BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

DEPARTMENT OF ENVIRONMENTAL SCIENCE

KNOWLEDGE, ATTITUDE, AND PRACTICES TOWARDS COVID-19 VACCINES AMONG STUDENTS AT BINDURA UNIVERSITY OF SCIENCE EDUCATION.

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF REQUIREMENTS OF BACHELOR OF SCIENCE HONORS DEGREE IN SAFETY HEALTH AND ENVIRONMENTAL MANAGEMENT

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DECLARATION

To be compiled by the student

Registration number B1850909

I Tinotenda A Mabonga do hereby declare that this work-related project is my original work and has not been submitted before. All of the information derived from other sources is indicated in the project.

Signature of the student……Date……

To be compiled by the supervisor

This dissertation is suitable for submission to the faculty and has been checked for conformity with the faculty guidelines.

Signature of the supervisor……Date…….

DEDICATION

This research project is dedicated to all BUSE students and all who have fallen victim of the Covid-19 pandemic.

ACKNOWLEDGMENTS

I would like to thank the acting Registrar Mrs. E.Manhando who happily allowed and gave me permission to carry out my research project among the students at Bindura University of Science Education. Special thanks to my supervisor Mr. Tendai Nyamugure. He did a good job to patiently guide, encourage, and correct me throughout the journey, and until the end of this research project. Above all, I would like to thank the Almighty God who continues to guide and protect us in our day to day activities.

ABSTRACT

Background: A deadly pneumonia-like sickness of unknown origin was discovered in Wuhan, China, in December 2019. By the 30th of January 2020, the illness has been classified as a novel Coronavirus disease and labeled a public health emergency of worldwide concern (WHO, 2020). Despite the introduction and development of numerous clinically tested and efficient Covid-19 vaccines, a year of international sickness, mortality, social isolation, and lockdowns, Covid-19 vaccination can largely depend on the knowledge, attitudes and practices people might have towards Covid-19 vaccines. This study aimed to understand the knowledge, attitudes, and practices, toward Covid-19 vaccines among students at Bindura University of Science Education.

Materials and methods: The study was carried out at Bindura University of Science Education in Zimbabwe. A descriptive cross-sectional study was carried out and research questionnaires were used as data collecting instruments. 120 research questionnaires were administered among the respondents. The questionnaire consisted of four sections, demographic characteristics section, knowledge, attitude, and practices (KAP) section. Data analysis was performed using Microsoft Excel 2019 and SPSS version 20. Binary logistic analysis was used to determine factors affecting Covid-19 vaccination among the respondents.

Results: A total of 120 respondents participated in the survey, with 57.5% males and 42.5% females. The respondent's knowledge score was quite fair (61%). The attitudes score was also quite fair (57%). The practice score was 71.8% which was quite good. The majority of the respondents (90.8%) knew it is possible to get Covid-19 even after vaccination. The majority, (78.3%) of the respondents were worried about unknown side effects of Cocid-19 vaccines in the future and (70%) of the respondents were willing to be vaccinated if it gives them access to public places e.g. school, churches, etc. while 30% of the respondents were not willing to be vaccinated at all. 68.3 % of the respondents have been vaccinated against Covid-19. KAP towards covid-19 vaccination was significantly associated with gender ($p=0.006$), positive Covid-19 test ($p=0.001$), death of a friend due to Covid-19 ($p=0.002$) (95% CI, 5% Significance)

Conclusion: The respondents had fair knowledge and attitudes towards Covid-19 vaccines. The respondents demonstrated good practices towards Covid-19 vaccines. KAP towards covid-19 vaccination was significantly associated with gender, positive Covid-19 test, death of a friend due to Covid-19. Despite fair knowledge and good practices, the respondents were worried about future unknown effects of Covid-19.

Recommendations: Freely give students Covid-19 vaccines and other vaccination related pamphlets to read for example at clinic as they wait for attendance targeting especially male students to boost their knowledge. There's also need to carry out Covid-19 vaccination campaigns and awareness programs which involves students to cultivate Covid-19 vaccination culture among the students, this can positively change the attitudes of students towards Covid-19 vaccine. Key terms: COVID-19-vaccines, Vaccination, Knowledge, Attitudes, Practices, BUSE

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LIST OF ACRONYMS

BUSE	-	Bindura University of Science Education
FAES	-	Faculty of Agriculture and Environmental Science
FOC	-	Faculty of Commerce
FSSH	-	Faculty of Social Science and Humanities
FSE	-	Faculty of Science and Engineering
FSE	-	Faculty of Science Education
COVID	-	19 - Coronavirus disease 2019
KAP	-	Knowledge, Attitude and Practices
WHO	-	World Health Organization
CDC	-	Centre for Disease Prevention and Control
BMC	-	BioMed Central

CHAPTER 1: INTRODUCTION

1.0 BACKGROUND

A deadly pneumonia-like sickness of unknown origin was discovered in Wuhan, China, in December 2019. By the 30th of January 2020, the illness has been classified as a novel Coronavirus disease and labeled a public health emergency of worldwide concern (WHO, 2020). The International Committee on Virus Taxonomy dubbed the novel virus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes the 2019 Coronavirus Disease (COVID-19) (Luh et.al, 2020). COVID-19 is caused by a single-stranded RNA virus from the Coronaviridae family, which was found (Sheikh et al., 2020).

Since the first verified instances of COVID-19 were reported in Wuhan, China, the world has seen extraordinary mortality and morbidity as a result of this disease, resulting in catastrophic public health crises (Huang et al., 2020). SARS-CoV-2 infection in humans is spread mostly through air droplets, intimate contact with infected people, particularly mucus membrane secretions from the nose, mouth, or eyes, contaminated surfaces, and some investigations show transmission via the digestive tract (Carlos et al., 2020). The disease spread at an alarming rate throughout all continents, prompting the World Health Organization to proclaim a global pandemic on March 11, 2020. (WHO, 2020).

Globally, 150,110,310 confirmed cases of COVID-19 had been recorded to the WHO as of 1 May 2021, with 3,158,792 deaths (WHO, 2021). Over 4.5 million confirmed cases, with over 121,000 deaths, were found in Sub-Saharan Africa. Although COVID-19 was reluctant to spread in Africa at first, the number of verified cases across the continent slowly increased. Over 3.8 million confirmed cases have been reported in Africa, with over 100,000 deaths (WHO, 2021). Over 1.5 million cases have been reported in South Africa, with over 49,000 deaths, while over 35,000 confirmed cases and over 1400 deaths have been reported in Zimbabwe (WHO, 2021).

Despite having advanced health systems and medical facilities, high-income countries tended to be the hardest hit in terms of illness burden and overall COVID-19-related mortality (WHO, 2021). To try to stop the spread of the Covid-19 epidemic, rigorous precautions were implemented at the global, national, and community levels. The suspension of public transportation, the closure of educational institutions, the prohibition of public gatherings, and the quarantining of persons with

suspected cases were all implemented (Hussein NR and colleagues, 2020). The lockdowns had unintended consequences, including widening economic inequalities, mental health issues, and exacerbating poor medical outcomes that were unrelated to COVID-19. Additionally, educational institutes were closed, leaving students stranded without the opportunity to write exams (Mhango et al., 2020).

The availability of COVID-19 vaccines has provided countries with a significant opportunity to respond to COVID-19. Aside from the basic benefit of reducing disease burden, universal vaccination will allow countries to eliminate limitations previously imposed to prevent the virus' spread and revitalize weak economies, all while allowing people to resume their normal lives. Vaccination has been cited as one of the most significant public health achievements of the twentieth century. Smallpox has been eradicated, while poliomyelitis, measles, rubella, tetanus, diphtheria, and other infectious illnesses have been controlled thanks to vaccination (Greenwood, 2014). Despite all of public health's triumphs in using vaccinations to reduce the spread of infectious illnesses, a considerable segment of the world's population remains concerned about vaccine safety.

A KAP survey is used to gather data on a population's knowledge/what is known, attitudes/what is thought, and practices/what is done about general and/or specific topics, such as diarrheal diseases, vaccines, water, sanitation, and hygiene. For example, in the case of OCV campaigns, these topics might include diarrheal diseases, vaccines, water, sanitation, and hygiene (WASH). Interviewers gather data using a structured, standardized questionnaire that may include both quantitative and qualitative information (WHO, 2008). The potential of vaccine reluctance cannot be overlooked if the COVID-19 vaccination effort is to be successful. The knowledge, attitudes, and practices (KAPs) concerning Covid-19 must be understood. This study seeks to determine the Knowledge, Attitudes, and Practices (KAPs) towards COVID 19 vaccines at BUSE.

1.2 PROBLEM STATEMENT

Vaccine hesitancy, named as one of the greatest dangers to the world health by the World Health Organization in 2019, has become a potentially more pressing concern during the COVID-19 epidemic (WHO, 2019). Despite the introduction and development of numerous clinically tested and efficient Covid-19 vaccines, a year of international sickness, mortality, social isolation, and lockdowns, not everyone is willing to be vaccinated. Given the pandemic's terrible health,

economic, and social repercussions, the availability of effective vaccines is a critical component of the hope for a return to normalcy. With this in mind, there is an outstanding research gap to assess the Knowledge, Attitudes, and Practices (KAP) towards COVID-19 vaccines among students at BUSE.

