). Survey of COVID-19 disease among orthopaedic surgeons in Wuhan, People's Republic of China. *The Journal of Bone and Joint Surgery.*

Hassan, M.A. (2017). Academia.edu. Retrieved on October 7, 2021 from http://www.academia.edu/5563491/Research_Population

Harapan, H., Anwar, S., Setiawan A, M., & Sasmono, R.T. (2016). Dengue vaccine acceptance and associated factors in Indonesia: A community-based cross-sectional survey in Aceh. *Vaccine*, *34*, 3670–3675. https://doi.org10.1016/j.vaccine.2016.05.026

Hegel, M.T., Ayllon, T., Thiel, G., & Oulton, B. (1992). Improving adherence to fluid restrictions in male hemodialysis patients: a comparison of cognitive and behavioural approaches, *Health Psychology*, 11, 324–30.

Hossain, M.A., Jahid, M.I.K., Hossain, K.M.A., Walton, L.M., Uddin, Z., & Haque, M.O. (2020). Knowledge, attitudes, and fear of COVID-19 during the Rapid Rise Period in Bangladesh. *PLoS One*, *15*, https://doi.org?10.1371/journal.pone.0239646

Janz, N.K., & Becker, M.H. (1984). The health belief model: A decade later. *Health Education Quarterly*, 11, 1–47. doi: 10.1177/109019818401100101.

Jin J.M., Bai P., He W., Wu F., Liu X.F., Han D.M., & Yang, J.K. (2020). Gender differences in patients with COVID-19: focus on severity and mortality. *Frontiers in public health*, 8, 152.

Islam, M.S., Emran, G.I., Rahman, E., Banik. R., & Sikder, T., Smith, L. (2020). Knowledge, attitudes and practices associated with the COVID-19 among slum dwellers resided in Dhaka Citya

a Bangladeshi interview-based survey. *Journal of Public Health (Bangkok)*. https://doi.org/10.1093/PubMed/fdaa182

Mirowsky, J., & Ross, C.E. (1998). Education, personal control, lifestyle and health: A human capital hypothesis. *Res Aging, 20*, 415–449. https://doi.org/10.1177/0164027598204003

Islam, S., Akter, R., Siddique A. B., & Tasim, R. (2021). Knowledge, attitudes and perceptions towards COVID-19 vaccinations: a cross-sectional community survey in Bangladesh. Retrieved July 28, 2020, from https://www.researchgate.net/publication/349453975

Klein, W.M., & Stefanek M.E. (2007). Cancer risk elicitation and communication: Lessons from the psychology of risk perception. *A Cancer Journal for Clinicians, 57*(3), 147–167. doi: 10.3322/canjclin.57.3.147.

Klein, W.M., & Weinstein, N.D. (1997). Social comparison and unrealistic optimism about personal risk. In: Buunk B.P., Gibbons F.X. (eds.) *Health, coping, and well-being: Perspectives from social comparison theory.* Lawrence Erlbaum Associates Publishers.

Leppin, A., & Aro, A.R. (2009). Risk perceptions related to SARS and avian influenza: Theoretical foundations of current empirical research. *International Journal of Behavioral Medicine, 16*, 7–29. doi: 10.1007/s12529-008-9002-8.

Lynch, B.P., & vanDellen, M.R. A. (2020). Multi-motive framework for predicting variability in self-enhancement. *Social and Personality Psychology Compass, 14*(10), 1–18. doi: 10.1111/spc3.12561.

McKenna, F.P., Warburton, D.M., & Winwood, M. (1993) Exploring the limits of optimism: The case of smokers' decision making. *British Journal of Psychology, 84*(3), 389–394. doi: 10.1111/j.2044-8295.1993.tb02490.x.

Moritz, S., & Jelinek, L. (2009). Inversion of the "unrealistic optimism" bias contributes to overestimation of threat in obsessive-compulsive disorder. *Behavioural and Cognitive Psychotherapy, 37*(2), 179. doi: 10.1017/S1352465808005043.

Nyhan, B., & Reifler, J. (2015). Does correcting myths about the flu vaccine work? An experimental evaluation of the effects of corrective information, *Vaccine, 33*(3).

