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KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) OF BINDURA RESIDENTS TOWARDS THE THIRD CORONAVIRUS DISEASE 2019 VACCINE

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

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DECLARATION

To be compiled by the student

Registration number B1953822

I Svodai Musengi do hereby declare that this work is entirely the product of my own findings and has never been presented to any academic institution. Any reference to previously published work has been clearly indicated.

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……

ABSTRACT

Background: A deadly pneumonia-like disease of unidentified source was revealed in Wuhan, China, in December 2019. By the 30th of January 2020, the disease has been categorized as a novel Coronavirus disease and considered a public health emergency of global concern (WHO, 2020). Despite the introduction and development of many clinically tested and effective COVID-19 vaccines, COVID-19 vaccination can largely determine by the knowledge, attitudes, and practices people might have towards third coronavirus disease 2019 vaccine. This study aimed to understand the knowledge, attitudes, and practices, toward the third vaccine of COVID-19 among the residents in Bindura urban.

Materials and methods: A descriptive cross-sectional study was carried out and research questionnaires were used as data-collecting instruments. 87 research questionnaires were administered among the respondents. The questionnaire consisted of four sections, demographic characteristics section, knowledge, attitude, and practices (KAP) section. **Data analysis:** Data were analyzed using SPSS version 20. Binary logistic regression was used to determine factors influencing the KAP of third vaccine of COVID-19 vaccine. **Results:** The average knowledge and attitudes and practices score for the study was 56.67%, 54.31% and 59.3% respectively which was quite fair. Gender, highest education level, residential location, employment status, having a chronic disease, and receiving the first two doses of the COVID-19 vaccine are found to be the factors that influence knowledge, attitudes, and practices toward third coronavirus disease 2019 vaccine with p-value<0.05.

Conclusion and recommendations: The respondents had fair knowledge, attitude and good practices toward the third COVID-19 vaccine .Gender, highest education level, residential location, employment status, having a chronic disease, and receiving the first two doses of the COVID-19 vaccine were found to be significantly associated with knowledge, attitude and practices towards third coronavirus disease 2019 vaccine. Therefore, they is need for advanced public health education interventions and public sensitization awareness and campaigns so as to boost Bindura urban residents' knowledge, attitude and practices towards the third vaccine of COVID-19.

Key terms: Third coronavirus disease 2019 vaccine, Knowledge, Attitudes, Practices, Bindura

DEDICATION

This study is dedicated to my family for their prodigious love, care, and support

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LIST OF ACRONYMS

BMC	BioMed Central
CDC	Centre for Disease Prevention and Control
COVID -19	Coronavirus disease 2019
KAP	Knowledge, Attitudes and Practices
SARS-CoV-2	Severe Acute Respiratory Syndrome Virus 2
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.2 BACKGROUND

On March 11, 2020, an international pandemic and a public health emergency of global concern were acknowledged in relation to the coronavirus disease 2019, which is an infection caused by the Severe Acute Respiratory Syndrome Virus 2 and results in a disease (Hassan et al, 2020). Zimbabwe reported its first case of coronavirus disease 2019 from a guest who had just arrived from the United Kingdom and was residing in Victoria Falls. On May 17, 2022, there were 523,344,446 confirmed cases of coronavirus disease 2019 worldwide, along with 6,290,836 fatalities, according to a World Health Organization (WHO) report. 5,484 deaths and 249,431 confirmed cases of COVID-19 in Zimbabwe (WHO , 2022). Through various control measures put in place or as a direct result of the widespread, the national health system has had to change how it affects the population's health and quality of life. Wearing a mask, using sterilizers, and keeping a social distance are just a few of the precautions that have been taken to lessen the possibility of the COVID-19 virus spreading quickly but inadequate to stop the disease's spread. Since vaccination continues to be the most effective strategy for preventing transmissible diseases, attempts were made to reduce the chances of coronavirus disease 2019 spreading (Carlos, 2019). Despite this vaccination program, outbursts of infections have occurred in many nations. These waves could be caused by both the regular waning of the established protection from the vaccine over time and the mutation of various virus strains, which could have caused by some vaccine resistance. The defense offered by the primary vaccination course reduced as new Severe Acute Respiratory Syndrome Virus 2 variants emerged, which is also associated with Ab's lower levels (Huang et al, 2020). The third coronavirus disease 2019 vaccine illustrated an important regeneration levels of Ab, especially in old and immune-compromised people who had a poor reaction of initial immunization sequences and greater risks of being infected again. Furthermore, the frequent administration of the Abs to vaccinated individuals suggests that they may be able to be protected against coronavirus disease 2019 variants (WHO , 2022).