1.3 JUSTIFICATION

The threat of vaccine reluctance must be addressed for the COVID-19 vaccination program to be successful in communities. It is necessary to explore the elements that contribute to community vaccine apprehension. The community's knowledge, attitudes, and practices (KAPs) concerning COVID 19 vaccines must be understood, and no study has been conducted to date at BUSE to understand the student's Knowledge, Attitudes, and Practices toward covid-19 vaccines.

Understanding COVID-19 vaccination Knowledge, Attitudes, and Practices might provide policy makers with insight on how to transform the minds of the students at BUSE and realize the importance of getting vaccinated. This will assist in increasing the uptake of COVID 19 vaccines among students at BUSE.

Because history repeats itself, a pandemic as devastating as COVID-19 could emerge in the future, and vaccines to combat it will be developed. This research, if well done, will be used as a reference point for future generation students at BUSE to understand and appreciate the knowledge, attitude, and practices the previous students had regarding the COVID 19-vaccine, and how their fears were addressed. This will help them to make quick and informed decisions in the event of a pandemic that requires them to be vaccinated.

1.4 RESEARCH AIM

To assess the Knowledge, Attitude, and Practices of students at BUSE towards COVID 19vaccines.

1.5 OBJECTIVES

1. To determine the knowledge of the students at BUSE towards COVID-19 vaccines.
2. To evaluate student attitudes at BUSE towards COVID- 19 vaccines.
3. To determine the student practices at BUSE towards the COVID -19 vaccines.
4. To determine the factors affecting Covid-19 vaccination among students at BUSE.

1.6 RESEARCH QUESTIONS

1. What knowledge do the students at BUSE have towards the COVID-19 vaccines?
2. What attitude do the students at BUSE portray towards COVID-19 vaccines?
3. What practices are being done at BUSE towards the COVID-19 vaccines?
4. What might be the factors affecting Covid-19 vaccination among students at BUSE?

1.7 CHALLENGES

Since the research was carried out during the time when every student was encouraged to be vaccinated against Covid-19, some of the respondents were afraid to fully participate and answer the research questionnaire. When some of the students heard that they were not obliged to participate, they gave excuses. The researcher had to exercise much patience to get free and willing respondents.

CHAPTER TWO: LITERATURE REVIEW

Since this research is based on a KAP Study, this chapter seeks to dwell on previously published work on the Knowledge, Attitude, and Practices towards Covid-19 vaccines as well as identifying factors that could affect the Knowledge Attitude and Practices people have towards the COVID19 vaccine.

2.0 INTRODUCTION

Vaccine hesitancy, named as one of the greatest dangers to world health by the World Health Organization in 2019, has become a potentially more pressing concern during the COVID-19 epidemic (WHO, 2019). Given the pandemic's terrible health, economic, and social repercussions, the availability of effective vaccines is a critical component of the hope for a return to normalcy. Covid-19 vaccination greatly depends on the knowledge, attitudes and practices people have towards Covid-19.

2.1 KNOWLEDGE OF PEOPLE TOWARDS COVID-19 VACCINES.

Lack of proper knowledge about the vaccine's safety and efficacy, long-term consequences, and low trust in the current healthcare system is among the many factors that influence Covid-19 vaccination adoption (Marshoudi et al., 2021). A study was conducted in Ethiopia to assess the adult population's knowledge, attitudes, acceptance, and predictors of acceptance of the COVID19 vaccine (Abebe et al., 2021). The study found that 73.6%, of the participants were aware of the COVID-19 vaccine's development. More than four-fifths of those polled, 83.3%, were aware of the COVID-19 vaccine's efficacy. Nearly three-quarters of the trial participants 70.5%, agreed that an overdose of the COVID-19 vaccination would be hazardous to humans. COVID-19 vaccination did not increase allergic reactions, according to 75%, of the respondents. COVID-19 vaccination would not raise the risk of autoimmune illnesses, according to 58.1% of the participants. Nearly three-quarters of the participants, (74.0%), had a thorough understanding of the COVID-19 vaccination.

In addition to the above in May 2021, an institution-based cross-sectional survey was conducted among 404 HCWs in Dessie City, northern Ethiopia, to assess people's understanding of the COVID-19 vaccines (Metadel et al., 2022). The overall knowledge rate of HCWs of COVID-19 and its vaccination was 62.5%, with a 95% confidence interval of 62.5% (57.4-66.8%). 69.79% of those who had a strong understanding of COVID-19 and its vaccine planned to get vaccinated as

soon as one became available. 64.65% of the male respondent's and 60.3% among females had good knowledge of COVID-19 and its vaccines, while 35.35% among males and 39.69% among females had poor knowledge. Likewise, 58.8%) doctors, 31 (67.4%) laboratory technicians, 84 (64.6%) nurses and midwives, and 31 (54.38%) non-medical axillary personnel had excellent expertise .22 (64.7%) of individuals with a chronic condition were well-informed. COVID-19 is a dangerous disease, according to the majority of respondents (340, or 86.7%), and 329 (83.9%) said it could cause a variety of health problems. The variations in effectiveness between the Pfizer, Moderna, and Astra Zeneca COVID-19 vaccines were regarded significant by 150 (38.3%) HCWs.

From the 1st to the 15th of December 2020, a cross-sectional study was done in Malaysia to investigate the public's awareness on COVID-19 vaccines (Mohamed et al., 2021). A total of 872 (62.0%) of those polled had insufficient understanding of the COVID-19 vaccination. The statement "COVID-19 vaccines will be administered by injection" had the highest percentage of correct responses (82.1%). Only 14.7% and 18.5% of respondents correctly answered the statements "Everyone, even children, can receive COVID-19 immunization" and "COVID-19 vaccine can also protect us from influenza," respectively.

On January 27, 2021, Bangladeshi authorities approved the utilization of the Indian-developed Covidshield vaccine, and Runu (a nurse) became the country's first COVID-19 vaccination recipient. Bangladeshi scientists conducted a KAP investigation on the COVID-19 vaccination. According to a global assessment of possible COVID-19 vaccine uptake, 48 percent of the sample population had little knowledge about the COVID-19 vaccines and were doubtful whether or not they would receive the vaccine (Lazarus et al., 2020). Similarly, just 54% of participants in Chinese research reported they planned to get the vaccine (Lin et al., 2020). Furthermore, a study was conducted in four major Saudi cities, the acceptability of the COVID-19 vaccine was influenced by socio-demographic factors (Mohaithef et al., 2020). Analyzing people's knowledge and other issues of perception based on facts and statistics on practices is a scientific technique to design strategies that solve problems while also accomplishing the authorities' desired societal objectives (Almaghaslah et al., 2020).

In addition to the above, a research was conducted among University students in the United Arab Emirates to examine their understanding of the COVID-19 vaccine (Shamsi et al., 2022). The average knowledge score was 60.1%, with inadequate knowledge at 30.4%, acceptable knowledge

at 27.2%, and strong knowledge at (42.4%). Students had varying levels of awareness of COVID19.

Another study looked at COVID-19 knowledge, beliefs, and vaccination acceptance among highrisk people in Ho Chi Minh City, Vietnam (Huynh et al., 2021). Over 80% of respondents correctly answered questions about the SARS-CoV2 pathogen (85.2%), transmission (92.2%), common symptoms (83.1%), isolation duration if suspected infection (88.0%), and COVID-19 hazards (93.2%). 74.6 percent and 76.0 percent of persons with chronic disease at high risk of infection, respectively, had a somewhat lower degree of knowledge about COVID-19 preventative measures and people with chronic illness at high risk of infection. There were substantially fewer persons who correctly answered these two questions: the vaccine is not available to everyone and there is no specialized treatment (identified by 41.6% and 40, respectively). Participants who had a high level of knowledge regarding the pathogen, therapy, preventive measures, COVID-19 severity, and overall knowledge on the COVID-19 vaccine were more likely to accept the vaccination.

2.2 ATTITUDES TOWARDS COVID-19 VACCINES.

Apart from the factors mentioned above, people's attitudes have a significant effect on COVID 19 vaccination uptake. The knowledge people have towards the COVID-19 Vaccines also affects the attitudes of people towards the COVID-19 vaccines. In this context, an attitude refers to a combination of emotions, attitudes, and actions about Covid-19 vaccine uptake that can be influenced by experience or upbringing (Kendra, 2021). While opinions might evolve throughout time, they can also stay the same.