Rahman, Q.U.U., Saleem, S., Khan, A., Afzal M.S., Ali, M.S. & Ahmed, H. (2020). Outbreak of novel Coronavirus (2019-nCoV); implications for travellers to Pakistan. *Travel Medicine-Infectious Disease Journal*. https://doi.org/10.1016/j.tmaid.2020.101571

Romer, D., & Jamieson, K.H. (2020). Conspiracy theories as barriers to controlling the spread of COVID-19 in the U.S. *Soc Sci Med, 263*. https://doi.org/10.1016/j.socscimed.2020.113356

Saqlain, M., Munir, M. M., Rehman, S., Gulzar, A., Naz, S., & Ahmed, Z. (2020). Knowledge, attitude, practice and perceived barriers among healthcare professionals regarding COVID-19: A cross-sectional survey from Pakistan. *Journal of Hospital Infection, 105*(3). https://doi.org/10.1016/j.jhin.2020.05.007

Serakan, U., & Bougie, R. (2016). Research methods for business: a skill-building approach, 7th ed. Haddington: John Wiley & Sons.

Sharot, T. (2011) The optimism bias. *Current Biology, 21*(23), 941–945. doi: 10.1016/j.cub.2011.10.030.

Sharot T., Korn C.W., & Dolan, R.J. (2011). How unrealistic optimism is maintained in the face of reality. *Nature Neuroscience, 14*(11):1475–1479. doi: 10.1038/nn.2949.

Sherman, D.K. & Cohen, G.L. (2006). The psychology of self-defense: Self-affirmation theory. *Advances in experimental social psychology, 38*, 183–242. doi: 10.1016/S0065-2601(06)38004-5.

Sohrabi, C., Alsafi, Z., O'Neill N., Khan, M., Kerwan, A., & Al-Jabir, A. (2020). World Health Organization declares global emergency: a review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery, 76*, 71–6.

Tang, C.S., & Wong, C.Y. (2003). An outbreak of the severe acute respiratory syndrome: Predictors of health behaviors and effect of community prevention measures in Hong Kong, China. *American Journal of Public Health, 93*(11), 1887–1888. doi: 10.2105/AJPH.93.11.1887.
Van der Pligt J. (1998). Perceived risk and vulnerability as predictors of precautionary behaviour. *British Journal of Health Psychology, 3*, 1–14. doi: 10.1111/j.2044-8287.1998.tb00551.x.

Wang, J., Jing, R., Lai, X., Zhang, H., Lyu, Y., Knoll, M.D., & Fang, H. (2020). Acceptance of COVID-19 vaccination during the COVID-19 pandemic in China. *Vaccines, 8,* 482. https://doi.org/10.3390/vaccines8030482

Wang, H.J., Du, S.H., Yue X. & Chen, C.X. (2020). Review and prospect of pathological features of coronavirus disease. *Fa Yi Xue Za Zhi, 36*(1), 16-20. https://doi.org/10.12116/j.issn.1004-5619.2020.01.004

World Health Organization (2020). Coronavirus disease (COVID-19) advice for public. Retrieved on September 30, 2021, from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

World Health Organization (WHO). (2020). Coronavirus disease (COVID-19) Situation Report–126. Retrieved September 25, 2020, from https://www.who.int/docs/default-source/coronaviruse/situationreports/20200525-covid-19-sitrep-126.pdf?sfvrsn=887dbd66_2.
Weinstein, N.D., & Klein W.M. (1995). Resistance of personal risk perceptions to debiasing interventions. *Health Psychology, 14*(2), 132. doi: 10.1037/0278-6133.14.2.132.

Wimmer, R. D., & Dominick, J.R. (2010). Mass media research: An introduction, 9th ed. Boston: Cengage Learning

Wong, L.P., Alias, H., Wong P.F., Lee H.Y., & AbuBakar, S. (2020). The use of the health belief model to assess predictors of intent to receive the COVID-19 vaccine and willingness to pay. *Human Vaccines & Immunotherapeutics*, *16*, 2204–2214. doi: 10.1080/21645515.2020.1790279.

Yabroff, K.R., & Mandelblatt, J.S. (1999) Interventions targeted towards patients to increase mammography use. *Cancer Epidemiology, Biomarkers and Prevention*, *8*, 749–57.

Zhang, H.W., Yu J, Xu, H.J., Lei, Y, Pu, Z.H., & Dai, W.C. (2020). Coronavirus international public health emergencies: Implications for radiology management. *Academic Radiology 27*(4), 463-7. https://doi.org/10.1016/j.acra.2020.02.003

Zhong, B. L., Luo, W., Li, H. M., Zhang, Q. Q., Liu, X. G., & Li, W. T. (2020). Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: A quick online cross-sectional survey. International Journal of Biological Science, *16*(10), 1745–1752. https://doi.org/10.7150/ijbs.45221.