Along with the primary doses, the third coronavirus disease 2019 was also administered to develop the immunity. Many regulatory bodies have approved the use of the third coronavirus disease 2019 vaccine that may contain a various types of vaccine than the ones that was first

administered (WHO, 2021).On the time of Omicron variant epidemic, the third COVID-19 vaccine's effectiveness was made clear because, while the vaccine's period of immunity decreased to below one hundred and eighty days after taking the second vaccine, the third coronavirus disease 2019 vaccine improved that period of protection by 61%. However, visible difference is found in the acceptability of the third COVID-19 vaccine societies and social classes, with reports of varying acceptable rates for third COVID-19 vaccine ranging from 44.6%-93.7 % (Al-Qerem et al, 2022). In Zimbabwe, five COVID-19 vaccines are readily available: Janssen (Johnson & Johnson) Jcovden, Gamaleya Sputnik V, Bharat Biotech Covaxin, Sinopharm (Beijing) and Covilo, Sinovac CoronaVac. Despite the fact that the majority of Zimbabweans support the third COVID-19 vaccination; only 17 million of the country's estimated 41 million residents had received the vaccine as of the beginning of March 2022 (WHO , 2022). In particular, when involving recently developed vaccines, as in the case of COVID-19, vaccine denial or reluctance continues to be a significant barrier in the fight against various communicable diseases.

A KAP study is used to gather information on a population's knowledge, attitude and practices about general and/or specific topics such as WASH (water, sanitation and hygiene), diseases and vaccines. Data is gathered by interviewers using standardized questionnaire that may include both qualitative and quantitative (WHO, 2008).The potential of vaccine reluctance cannot be overlooked if the third COVID-19 vaccination effort is to be successful. Knowledge, attitude and practices concerning COVID-19 must be understood. This study seeks to define what people understand, what they believe and what they do in relation to the third coronavirus disease 2019 vaccine in Bindura town.

1.2 STATEMENT OF PROBLEM

From the time the vaccinations were approved, there has been worries across the world over people's reluctance to take the third coronavirus disease 2019 vaccine, which prevents herd immunity from developing (WHO, 2019). Not everyone is willing to take the third COVID-19 vaccine despite inventions and development of multiple clinically tested and effective vaccines. This may be due to lack of knowledge coupled with the myths and misconceptions about third coronavirus 2019 vaccines. The availability of efficient vaccinations is a crucial element of the

hope for a return to normalcy given the catastrophic health, economic, and social effects of the epidemic. Given this, there is an important research gap to be filled in assessing the knowledge, attitudes, and practices (KAP) toward the third COVID-19 vaccine among residents in ward 4 and 6 (high density), ward 8 and 10(medium density),and Ward 1and 11(low density), in Bindura town.

1.3 JUSTIFICATION

In order for the COVID-19 vaccination campaign to be effective in societies, the problem of vaccine resistance must be addressed. The assessment shall help in understanding what people know, believe, and what they do in relation to the third coronavirus disease 2019 vaccine, and no study has been conducted to date in Bindura communities to understand their knowledge, attitude, and practice toward this booster vaccine dose. By so doing it might offer policymakers direction on how to change the attitudes of the residents in Bindura town and make them understand the value of being vaccinated. In addition, people will be encouraged to receive the third vaccine for COVID-19. The results of this study, will help future generations to understand and appreciate the knowledge, attitude, and practices the previous generations had regarding the third coronavirus disease 2019 vaccine, and how their fears were addressed. In the case of a pandemic that requires vaccination, this will enable individuals to decide quickly and wisely.