A survey of people's perceptions towards COVID-19 vaccines was carried out in Bangladesh (BMC Public Health, 2021). The findings revealed that the general community in Bangladesh had a more favorable attitude toward the COVID-19 vaccination, with sentiments being substantially associated with being female and having a history of uptake of critical vaccines. Just over half of those polled said that everyone should be vaccinated, with 61% believing that health personnel should be immunized first and foremost. The vaccine should be given free of charge in Bangladesh, according to 95% of respondents, and the COVID-19 vaccine used in Bangladesh may have negative effects, according to nearly 90% of respondents. Only around a quarter of those polled

(26%) think the current COVID-19 vaccine is effective. Nearly 60% would get the vaccine without hesitation, and two-thirds (66%) would recommend it to family or friends (Saiful et al., 2021). From the 1st to the 15th of December 2020, a cross-sectional study was conducted in Malaysia to assess people's attitudes toward the COVID-19 vaccines (Mohamed et al., 2021). Almost twothirds of those polled (64.5%) said they would be willing to get vaccinated. The majority agreed that high-risk groups should receive free vaccinations from the government. More than 70% of those polled said they would pay up to RM 100 for the vaccine, with only 4.6 percent saying they couldn't afford it at any price. The vaccine's effectiveness and Ministry of Health recommendations had the greatest impact on the decision to get vaccinated.

According to Hong et al., (2021), a study was conducted in China to analyze people's understanding, and to their knowledge, this was the first study to examine adolescents' attitudes concerning COVID-19 vaccines and their associated factors. Other worldwide studies have found that roughly 69–80 percent of adults in nations including England, Denmark, the United States, Australia, and France are willing to receive the COVID-19 vaccine (Reiter, 2020). Furthermore, there were no correlations between COVID-19 vaccination acceptance and anxiety or sadness in this study. However, the findings were lower than prior findings from Chinese adults, who reported a 91.3% acceptance rate for the COVID-19 vaccine (Wang et al., 2020). Uncertainty regarding vaccine safety and efficacy, as well as a lack of understanding about the possible benefits of vaccination among children and adolescents, maybe the main causes for lower vaccine acceptance rates among adolescents (Bell et al., 2020).

In an Ethiopian study conducted by Abebe et al., (2021), over one-fourth of the participants, (22%), believed that the recently found COVID-19 vaccination was safe. Almost a quarter of the participants, (25.6%), agreed that the COVID-19 vaccine was critical for our survival. One hundred thirteen people (23.0%) agreed that the COVID19 vaccination developed in Europe and America is safer than those produced in other nations. Almost a tenth of the respondents, 56 (11.4%), said they would advise family, friends, and relations to be vaccinated. Almost a fifth of the respondents, (17.1%), agreed that reducing COVID-19 incidence without immunization is impossible. Almost a quarter of the participants, (25.2%), agreed that the COVID-19 vaccination should be distributed equally to everyone. The newly produced COVID-19 vaccination was seen favorably by nearly two-fifths of the responders, (44.7%).

The newly discovered second COVID-19 vaccination dose was deemed safe by nearly half of the subjects, (51.1%). Around 49.7% of participants stated that reducing COVID-19 prevalence without a second vaccine dosage is impossible. Three hundred and eighty-six (94.4%) of those who took part said they would advise their families and friends to be vaccinated.

A study conducted in Saudi Arabia (Zalfawi et al., 2021) found a good response to the COVID-19 immunization, a preference for the elderly, and a moral need to explain the benefits and hazards with fellow residents. Females, adults between the ages of 18 and 59, Saudi nationals, and those with a doc degree all had high mean rankings. The findings come from a prior study that looked into the acceptability of vaccination among older age (Voysey et al., 2021).

2.3 PRACTICES TOWARD COVID-19 VACCINES

A cross-sectional study was carried out among Ajman University's medical and non-medical colleges to assess the prevalence, awareness, attitude, and acceptability of COVID-19 vaccinations and related factors among university students in the United Arab Emirates (Wang et al., 2021). Only 38.8% of those polled had been vaccinated against the COVID-19 virus, primarily with the Sinopharm vaccine (84 percent). Vaccination against the COVID-19 virus was less prevalent among Arabic nationalities than among other nationalities, while it was more prevalent among students from health science institutions than in non-health scientific colleges. Concerns about unforeseen difficulties (65.5%), general mistrust (47.3%), and unforeseen consequences (35.1%) all contributed to the study participants' acceptance of the COVID-19 vaccine.

A questionnaire-based COVID-19 KAP survey of HCWs in three Ugandan hospitals was conducted between September and November 2020 (Kamacooko et al., 2021). During the two weeks leading up to the interview, all of the participants said they washed their hands at least twice a day. Most individuals avoided shaking hands (85.7%) and wearing a mask at work (90.5%) over the same time period, while only 41.4 percent did not attend a party with non-household members. Participants who had direct contact with patients reported cleansing their hands 95.9% of the time before and after each patient interaction (Bauchner et al., 2020). Patients having indications and symptoms of COVID-19, on the other hand, were avoided by 42.4%. Only 37% of the people who took part in the study had good habits (Bauchner et al., 2020).

Despite the fact that most participants followed good hand hygiene and wore face masks at work, 58.6% still attended gatherings with non-household members in the two weeks leading up to the poll, a practice that considerably increases the risk of getting and disseminating SARS-CoV-2 (Ranney et al., 2020).

In addition, 42.4 percent of participants who worked in direct patient contact avoided patients with COVID-19-like signs and symptoms. Lack of personal protective equipment and knowledge gaps, especially among non-clinical HCWs, may be to blame for these findings. In comparison to clinical HCWs, non-clinical HCWs had more poor COVID-19 preventive measures. Being a non-clinical HCW was linked to not knowing enough about COVID-19, as previously mentioned. Knowledge and attitude, knowledge and practices, and attitude and practices all had favorable relationships, according to the findings. Knowledge of the disease may influence attitudes and practices in the setting of COVID-19, and poor attitudes and practices directly increase the likelihood of SARSCoV-2 infection (Bhagavathula et al., 2020).

During the lockdown, an online survey of 393 community pharmacists (CPs) in two Pakistani regions was undertaken to analyze CPs' COVID-19 vaccine procedures (Khayal et al., 2021). More than half of those polled (57.3 percent) demonstrated good COVID-19 practices. Throwing used tissues in the trash (91.9%) was the most common activity seen among participants, followed by using a face mask (91.6%) and handwashing (91.6%). Only 8.9% of pharmacists utilized face masks at work, according to a recent research, whereas 84.8 percent cleansed their hands (Emre, et al., 2020). COVID-19 can be prevented from spreading if health-care professionals wash their hands with soap and water at set intervals and maintain good hygiene.

Wearing protective robes, on the other hand, was the least common practice among participants (57.5%). This finding is particularly concerning since good knowledge combined with bad practice not only increases illness transmission but also raises community morbidity and mortality rates (Albarrak et al., 2019).

According to Kara et al., (2021) pharmacists with strong knowledge had a positive attitude and demonstrated good practices. As a result, proper information is critical, and it may be increased through a comprehensive educational program that focuses on better understanding and better practices.

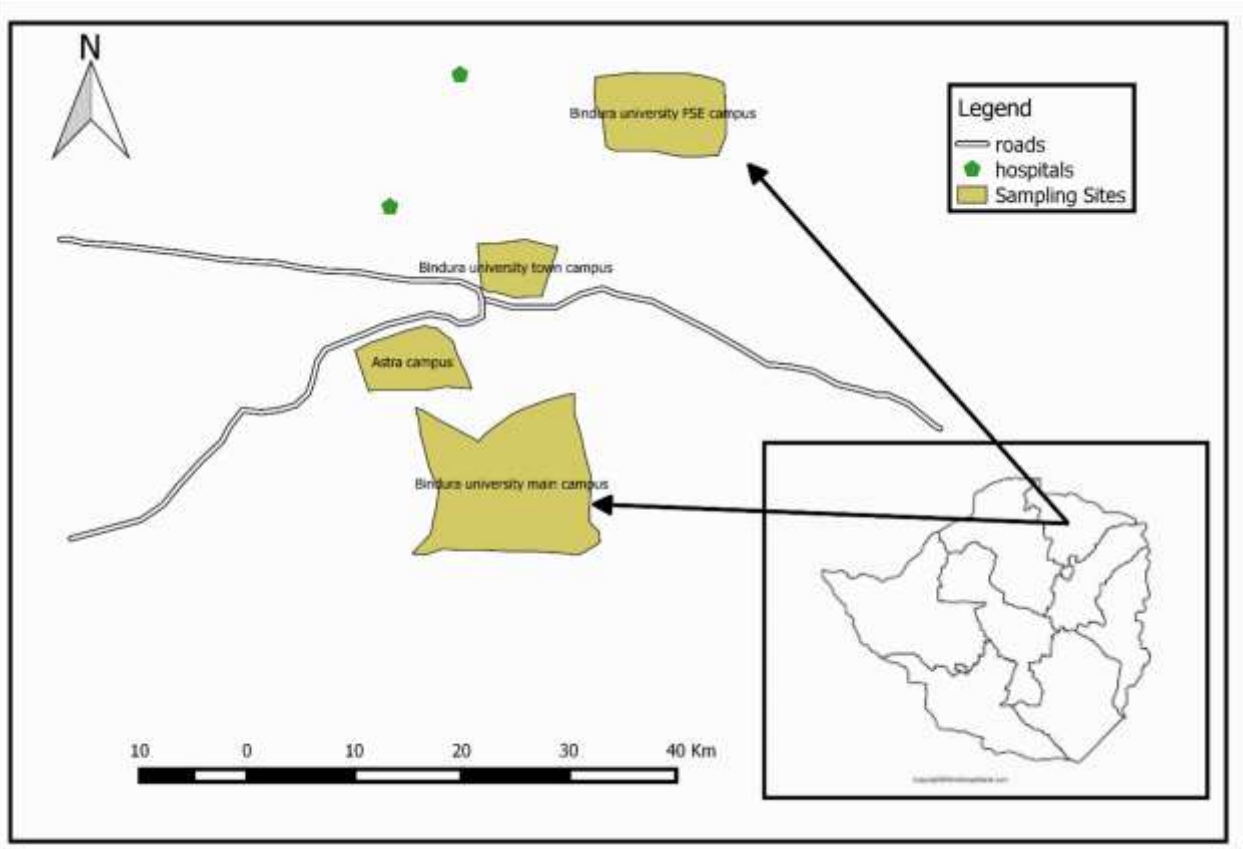
CHAPTER 3: RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter describes the research study area, instruments, and processes that will be used to examine students' knowledge, attitudes, and practices towards COVID-19 vaccines at BUSE. The chapter also describes the research strategy, the target population, sampling techniques, and sample size. In addition, research instruments, research reliability, research validity, research ethics, and data analysis methods for the research are explained in this chapter.

3.1 DESCRIPTION OF STUDY AREA

Figure 3.1 Map showing BUSE and its campuses



The study was carried out at BUSE which is located in Bindura town, 17.3251°S 31.3326°E. The University is about 87 km northeast of Harare. The University consists of four campuses, with its Main Campus located along 741 Chimurenga Road off Trojan Road. Bindura is the provincial capital of Mashonaland Central Province and is a small town that offers a quiet semi-urban environment.

3.2 STUDY DESIGN

This research employed a cross-sectional study design. A cross-sectional study is a type of observational research that examines data from variables collected at one point in time across a sample population or a pre-defined subset of the population (Brandon, 2018). When assessing disease or trait prevalence, attitudes, knowledge, invalidation, and reliability studies, a crosssectional design is the most relevant tool. Since the study is descriptive, the data collected through questionnaires were analyzed using both qualitative and quantitative tools. Cross-sectional studies are much easier to perform than other options that are available to researchers because there is no follow-up required with this type of research. Once the information is collected from the entire study group, it can be analyzed because only that single time reference is considered. A sample of 120 participants was used to collect data during the research.

3.3 DATA SOURCES

The researcher made use of, both primary and secondary during the research. Primary data is information obtained directly from primary sources by researchers through interviews, surveys, or experiments. The respondents at the Campuses were the primary sources of primary data. The data was obtained by the use of semi-structured questionnaires. Secondary data, such as E-Journals, is information that has already been gathered from primary sources and made available for researchers to use in their own research for example in the literature review.

3.4 SAMPLING METHOD

Due to the large population of students at BUSE, a multi-stage sampling approach was used in the research to make the sampling process more practical. Multistage sampling is a method of obtaining a sample from a population by splitting a population into smaller and smaller groups and taking samples of individuals from the smallest resulting groups.

Firstly the researcher grouped BUSE faculties into strata. BUSE is made up of five faculties that are FAES, FOC, FSC, FSE and FSSH. Secondly the researcher used convenience sampling which was used to select FAES and FOC. Convenience sampling focuses on gaining information from participants (the sample) who are ‘convenient’ for the researcher to access. (Kalof et.al, 2008). This method is quite fast, and cost-effective. Lastly the researcher used a simple random sampling technique, which was used to select 120 respondents, 35 from FAES and 85 students from FOC. Importantly simple random sampling technique is also a reliable method of obtaining information

where every single member from each faculty is chosen randomly, merely by chance. This gives a chance to obtain information from all departments in the chosen faculties since individual has the same probability of being chosen and being a part of the sample.

3.5 SAMPLE SIZE

A sample size can be calculated using the following statistical formula by Wiid and Diggines (2011):

$n=N/1+N\ (e^2)$ -

Where, n= the expected sample size

N= the population e = level of

precision

Since the estimated populations of students from the faculty of FAES and FOC were known computations and proportional calculations were done using Microsoft excel to randomly select 35 respondents from FAES and 85 respondents from FOC to make a total of 120 respondents as shown below.

Table 3. 2 Sample sizes

Campus	Faculty	Population of students at each Campus	Sample size
Main	**FOC**	2111	85
Astra	**FAES**	885	35
Total		**2996**	**120**

3.6 RESEARCH TOOLS

The researcher used questionnaires as a research tool. A questionnaire is a research instrument consisting of a series of questions (or other types of prompts) for the purpose of gathering information from respondents through a survey or statistical study (Mellenbergh, 2008). Questionnaires typically include open-ended questions, closed-ended questions, or a combination of both. The researcher personally administered the questionnaires by hand to the target populations at the selected faculties. The researcher patiently waited for the respondents to fill out the research questionnaire. The questionnaire consisted of four sections:

(i) Demographics background;

(ii) Knowledge about COVID-19 vaccines.

(iii) Attitudes towards COVID 19-vaccines.

(iv) Practices towards COVID-19 Vaccines.

The researcher then took the filled questionnaires for analysis.

3.7 RELIABILITY AND VALIDITY OF RESEARCH INSTRUMENTS

The concepts of reliability and validity are used to assess the quality of research. They describe how well a method, technique, or test measures a particular parameter. Validity refers to a measure's accuracy, while reliability refers to its consistency (Fiona, 2022).

For reliability and validity, the researcher looked at how well the results matched established theories and other measures of the same concept over time, across different observers, and across different sections of the test.

3.8 STATISTICAL ANALYSIS

The process of data analysis was performed using Microsoft Excel 2019 and SPSS version 20. The Microsoft Excel software was used for data cleaning, editing, sorting, and coding. The excel file was then imported into SPSS 20 software for analysis. The research questionnaire had 18 questions to determine the knowledge of the participants, 17 questions to evaluate the participant's attitudes, and 7 questions to determine the participant's practices toward Covid-19 vaccines. A score of 1 was given for each correct answer and a score of 0 for each wrong and neutral/don't know. The average score for each character was calculated, and if the score was above 70% the response was categorized as 'Good', from 51–69% as 'Fair', and less than 50% as 'Poor. The scores were combined to come up with total KAP scores. The total KAP score is used to rank the level of knowledge, attitude, and practice, of the participants toward Covid-19 vaccines. Binary logistic analysis was used to analyze factors affecting Covid-19 vaccination among the students at BUSE. The analysed data was represented in tables and pie charts. Statistical analysis was done at 5%, significance, and 95% confidence intervals.

3.9 RESEARCH ETHICS

Research ethics are concerned with the moral issues that arise during or as a result of research activities, as well as the ethical conduct of researchers (Israel et al., 2013). The researcher with the help of the Supervisor

and the Chairperson of FAES sought permission from the registrar to conduct a study at BUSE and was granted permission on terms and conditions.

The research subjects participated freely without coercion. The researcher made it clear to participants that there are no negative consequences or repercussions to their refusal to participate. All the information that was needed by the participants concerning the research was provided to them by the researcher for example study's benefits, risks, funding, and institutional approval. All participants have a right to privacy, so the researcher protected their personal data. Even when the researcher could not collect data anonymously, the researcher secured confidentiality whenever by all means possible.

CHAPTER 4: RESULTS

4.0 INTRODUCTION

This chapter focuses on the presentation and the analysis of the results of the research project. The researcher used tables and pie charts to present data.

4.1 SECTION A: DEMOGRAPHY

Table 4. 1 Summary of demographic characteristics

Demographic variable	Category	*n* =120	%=100
Sex	Male	69	57.5
	Female	51	42.5
Age	18-25	117	97.5
	26-34	3	2.5
	35-40	0	0
	41-49	0	0
	50+	0	0
Highest Education level	**Tertiary**	120	100
Faculty	FAES	35	29.2
	FOC	85	70.8
Year/Part	1	39	32.5
	2	41	34.2
	4	40	33.3
Religion	Christianity	113	94.2
	Other	7	5.8
Covid 19 awareness	Yes	120	100
Info	No		0
Chronic illness	Yes	5	4.2
	No	115	95.8
Ever tested positive from Covid 19	Yes	29	24.2
	No	91	75.8
Friend or relative who died from covid 19	Yes	55	45.8
	No	65	54.2

A total of 120 respondents participated in the survey, with 57.5% males and 42.5% females. The majority of the respondents were all under the age of 35 with 97.5% in the age group 18-25 and only 2.5% in the age group 26-34. The majority of the respondents 94.2% were Christian while only 5.8% were from other religions (Islam). All the respondents received Covid-19 awareness information. In addition, the majority of the respondents 95.8% did not suffer from any chronic illnesses such as diabetes, and others and only 4.2% had chronic illnesses. The majority of the respondents 75.8% did not test positive to the Covid-19 test and 24.2% did test positive to Covid19 test. Furthermore, 45.8% of the respondents had a relative or friend who died from Covid-19.

4.2 SECTION B: KNOWLEDGE ON COVID-19 VACCINE

Table 4. 2 knowledge on Covid-19 vaccines.