1.4 RESEARCH AIM

To assess the knowledge (what is known), attitude (what is thought), and practices (what is done) of Bindura urban residents towards the third coronavirus disease 2019 vaccine.

1.5 OBJECTIVES

1. To determine the knowledge of Bindura urban residents with regards to the third coronavirus disease 2019 vaccine,
2. To evaluate attitudes of Bindura town residents towards the third coronavirus disease 2019 vaccine,
3. To determine the practices of residents in Bindura urban with regards to the third coronavirus disease 2019 vaccine,

4. To determine the factors influencing people's knowledge, attitudes, and practices towards third coronavirus disease 2019 vaccine.

1.6 RESEARCH QUESTIONS

1. What knowledge do Bindura urban residents have with regards to the third coronavirus disease 2019 vaccine?
2. What is the general attitude that people have towards the third coronavirus disease 2019 vaccine in Bindura town?
3. What are the practices people do with regards to the third coronavirus disease 2019 vaccine?
4. What are the factors that significantly influence peoples' knowledge, attitudes and practices with regards to the third coronavirus disease 2019 vaccine?

1.7 LIMITATIONS

Descriptive cross-sectional study which was used in this study may not show the direct cause and effect between dependent and independent variables. Also, since data were collected by self-administered questionnaire, there might be response bias.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

World Health Organization (2019) mentioned vaccine hesitancy as one of the highest risks and has become a potentially more pressing concern throughout the COVID-19 epidemic. Given the pandemic's terrible health, economic, and social repercussions, the presents of effective vaccines is a critical component of the hope for a return to normalcy. Third Covid-19 vaccination greatly depends on the knowledge, attitudes and practices the public have toward the vaccine.

2.2 SURVEY OF KAP STUDIES ON COVID-19 VACCINES

Table 1: *Review of empirical studies.*

TYPE OF DOSE	STUDY PARTICIPANTS	KEY FINDINGS	REFERENCES
Third COVID-19 vaccine	Assessing public knowledge, attitudes and determinants of third COVID-19 vaccine booster dose acceptance: current scenario and future	**Knowledge:** This study found that the average score was 44.6% of the participants. Only 44.6% of the total participant have heard about the third coronavirus disease 2019 vaccine as more than half exhibited low levels awareness. Postgraduates, healthcare workers, participants who previously infected and those with relatives who have once tested positive to the COVID-19 and participants who had taken the primary two doses of the coronavirus disease 2019 vaccine have prevailed higher knowledge scores with a 95% confidence interval.	(Jairoun et al, 2022)

	perspectives Students and faculty of Ajman University in the UAE	**Attitude:**70.2% was the average score of attitude found Respondents who had family members infected with COVID-19, higher educated people, participants who had been previously infected with coronavirus disease 2019, respondents who got the first two doses of the coronavirus disease 2019 vaccine, and those who had been admitted to the hospital due to coronavirus disease 2019 symptoms showed favourable attitudes toward the third vaccine of COVID-19 with 95% confidence intervals and were more eager to take the vaccine. **Factors influencing knowledge and attitudes towards the third coronavirus disease 2019 vaccine:** Gender, nationality, education, employment status, having chronic diseases, having relatives infected with COVID-19, being sick with coronavirus disease 2019 and receiving the primary doses of COVID-19 vaccine, were all associated with favorable attitude and better knowledge toward the third COVID-19 vaccine booster dose with p-value less than 0.05.	
Third covid-19 vaccine	Knowledge, Attitudes, and Practices of Adult Iraqi Population Towards COVID-19 Booster Dose:	**Knowledge:** higher education level was found in participants with high incomes and higher education level as compared to those with low. **Attitude:** 61.1 % of participants were willing to take the third vaccine for COVID-19, 22.3% were uncertain and only 16.3% were not intending to take third coronavirus disease vaccine.61.1% of participants believed that the	(Al-Qerem et al, 2022)