Knowledge Variable	Participant response			Preferred response	Score
		n	**%**		
Q1. I have heard about Covid -19 vaccines	Yes	120	100	**Yes**	**1**
	No	0	0		
Q2. There are ways to stop the spread of Covid-19 other than vacccination.	Yes	111	92.5	**Yes**	**0.925**
	No	4	3.3		
	Don't know	5	4.2		
Q3. As long as I practice social distancing I should not get vaccinated.	Yes	24	20		
	No	87	72.5	**No**	**0.725**
	Don't know	9	7.5		
Q4. If I wear a mask there is no need for vaccination against covid-19.	Yes	18	15		
	No	100	83.3	**No**	**0.833**
	Don't know	2	1.7		
Q5. Taking vitamin C or other vitamins will protect me from contracting covid-19	Yes	39	32.5	**Yes**	**0.325**
	No	69	57.5		
	Don't know	10	8.3		
Q6. All covid-19 vaccines are under clinical trials.	Yes	51	42.5	**Yes**	**0.425**
	No	36	30.0		
	Don't know	33	27.5		
Q8.It is posible to get Covid-19 after vaccination.	Yes	109	90.8	**Yes**	**0.908**
	No	6	5.0		
	Don't know	5	4.2		
Q9. Swelling and redness at injection site are side effects of Covid-19 vaccines.	Yes	40	33.3	**Yes**	**0.333**
	No	45	37.5		
	Don't know	45	37.5		

Q10. Do you kow any side effects	Yes	53	44.2	**Yes**	**0.442**
of Covid-19 vaccines?	No	51	42.5		
	Don't know	16	13.3		
Q11. Sinopharm is a type of Covid-	Yes	104	86.7	**Yes**	**0.867**
19 vaccine.	No	4	3.3		
	Don't know	12	10.0		
Q12. Sinovac is a type of Covid-	Yes	98	81.7	**Yes**	**0.817**
19 vaccine.	No	7	5.8		
	Don't know	15	12.5		
Q13. Johnson & Johnson is a type	Yes	59	49.2	**Yes**	**0.492**
of Covid-19 vaccine.	No	25	20.8		
	Don't know	36	30.0		
Q14. Sputinik is a type of Covid-19	Yes	40	49.2	**Yes**	**0.492**
vaccine.	No	15	20.8		
	Don't know	65	30.0		
Q15. Covaxin is a type of Covid-	Yes	50	41.7	**Yes**	**0.417**
19 vaccine.	No	9	7.5		
	Don't know	61	50.8		
Q16. Just one jab of Covid-19 vac	Yes	11	9.2		
is enough to boost immunity.	No	95	79.2	**No**	**0.792**
	Don't know	14	11.7		
Q17. I should finish all the jabs to	Yes	97	80.8	**Yes**	**0.808**
boost immunity against Covid-19.	No	15	12.5		
	Don't know	5	4.2		
Q18.Pregnant woman can not get	Yes	46	38.3	**Yes**	**0.383**
Covid-19 vaccination.	No	46	38.3		
	Don't know	28	23.3		
TOTAL KNOWLEDGE SCORE 10.984					

According to table 4.2 , the total score on knowledge is 10.984 out of 18 meaning the percentage knowledge score is 61% which is quite fair.

All the respondents heard about the Covid-19 vaccine development. 92.5% of the respondents knew that there are other ways of slowing down the spread of Covid-19 other than the vaccination, while 7.5% of the respondents had no knowledge. Majority of the respondents 72.5% knew that they should be vaccinated even though they maintain social distance while 27.5% of the respondents were not aware. Only 32.5% of the respondents knew that vitamin C and other vitamins can protect them from contracting Covid-19 while 67.5% had no knowledge. The majority 90.8% knew it is possible to get Covid-19 even after vaccination. 44.2% of the respondents knew the side effects of Covid-19 vaccines. The majority of the respondents 86.7% knew that Sinopharm is a type of Covid-19 vaccine, while 13.3% had no knowledge. In addition 49.2% of the respondents were aware that Johnson and Johnson is a type of Cocid-19 vaccines, while 50.8% had no knowledge about the vaccine.

Furthermore 66.7% of the respondents did not know that Sputnik is a covid-19 vaccine, while only 33.3% knew that sputnik is a type of Covid-19 vaccine. 41.7% of the respondents knew that Covaxin is a type of Covid-19 vaccine while 58.3% had wrong knowledge about Covaxin. The majority of the respondents 79.2% knew that one jab of Covid-19 vaccine is not enough to boost immunity. 80.8% of the respondents knew that they should finish all the jabs to boost immunity, 19.2% were not aware. Only 38.3% of the respondents knew that pregnant woman should also be vaccinated against Covid-19, while 61.6% did not know.

4.3 SECTION C: ATTITUDES TOWARDS COVID-19 VACCINES

Table 4. 3 Attitudes towards Covid-19 vaccines.

Attitude Variable	Participant response			Preferred response	Score
		n	%		
Q19. Are you willing to get vaccinated against Covid-19?	Yes	77	64.2	**Yes**	**0.64**
	No	43	35.8		
Q20. I should not be vaccinated if my family got vaccinated.	Yes	12	10.0		
	No	102	85.0	**No**	**0.85**
	Don't know	6	5.0		
Q21. A vaccination card is what matters, not to be vaccinated	Yes	17	14.2		
	No	101	84.2	**No**	**0.84**
	Don't know	2	1.7		
Q23. Do you feel that Covid-19 vaccines are very safe?	Yes	46	38.3	**Yes**	**0.38**
	No	65	54.2		

	Don't know	9	7.5		
Q24. l can rely on Covid-19 vaccines to prevent infection with Covid-19.	Yes	38	31.7	**Yes**	**0.32**
	No	82	68.3		
Q25. I can feel fully protected from Covid-19 infection in the future after getting vaccinated.	Yes	31	25.8		
	No	82	68.3	**No**	**0.68**
Q26. Covid-19 vaccines appears to be safe but have some side effects that have been not yet discovered.	Yes	70	58.3		
	No	18	15.0	**No**	**0.15**
	Don't know	32	26.7		
Q27. Covid 19 vaccines can cause some unforseen problems in individuals.	Yes	68	56.7		
	No	44	36.7	**No**	**0.37**
	Don't know	8	6.7		
Q28. Am worried about unkown side effects of Covid-19 vaccines in the future.	Yes	94	78.3		
	No	26	21.7	**No**	**0.23**
Q29. Covid-19 vaccines are supposed to be sold like other vaccines or medication	Yes	29	24.2		
	No	91	75.8	**No**	**0.79**
Q30. It is my opinion that Covid 19 can be fully treated at home.	TRUE	73	60.8		
	FALSE	29	24.2	**FALSE**	**0.24**
	Don't know	18	15.0		
Q31. Home remedies can be effective in treating Covid-19 than vaccines.	TRUE	78	65.0	**TRUE**	**0.65**
	FALSE	23	19.2		
	Don't know	19	15.8		
32. Am willing to be vaccinated if this gives me access to public places like gymns, sports, stadiums school, church etc.	Yes	84	70.0	**Yes**	**0.84**
	No	36	30.0		
Q33. Are you willing to be vaccinated against Covid-19 if you have to pay for the vaccine?	Yes	40	33.3	**Yes**	**0.33**
	No	80	66.7		

Q34. Are you willing to be vaccinated against Covid-19 if you are paid for it?	Yes	40	33.3	**Yes**	**0.33**
	No	80	66.7		
Q35. It is my opinion that if there is an available vaccine for the the disease, it should be used.	TRUE	81	67.5	**TRUE**	**0.68**
	FALSE	30	25.0		
	Don't know	9	7.5		
Q36. Are you willing to be vaccinated against Covid-19 if you are to be paid $100 USD?	Yes	34	28.3		
	No	86	71.7	**No**	**0.72**
TOTAL ATITTUDE SCORE 9.04					

From table 4.3 the attitude score is 9.04 out of 16 meaning the percentage attitude score is 57% which is quite fair.

From the research 64.2% of the respondents were willing to be vaccinated against Covid-19 while 35.8% were not willing to be vaccinated. The majority of the respondents that is 85% were willing to be vaccinated and not because their family members were vaccinated, while 10% of the respondents were not willing at all. Only 38.3% of the respondents felt that the Covid-19 vaccines are very safe, 54.2% of the respondents felt the Covid-19 vaccines are not very safe, 7.5% of the respondents were neutral about the safety of the Covid-19 Vaccines. 31.7% of the respondents said they would rely on Covid-19 vaccines to prevent infections with Covid-19 while 68.3% of the respondents said they will not rely on Covid-19 vaccines to prevent infections with Covid-19.