	A Cross-Sectional Study	effectiveness of a third COVID-19 vaccine have not been scientifically verified and also 48.8% believed that the third vaccine of coronavirus disease 2019 will not provide any additional protection against coronavirus disease 2019. **Factors influencing knowledge and attitudes towards the third COVID-19 vaccine:** Age, education, reasons why receiving the COVID-19 vaccines, knowing a person who had deceased due to the coronavirus disease 2019, household monthly income and finally vaccine type was associated with the KAP toward the third coronavirus disease 2019 vaccine.	
Third covid-19 vaccine booster dose	Knowledge, perception, and acceptance toward the booster dose of COVID-19 vaccine among patients visiting dental clinics in Aseer region of KSA	**Knowledge:**68.6% of the total participants had poor knowledge ,13,8% had fair knowledge and only 17.6% had good knowledge of the booster dose **Attitude:** 48.1% uttered rejection to take a booster dose. From the study, total participants, 60.8% promised to advise others to get the booster shot as soon as possible, while 47.0% preferred to build immunity naturally through infection. (55%) from rural than urban (46.6%) participants refused to receive a booster dose 62.8% of urban participants promised to advice advised others to get the booster shot as soon as possible. Young ages preferred to build their immune system naturally (50%) **Factors influencing knowledge, attitudes and practices of third coronavirus disease 2019 vaccine:** Gender, residency area, education, nationality, and occupation, showed significance with the knowledge, attitudes	Abullais et al. (2022)

		and hesitance towards third vaccine of coronavirus disease 2019.	
Second round of COVID-19 vaccine	Knowledge and attitude towards the second round of covid-19 vaccines among teachers' woru at southern public universities in Ethiopia. Teachers who work in selected public University in southern region	**Knowledge:** The average knowledge score for this study was 60.8%.From the study 96.1%, 76.7% of participants were aware that the second vaccine of COVID-19 posed a risk if you take over dose and were aware that the vaccine were taken in two doses respectively. The findings show that about half of the participants (54.3%) were aware that the second coronavirus disease 2019 vaccine increase autoimmune diseases while 45.7% were not aware. Furthermore 51.7 % of the respondents were familiar with the usefulness of the second COVID-19 vaccine. **Attitude:** 79.7% of individuals believe that coronavirus vaccines are good and the presented favorable attitude. Twenty people, or 3% of the participants, have negative feelings about the COVID-19 vaccines. **Factors influencing the understanding and attitudes of participants toward second coronavirus disease 2019 vaccine.**At a 0.05 p-value, it was establish that knowledge of the second coronavirus disease 2019 vaccine was significantly correlated with age, profession, chronic illnesses, and work experience. Participants with prolonged illnesses were 2.142 times more likely to have good understanding of the second coronavirus disease 2019 vaccine. Gender, marital status, occupation, chronic illnesses, and work experience of respondents were found to be significantly associated with their attitudes	(Adella, 2022)

		toward the second coronavirus disease 2019 vaccine.	
First COVID-19 vaccine dose	Malaysian adults(Knowledge, acceptance and perception)	**Knowledge:** 62.0% of the total respondents' were found to have poor knowledge regarding the third coronavirus disease 2019 vaccine. In addition to that 82.1% of them knew that the statement "Coronavirus diseases 2019 vaccines will be taken via injection" was true. Only 14.7% of participants correctly answered to the statement "Children from age of 5 can take receive COVID-19 vaccination". **Acceptance:** 64.5% of total participants were ready to get fully vaccinated. More than 70% of respondents said the vaccine would be sold at a cost more than RM 100, with only 4.6% saying they couldn't afford it at all. **Factors affecting the knowledge and acceptance of coronavirus disease 2019 vaccine.** According to this research, higher knowledge scores were higher in participants with higher income level, and living with high-risk. Also it was found that the acceptance the coronavirus disease 2019 vaccine was significantly associated with being younger, having a higher qualifications, being female, and not having prolonged illnesses.	(Mohamed et al, 2021)
First COVID-19 vaccine dose	Knowledge, attitudes and perceptions towards COVID-	**Knowledge:** The average knowledge score for this study was 57%. **Attitudes:** The average positive attitudes score was 9.34 out of 12 which makes up to 78%, .26% of total respondents have faith in safety of the coronavirus disease vaccine.60% of total participants were unhesitatingly to	(Islam et al, 2021)

	19 vaccinations: a cross-sectional community survey in Bangladesh survey was conducted among individuals aged 18 years and above	take the COVID-19 vaccine, and 66% would encourage their family or friends to do the same.78% of respondents showed a favorable attitude towards the coronavirus disease 2019 vaccine.52% of the total respondents believed that everyone should get immunised. About 95% of participants agreed that coronavirus disease 2019 vaccine must be given free of charge in Bangladesh.89% of participants thought the recently invented COVID-19 vaccine might have side effects. 56% of participants said that coronavirus disease 2019 pandemic could be wiped out without taking any coronavirus diseases 2019 injection if everyone in society maintained preventive measures. About 35% of respondents were not willing to pay for the vaccine if it is not given for free by the government.	
Second COVID-19 Vaccine Dose	Knowledge, Attitudes, and Perception towards COVID-19 Vaccination among the Adult Population: A Cross-Sectional	**Knowledge:** 62.7% of the total respondents were aware that receiving the coronavirus disease 2019 vaccine would increase immune response against the disease. **Attitude:** 80.8% of respondents believed that vaccinations should be mandatory for everyone so as to stop the coronavirus disease 2019 pandemic. 83.8% of participants expressed concern over family members' contracting COVID-19. From the study it was found that, 82.3% of participants believed that those who have recovered from COVID-19 do not require vaccination.31.2% of respondents believed that, if you take COVID-19 vaccinations safety measures like social isolation, hand washing, and masking	(Sonmeza et al, 2022)

	Study in Turkey	became unnecessary. **Factors associated with the knowledge, attitudes and perceptions towards second vaccine of coronavirus disease 2019:** Gender, highest education level, and personal history of being infected with coronavirus disease 2019 have significant associated with a positive opinion of the COVID-19 vaccination. Favorable attitudes toward coronavirus disease 2019 vaccination were associated with younger ages, gender, educational background, and histories of prior influenza vaccinations.	
Second COVID-19 Vaccine Dose	Knowledge and Attitude Towards Second COVID-19 Vaccine Dose Among Health Professionals Working at Public Health Facilities in a Low Income Country All health professionals working at all	**Knowledge**: The second coronavirus disease 2019 vaccine was known by 72.9% of the total respondents for increasing allergic reaction.93.9% of respondents mentioned that they were aware of the second vaccine of the coronavirus disease 2019. **Attitude:** 51.1% of respondents responded that they recently discovered that the second coronavirus disease 2019 was safe. About a half of participants (49.7%) of participants believed that a second vaccine of COVID-19 was necessary for decreasing prevalence of disease. 94.4% of participants were willing to encourage their loved ones and friends to get another vaccination. **Factors influencing knowledge and attitude of participants toward second vaccine of COVID-19:** In the multivariable logistic regression analysis, age, profession, and attained educational level were significantly related with the	(Sonmeza et al, 2022)

	public hospitals of Ilu aba bore and Bedelle zones were included in the study expert this with less than 6 months working experience.	knowledge of participants toward second coronavirus disease 2019 vaccine. Attitude is also associated with education status, age, marital status and profession. With p-value less than 0.05.,	