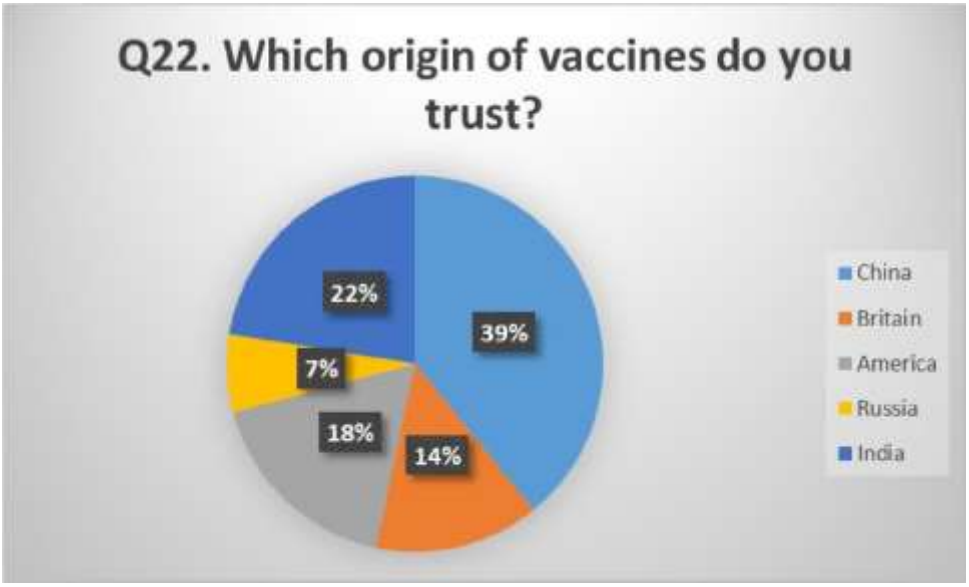
.5% of the respondents said they would feel fully protected against Covid-19 in the future after getting vaccinated, 25.8% of the respondents said they won't feel fully protected in the future even after getting vaccinated and only 6.7% of the respondents where neutral. 58.3% of the respondents said Covid-19 vaccines appears to be safe but have some side effects that have not yet been discovered, 15% of the respondents said it is safe with no side effects and 26.5% of the respondents where neutral. The majority, 78.3% of the respondents were worried about unknown side effects of Cocid-19 vaccines in the future and only 21.7% of the respondents were not worried. 75.8% of

the respondents agreed that Covid-19 vaccines should not be sold just like any other vaccines or medication while only 24.2% of the respondents said Covid-19 vaccines should be sold.

% of the respondents were willing to be vaccinated if it gives them access to public places like gyms, sports club, stadiums, school, churches, etc while 30% of the respondents were not willing to be vaccinated at all. Only 33.3% of the respondents were willing to pay to get vaccinated while 66.7% of the respondents were not willing to pay to get vaccinated. 33.3% of the respondents were willing to be vaccinated if they were paid for the vaccination, while 66.7% of the respondents were not willing to be vaccinated even if they were paid for it.

Only 28.3% of the respondents were willing to be vaccinated against Covid-19 if they were paid $100 USD while 71.7% of the respondents were not willing to be vaccinated even if they were to be paid $100 USD. 67.5% of the respondents agreed to the opinion that if there's a vaccine for any diseases it should be used, 25% of the respondents did not opt for the opinion and 7.5% of the respondents were not sure.

Figure 4. 1 Origin of covid-19 vaccines



According to fig 4.1, (39%) trusted vaccines from China, 22% from India, 18% from America 14% from Britain and the minority of the respondents (7%) trusted vaccines from Russia.

4.4 SECTION: D PRACTICES TOWARDS COVID-19 VACCINES

Table 4. 4 Practices towards Covid-19 vaccines

Practice Variable	Participant response			Preferred Response	Score
		n	%		
Q37. Have you been vaccinated against Covid-19?	Yes	82	68.3	**Yes**	**0.68**
	No	38	31.7		
Q38. l follow what my church pastor/leader say about Covid-19 vaccination.	Yes	45	37.5		
	No	75	62.5	**No**	**0.63**
Q39. I do not get Covid-19 vaccination because of church doctrines.	Yes	27	22.5		
	No	87	72.5	**No**	**0.73**
Q40. Social distancing and sanitizing are enough to stop the spread of Covid-19.	Yes	22	18.3		
	No	94	78.3	**No**	**0.78**
Q41. I only get vaccinated that l attend lectures at school.	Yes	44	36.7		
	No	74	61.7	**No**	**0.62**
Q42. I only get vaccinated to be able to travel.	Yes	44	36.7		
	No	76	63.3	**No**	**0.63**
Q43. I only get vaccinated to please my family and friends.	Yes	7	5.8		
	No	113	94.2	**No**	**0.94**
Q44. Covid-19 vaccines should not be mandetory.	Yes	88	73.3	**Yes**	**0.73**
	No	32	26.7		
TOTAL PRACTICE SCORE					**5.74**

According to table 4.4, the total score for knowledge is 5.74 out of 8 meaning the percentage practice score is 71.8% which is quite good.

From table 4.4, 68.3 % of the respondents have been vaccinated against Covid-19 while 31.7% of the respondents are not vaccinated. 37.5% of the respondents follow what their church leaders say about Covid-19 vaccination while 62.5% of the respondents do not follow what their church leaders say about Covid-19 vaccination. 36.7% of the respondents get vaccinated to attend lectures at school while the majority 61.7% are not only vaccinated to attended lectures at school. 36.7% % of the respondents only get vaccinated so that they are able to travel while 63.3% are not only vaccinated so that they are able to travel. Only 5.8% of the respondents are vaccinated to please

their family and friends while the majority 94.2% of the respondents are not vaccinated to please their family. 73.3% of the respondents said Covid-19 vaccines should not be mandatory while 26.7% of the respondents said they should be mandatory.

4.5 FACTORS AFFECTING COVID-19 VACCINATION

Table 4. 5 Factors affecting Covid-19 vaccination.

Variables	Score	df	Sig.
Gender	10.086	1	.006
Facullty	3.350	1	.067
Positive Covid-19 Test	11.329	1	.001
Ever sufferd from Chronic ilness	.287	1	.592
Deaths of a friend or reletive due to Covid-19	12.342	1	.002
Ways to stop the spread of Covid-19 other than vaccination.	7.514	2	.023
As long as l practise social distance l should not get vaccinated.	1.777	2	.411
lf l wear a mask there is no need of getting vaccinated against Covid-19.	3.648	1	.056
Taking vitamin C or other vitamins will protect me from getting Covid-19.	1.279	2	.527
All Covid vaccines are still under clinical trials.	10.086	2	.006
It is possible to get Covid-19 after vaccination.	.923	2	.630
Do you know any side effects of Covid-19.	6.395	2	.041
Sinovac is a type of Covid-19.	7.102	1	.008
Johnson & Johnson are types of Covid-19 vaccines.	9.378	1	.002
Just one jab of Covid-19 is enough to boost immunity	.020	1	.887
I should finish all the jabs to boost immunity.	15.855	2	.000
Willingness to get vaccinated against Covid-19	19.609	1	.000
I should not be vaccinated if my family got vaccinated.	3.648	2	.161
A vaccination card is what matters not to be vaccinated.	30.420	2	.000
Do you feel that Covid-19 vaccines are safe?	17.719	2	.000

I can feel protected in the future after getting vaccinated.	1.630	1	.202
Covid-19 vaccines appears to be safe but have some side effects.	1.648	2	.439
Home remedies can be effective in treating covid-19.	1.125	2	.570
I don't get Covid-19 vaccination because of church doctrines.	.629	1	.428
Social distancing and sanitising are enough to stop the spread of of Covid-19.	1.282	1	.257
I only get vaccinated so that I attend lectures at school.	12.342	2	.002
I only get vaccinated to be able to travel.	21.996	1	.000
I only get vaccinated to please my family and friends.	5.744	1	.017

Significant at 5% significance

From the study, 68.3% of the respondents were vaccinated against Covid-19. Factors affecting Covid-19 vaccination were tested at 5%, significance, and 95% confidence interval. According to table 4.5 gender significantly affected Covid-19 vaccination and the p-value for gender was 0.006.

According to table 4.5, positive Covid-19 test significantly affected Covid-19 vaccination with a p-value for the positive Covid-19 test was 0.001.

Death of a friend or close relative significantly affected Covid-19 vaccination with a p-value of 0.002 significance.

Knowledge of Covid-19 vaccine significantly affected Covid-19 vaccination. Knowing that Sinovac is a covid-19 vaccine was significant with a p-value of 0.008 significance.

The fact that Covid-19 vaccines are still undergoing clinical trials significantly affected Covid-19 vaccination with a p-value of 0.006.

From the study willingness to get vaccinated against Covid-19 significantly affect Covid-19 vaccination with a p-value of 0.000 significance.

CHAPTER 5: DISCUSSION OF RESULTS

5.1 KNOWLEDGE OF COVID-19 VACCINES.

According to the study participants who had a high level of knowledge regarding COVID-19 severity, and overall knowledge on the COVID-19 vaccines were more likely to be vaccinated.

From the study, the respondents had a fair knowledge of Covid-19 vaccines (61%). Covid-19 awareness chats and stickers at all campuses provide true information and updates to the students about the Covid-19 vaccination. Furthermore, students have access to the internet and spend most time on social media where information about Covid-19 vaccines is circulated. The findings from the study were consistent with a research that was conducted among university students in the United Arab Emirates to examine their understanding of the COVID-19 vaccine and the average knowledge score was 60.1% (Shamsi et al., 2022).