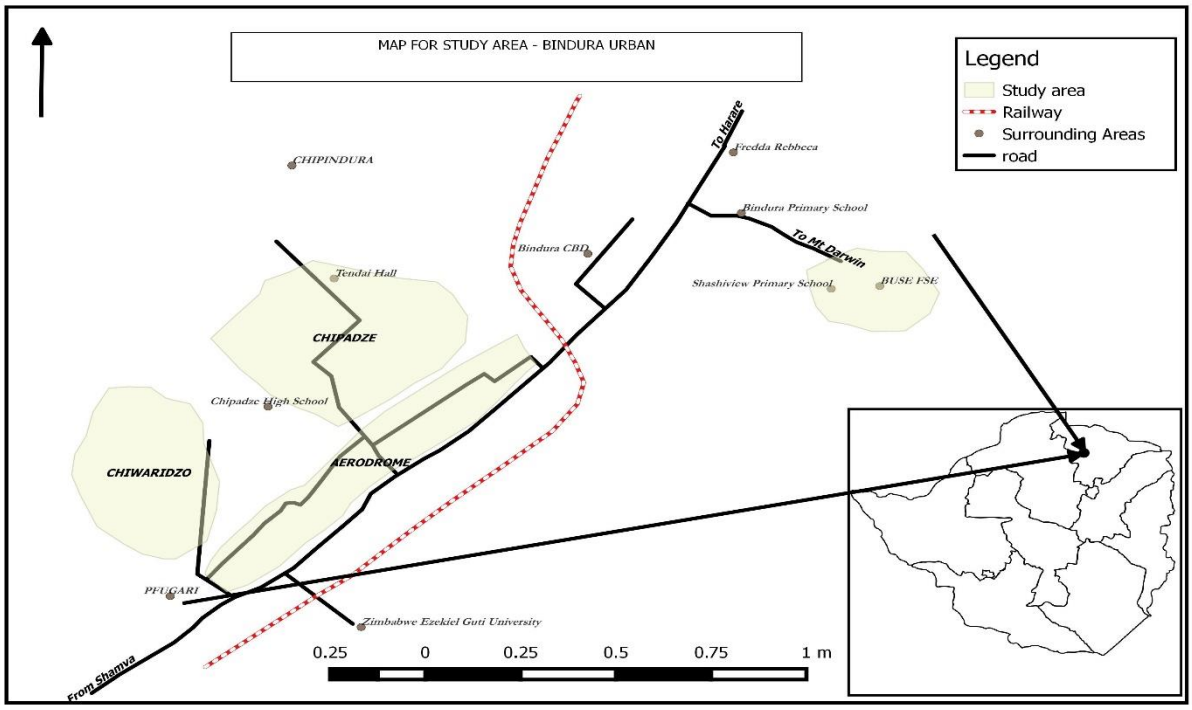
CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the research area, tools, and techniques that were used to assess the KAP (Knowledge, Attitudes and Practices) of residents in the high, medium, and low densities of Bindura town. The study design, the people with particular expertise, the sample size, and the sampling techniques are all outlined. The chapter proceeds by outlining the study tools; research reliability; research validity; research ethics; and finally, data analysis techniques.

3.2 DESCRIPTION OF STUDY AREA

Figure 1 **:** *Bindura urban study area map.*



The study was carried out in Bindura town 17.3251°S 31.3326°E, which is located in Mashonaland Central Province, of Zimbabwe. Bindura urban is about 87 km northeast of Harare. It consists of 13 wards which have low, medium and high-density. It is a small city that offers a quiet semi-urban environment.

3.3 STUDY DESIGN

A cross-sectional study was used to collect data from a large number of people. A cross sectional research was chosen because it is very cheap, captures numerous factors at once, and allows for the collection and analysis of a large number of findings and results to develop new ideas or hypotheses (Kalof , 2008). Eighty seven respondents were selected using convenient and simple random sampling methods. The participants' knowledge, attitudes, and practices towards the third vaccine of coronavirus disease 2019 were gathered using the KAP survey questionnaire.

3.4 DATA SOURCES

Primary and secondary sources of data were used in the study. The participants in Bindura town served as the major sources of data whilst the majority of the secondary sources of data were journals. The survey also incorporated secondary data from other significant sources, such as WHO recommendations. E-Journals were heavily utilized throughout the research, serving as the main foundation for the literature review.