In addition, the findings in the study were also consistent with, a study that was conducted among 404 HCWs in Dessie City, northern Ethiopia in May 2021, to assess people's knowledge of COVID-19 vaccines, and the overall knowledge rate of HCWs towards COVID-19 vaccination was 62.5% (Metadel et al., 2022).

All the participants in the study had heard about the Covid-19 vaccine development and this might be because students receive updates and awareness on Covid-19 related issues in a various ways and the students were all encouraged to be vaccinated before coming to school. The findings were similar to a study that was conducted in Ethiopia to assess the adult population's knowledge, towards COVID-19 vaccines, 73.6% of the respondents were aware of the COVID-19 vaccine's development (Abebe et al., 2021).

5.2 ATTITUDES TOWARDS COVID-19 VACCNES

In addition to the above factor which is knowledge people's attitudes have a significant effect on COVID-19 vaccines uptake, and the knowledge possessed by the respondents may affect also the attitude people might have towards Covid-19 vaccine uptake.

From the study the attitude score was 57% which is fair however slightly lower than the knowledge score. From the research 64.2% of the respondents were willing to be vaccinated against Covid19 while 35.8% were not willing to be vaccinated. The majority of the respondents that is 85% were

willing to be vaccinated and not because their family members were vaccinated, while 10% of the respondents were not willing at all. The results were consistent with findings from, a crosssectional study that was conducted in Malaysia from the 1st to the 15th of December 2020 to assess people's attitudes towards COVID-19 vaccines (Mohamed et al., 2021). Almost two-thirds of those polled 64.5% were willing to get vaccinated. The willingness of the respondents to get vaccinated might be because they had correct information towards vaccination and had a clear understanding on the effects of Covid-19 vaccines for example those who had experienced the death of a close friend relative due to Covid-19.

Other worldwide studies have found that roughly 69–80% of adults in nations including England, Denmark, the United States, Australia, and France were willing to receive the COVID-19 vaccines (Reiter, 2020). In these countries, the willingness was actually high and this might be because they really witnessed the massive effects of Covid-19.

From the research only 38.3% of the respondents felt that the Covid-19 vaccines are very safe, 54.2% of the respondents felt the Covid-19 vaccines are not very safe, and 7.5% of the respondents were neutral about the safety of the Covid-19. Such findings indicate negative attitude towards Covid-19 vaccination. In literature an Ethiopian study conducted by Abebe et al., (2021) only 22%, believed that the recently found COVID-19 vaccines were safe meaning the majority of the respondents from both studies thought the Covid-19 vaccines are not very safe and this perception might be due to falsehoods that could have been circulated at social media platforms.

From the research only 33.3% of the respondents were willing to pay to get vaccinated while 66.7% of the respondents were not willing to pay to get vaccinated, and this might mean those who were willing to pay to get vaccinated had enough knowledge on the importance of Covid-19 vaccines while the majority had not enough knowledge in the importance of the Covid-19 vaccines or they had financial short comings. The results differ much from, study conducted in Malaysia from the 1st to the 15th of December 2020 , 70% of those polled said they would pay up to RM 100 for the vaccine, with only 4.6 percent saying they couldn't afford it at any price (Mohamed et al., 2021). In addition in the research 28.3% of the respondents were willing to be vaccinated against Covid-19 if they were paid $100 USD and this might be due to financial short comings among the respondents and would take advantage of the vaccination program.

5.3 PRACTICES TOWARD COVID-19 VACCINE

According to table 4.4, 68.3% of the respondents were vaccinated against Covid-19, and 31.7 were not yet vaccinated, the chances are high that the majority of those vaccinated are the ones also who said they do not follow what their church leaders say about Covid-19 vaccines. 62.5% of the respondents did not follow what their church leader says about the Covid-19 vaccination.

The findings differ from those of Ajman University's research on medical and non-medical colleges (Wang L et al., 2021). Only 38.8% of those polled said they had been vaccinated against the COVID-19 virus. Vaccination against the COVID-19 virus was less common among Arabic nationalities than among other nationalities, but it was more common among students attending health science institutions than students attending non-health scientific colleges. The study found that 56.3% of study participants accepted the COVID-19 vaccination, which was compounded by concerns about unknown difficulties (65.5%), general mistrust (47.3%), and unforeseen consequences (35.1%).

5.4 FACTORS AFFECTING COVID-19 VACCINATION

The factors influencing Covid-19 vaccination are complex and context-specific, and they differ depending on the time, place, and type of vaccine (Larson, 2020). According to the study, the respondent's knowledge was quite fair, with a score of 61%. The respondents' attitude was also fair, with a score of 57%. The practice score was good, with a score of 71.8%.

In the study, Covid-19 vaccination was significantly affected by gender which had a p-value of 0.006 significance. Gender stereotyping can Female students are more likely to be vaccinated than male students and this might be because females are more sensitive than males and were more afraid of the Covid-19 pandemic. In addition, all students were encouraged to get vaccinated against Covid-19 and bring their vaccination cards as proof. Female students are more likely to give much heed to the instruction than males.

From the study having a close friend or relative that died from Covid-19 significantly affected Covid-19 vaccination with a p-value of 0.002 significance. 70.9% of the respondents who had a friend or a relative that died from Covid-19 were vaccinated. This might be due to an obvious reason, they practically witnesses the severe effects of Covid-19 by losing their loved ones.

The safety of Covid-19 vaccines significantly affected Covid-19 vaccination (p-value 0.000). Covid-19 vaccination depends on what people. When people think the Covid-19 vaccine is not safe they won't get vaccinated and the opposite is equally true, when they are confident and think the vaccines are safe most of them will get vaccinated. From the study, only 38.3 % of the respondents thought Covid-19 vaccines are very safe and the majority 54.2% thought the Covid19 vaccines are not safe and only 7.5% of the respondents were neutral. In addition, most of the respondents (78.3%) were worried about the future unknown side effects of Covid-19 vaccines.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

In a nutshell, the students at BUSE demonstrated, fair knowledge, fair attitudes and good practices towards Covid-19 vaccines. KAP towards covid-19 vaccination was significantly associated with gender, positive Covid-19 test, death of a friend due to Covid-19. Most of the female students from the study were vaccinated against Covid-19 compared to male students. The majority of the respondents who once tested positive to Covid-19 and those with a close relative or friend who died from Covid-19 demonstrated good practices toward Covid-19 vaccines. Despite fair knowledge and good practices toward Covid-19 vaccination, the majority of the respondents demonstrated an element of fear, doubt and showed much concern on what may befall them in the future after they get vaccinated.

6.2 RECOMMENDATIONS

To improve the attitude of BUSE students towards Covid-19 vaccines, and to dispel all misconceptions regarding Covid-19 vaccines the university can:

Freely give students Covid-19 vaccines and other vaccination related pamphlets to read, for example at clinic as they wait for attendance to boost their knowledge on vaccination developments.

Carry out Covid-19 vaccination campaigns and awareness programs which involves students to cultivate Covid-19 vaccination culture among the students, this can positively change the attitudes of students towards Covid-19 vaccine.

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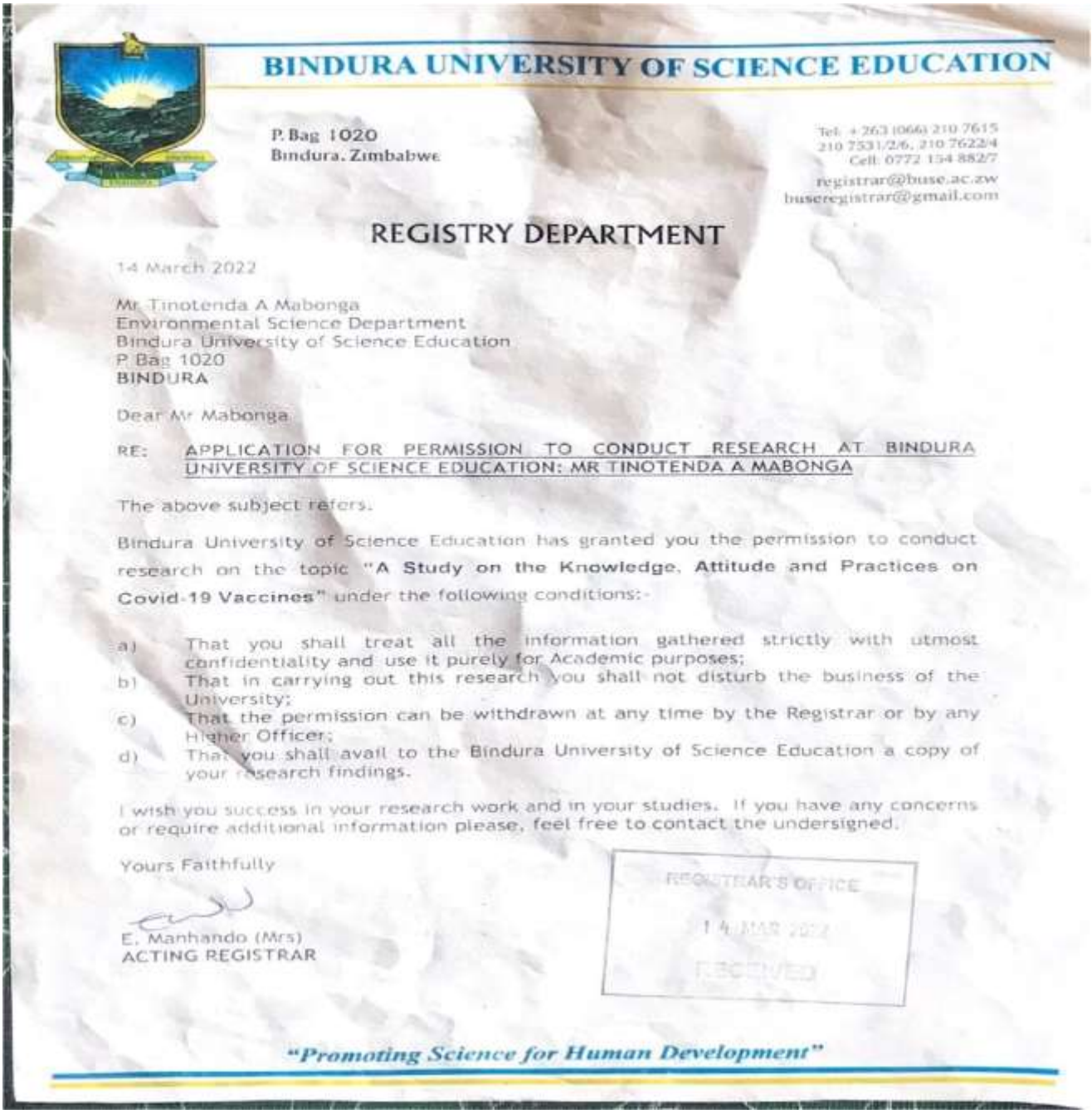
APPENDICIES

APPENDIX 1: APPROVAL LETTER



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REGISTRY DEPARTMENT

14 March 2022

Mr Tinotenda A Mabonga
Environmental Science Department
Bindura University of Science Education
P Bag 1020
BINDURA

Dear Mr Mabonga

RE: APPLICATION FOR PERMISSION TO CONDUCT RESEARCH AT BINDURA UNIVERSITY OF SCIENCE EDUCATION: MR TINOTENDA A MABONGA

The above subject refers.

Bindura University of Science Education has granted you the permission to conduct research on the topic **"A Study on the Knowledge, Attitude and Practices on Covid-19 Vaccines"** under the following conditions:-

a) That you shall treat all the information gathered strictly with utmost confidentiality and use it purely for Academic purposes;
b) That in carrying out this research you shall not disturb the business of the University;
c) That the permission can be withdrawn at any time by the Registrar or by any Higher Officer;
d) That you shall avail to the Bindura University of Science Education a copy of your research findings.

I wish you success in your research work and in your studies. If you have any concerns or require additional information please, feel free to contact the undersigned.

Yours Faithfully

E. Manhando (Mrs)
ACTING REGISTRAR

REGISTRAR'S OFFICE
14 MAR 2022
RECEIVED

"Promoting Science for Human Development"

APPENDIX 2: RESEARCH QUESTIONNAIRE

Research Questionnaire: ***(****Knowledge Attitudes and Practices towards Covid-19 vaccines).*

INSTRUCTIONS TO RESPONDENTS

- *Fill in the provided spaces where applicable.*
- *Do not write your name on any part of the paper*.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. Gender: Male Female
2. Age (years): 18-25 26-34 35-40 41- 49 50+
3. Highest Education Level: Primary Secondary Tertiary
4. Faculty: FAES FOC
5. Do you get any Covid 19 awareness information? Yes No
6. Have you ever tested positive to covid 19? Yes No
7. Religion type: Christianity Other

   I. *If Christianity, please specify denomination……*

   II. *If other please specify name……..*

1. Do you suffer from any chronic disease such as Diabetes/BP or others Yes No
2. Have you ever suffered from Covid-19 Yes No
3. Have you had a relative or friend who died of Covid-19 Yes No

INSTRUCTION: PLEASE ANSWER BY TICKING THE APPROPRIATE BOX

	SECTION B: KNOWLEDGE ON COVID 19 VACCINE

Number	Knowledge	Answers
1.	I have heard about COVID-19 vaccines.	Yes ☐ No ☐ ☐ Don't know
2.	There are ways to slow the spread of covid 19 other than vaccination.	Yes ☐ No ☐ ☐ Don't know
3.	As long as I practice social distancing, I should not get vaccinated.	Yes ☐ No ☐ ☐ Don't know
4.	If I wear masks there is no need for vaccination against covid 19.	Yes ☐ ☐ No ☐ Don't know
5.	Taking vitamin C or other vitamins will protect me from contracting covid 19.	Yes ☐ No ☐ ☐ Don't know
6.	All covid 19 vaccines are still under clinical trials.	Yes ☐ No ☐ ☐ Don't know
7.	The Covid 19 vaccine is safe to use.	Yes ☐ ☐ No ☐ Don't know
8.	It is possible to get covid 19 after vaccination.	Yes ☐ No ☐ ☐ Don't know
9.	Swelling and redness at the injection site are side effects of covid 19 vaccine.	Yes ☐ No ☐ ☐ Don't know
10.	Do you know any side effects of covid 19 vaccination?	Yes ☐ ☐ No ☐ Don't know
11.	Sinopharm is a type of covid 19 vaccine.	Yes ☐ ☐ No ☐ Don't know

12.	Sinovac is a type of covid 19 vaccine.	Yes ☐ ☐ No ☐ Don't know
13.	Johnson & Johnson is a type of covid 19 vaccine	☐ Yes No ☐ Don't ☐ know
14.	Sputnik is a type of covid 19 vaccine.	☐ Yes No ☐ Don't ☐ know
15.	Covaxin is a type of covid 19 vaccine.	☐ Yes ☐ No Don't know ☐
16.	Just one jab of covid 19 is enough to boost immunity.	Yes ☐ ☐ No ☐ Don't know
17.	I should finish all the jabs to boost immunity against covid 19.	Yes ☐ ☐ No ☐ Don't know
18.	Pregnant woman cannot get covid 19 vaccination	Yes ☐ No ☐ Don't know ☐
	SECTION C ATTITUDES	
19.	Are you willing to be vaccinated against Covid-19	Yes ☐ ☐ No ☐ Don't know
20.	I should not be vaccinated if all my family got vaccinated	Yes ☐ ☐ No ☐ Don't know
21.	A vaccination card is what matters not to be vaccinated.	Yes ☐ No ☐ Don't know ☐
22.	Which origin of vaccine do you trust	China ☐ Britain ☐ America ☐ ☐ ☐ Russia India
23.	Do you feel that covid 19 vaccines are very safe?	Yes ☐ No ☐

24.	I can rely on covid 19 vaccine to prevent infection with covid 19.	Yes. ☐ No ☐
25.	I can feel fully protected from covid 19 infection in the future after getting vaccinated.	Yes ☐ No ☐
26.	Covid 19 vaccines appears to be safe but have some side effects that haven't been discovered.	Yes ☐ ☐ No ☐ Don't know
27.	Covid 19 vaccines can cause some unforeseen problems in individuals.	Yes ☐ No ☐
28.	I am worried about unknown side effects of covid 19 vaccines in the future.	Yes ☐ No ☐
29.	Covid 19 vaccines are supposed to be sold like other vaccines and medications.	Yes ☐ No ☐
30.	It is my opinion that COVID-19 can be treated at home.	☐ True False ☐ ☐ Do not know
31.	Home remedies can be effective in treating covid 19 than vaccines.	☐ True False ☐ Do not ☐ know
32.	I am willing to be vaccinated if this gives me access to public places like gyms, sports stadiums, churches etc	Yes ☐ No ☐
33.	Are you willing to be vaccinated aginst Covid 19 if you have to pay for the vaccine?	Yes☐ No ☐
34.	Are you willing to be vaccinated against Covid 19 if you are paid for it?	Yes ☐ No ☐
35.	It is my opinion that if there is an available vaccine for the disease, It should be used.	True ☐ ☐ False ☐ Do not know

36.	Are you willing to be vaccinated against Covid-19 if you are to be paid $100 USD?	Yes ☐ No ☐
	SECTION D: PRACTICES	
37.	Have you been vaccinated against Covid-19	Yes☐ ☐ No ☐ Do not know
38.	I follow what my church pastor/leader say about covid 19 vaccination	Yes ☐ No ☐
39.	I do not get covid 19 vaccines because of church doctrines.	Yes☐ ☐ No☐ Do not know
40.	Social distancing and sanitizing are enough to stop the spread of covid 19.	Yes ☐ No ☐ Do not know ☐
41.	I only get vaccinated so that l attend lectures at school.	Yes☐ No ☐ Do not know☐
42.	I only get vaccinated to be able to travel.	Yes ☐ No ☐ Do not know ☐
43.	I only get vaccinated to please my friends and family.	Yes ☐ No ☐ Do not know ☐
44.	Covid 19 vaccination should not be mandatory.	Yes ☐ No ☐