3.5 SAMPLING METHOD AND SAMPLE SIZE

A three multi-staged sampling method was used in the study. Convenience sampling was used first to select Bindura residential area. Bindura residential area is made up of 12 administrative wards. Each ward has high, medium or low-density suburbs. Six wards were selected using convenience sampling. The sampling method enables the selection of individuals who were the easiest to reach as subjects in an investigation to cut the expenses and time as well as cover the miscellaneous population (Stratton, 2021).

Purposive sampling was deployed in the second stage. This involved the purposive selection of two locations from each of the three suburbs (high, medium and low densities). This was done to allow selection of the individuals to be sampled from all the densities whilst saving resources. However, the technique is prone to judgmental errors by the researcher.

The third stage involved selecting households to sample using a systematic random sampling method. Every sixth dwelling household from the chosen location was selected. The method can produce a proportionate dimension of population circumstances in low, medium and high suburbs. In total 87 respondents were sampled from the selected residential location to take part in the survey.

Table 2 : *Residential locations selected and the sample size in each location*

WARD	**RESIDENTIAL LOCATION AND SURBUB**	**SAMPLE SIZE**
1 and 11	Low density-Chiwaridzo phase 2 and Shashi view	22
8 and 10	Medium-density-Aerodromes and Chiwaridzo phase 1	29
4 and 6	High density-Chipadze	36

3.6 RESEARCH TOOLS

The researcher used questionnaires as study tool. The benefits of questionnaires include their effectiveness in evaluating the behavior, attitudes, preferences, views, and intentions of large groups more affordably and swiftly than other approaches (McLeod, 2018). A structured closed-end and open-ended questionnaire with 40 variables was used to collect data from each participant. Participants were required to choose from a pre-existing list of options while answering closed-ended questions. Four different sections made up the questionnaire. Socio-demographic characteristics were covered in questions in the first section. The knowledge towards the third vaccine of coronavirus disease 2019 was covered in questions in the second section. The public's attitudes towards the third vaccine of coronavirus disease 2019 vaccination were the subject of the third part, and the last section covered what the residents did in response to the third vaccine of COVID-19.World Health Organization recommendations served as a model for the questionnaire items. International instruments that have been applied frequently and are regarded as reliable and legitimate include WHO recommendations (WHO, 2020). In Bindura urban's high, medium, and low-density locations, the researcher will self-administer the questionnaires to families. The researcher personally visited respondents and handed them handwritten questionnaires for them to complete. While the researcher was waiting, the responders who would have answered the questions gave the survey back to her for analysis.

Using questionnaires, research surveys gather information from purportedly representative participants in the population at a specific point in time.

3.7 RELIABILITY AND VALIDITY OF RESEARCH INSTRUMENTS

To improve validity and reliability of the data collected, the investigator pre-tested the questionnaires before running the actual data to determine whether they were acceptable or not to the respondents and to also ensure that only relevant information was incorporated in the questionnaire. Randomly selecting households was also be done to improve validity.

3.8 ETHICAL CONSIDERATIONS

The study complies with the core principles set forth in the Declaration of Helsinki when it comes to using humans or animals in research. With the assistance of the Supervisor and the FAES Chairperson, the researcher was given authorization to carry out the research. The researcher obtained informed permission from each participant and thoroughly discussed the study's objectives and methods. When collecting data, the researcher always attempted to maintain confidentiality. The researcher did not arbitrarily and unjustly disqualify certain study participants according to their race, color, ethnicity, or socioeconomic standing. Participants voluntarily participated in the study as the researcher made sure that no person was forced or deceived to participate in the study but to provide data needed willingly. In addition, the researcher explained to the participants that they had the right to withdraw from the study anytime without having to give explanations or facing any consequences. The researcher made sure that the answers provided did not capture their names and addresses to guarantee anonymity on the data collection tool. The researcher did not exclude certain participants from a study unjustly and unfairly on the basis of race, color, ethnic group or social status.

3.9 STATISTICAL ANALYSIS

SPSS version 20 was used for data analysis. The research questionnaire had 10 questions to determine the knowledge of the participants, 12 questions to evaluate the participant’s attitudes, and 7 questions to determine the respondent’s practices toward the third coronavirus disease 2019 vaccine. A score of 1 was given for each correct answer and a score of 0 for each wrong and don’t know answer. The average score for each character was calculated, and if the percentage 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 third coronavirus disease 2019 vaccine. Binary logistic analysis was used to analyze factors affecting the knowledge, attitudes and practices towards third coronavirus disease 2019 vaccine among the residents in Bindura urban. The analyzed data were presented in tables. Statistical analysis was done at 5%, significance, and 95% confidence intervals.

CHAPTER 4: RESULTS

4.1 INTRODUCTION

This chapter focuses on the data presentations and the analysis of the findings of the research project. Tables were used to present the data.

4.2 SECTION A DEMOGRAPHY

Table 3*: Summary of demographic characteristics.*

Demographic variable	**Category**	***n* =87**	**%=100**
Sex	Male	47	54
	Female	40	46
Age	18-25	61	70.1
	26-33	14	16.1
	34-41	3	3.4
	42-49	3	3.4
	50+	6	6.9
Residential location	High density	36	41.4
	Medium density	29	33.3
	Low density	22	25.3
Marital Status	Married	10	18.4
	Single	70	80.5
	Divorced	1	1.1

Religion	Christianity	83	95.4
	Other	5	5.74
Household position	Father	12	13.8
	Mother	8	9.2
	Son	32	36.8
	Daughter	35	40.2
Highest education level	Primary	11	12.6
	Secondary	26	29.9
	Tertiary	50	57.5
Employment status	Unemployed	34	39.1
	Employed	13	14.9
	Student	40	46
Any chronic disease	Yes	26	29.9
	No	61	70.1
Have you received first 2 coronavirus diseases 2019 vaccine?	Yes	66	75.9
	No	21	24.1
Have you received the third vaccine of coronavirus disease 2019 vaccine?	Yes	57	65.5
	No	30	34.5

Reason for receiving third coronavirus disease 2019 vaccine?	Religion	8	9.2
	Positive safety	44	50.6
	Negative safety	9	9.3
	Job/School Mandate	26	29.9

A total of 87 respondents completed the survey and majority of participants were males (54%) and females were (46%).The age group of 18-25 (70.1%) was found to have highest number of participants and the lowest was in the age group of 34-49 years (3.4%). In the survey, the majority of the respondents were recorded in the high density 36 (41.4%). Most of the respondents were single (80.5%).45.7% of the respondents in the research have attained tertiary education. The varsity majority of participants (95.4%) were Christians while only 5.74% were from other religions (Islam et al, 2021). Less than half of the respondents (40.2%) were daughters at their household and only 9.2% were mothers. According to table 3, (46%) were students, (39.1 %) were unemployed and (14.9%) were employed. In addition, the majority of the respondents 70.1% did not suffer from any chronic diseases such as diabetes, and others while only 29.9% had chronic illnesses.75.9% of the respondents have taken the first two coronavirus disease 2019 vaccine and the rest didn't. According to the results in the table above 65.5 % of participants have taken the third coronavirus disease 2019 vaccine and 34.5% didn't .50.6% of the total study population have positive safety reasons on taking the third vaccine of COVID-19, 29.9 % received the vaccine because it was a mandate at work or school, 9.3 % having negative safety reasons and the rest 9.2 % have certain belief from their religion for not taking the vaccine.

4.3 SECTION B. KNOWLEDGE ON THIRD CORONAVIRUS DISEASE 2019 VACCINE

Table 4: *Knowledge on third coronavirus disease 2019 vaccine.*

Knowledge Variable	**Participant response**			**Score**
		N	**%**	
K1. Have you heard about the third coronavirus disease 2019 vaccine?	Yes	74	85.1	**0.851**
	No	13	14.9	
K2. How many vaccines is an individual supposed to take?	2	6	6.9	
	3	19	21.8	**0.218**
	4	32	36.8	
	Don't know	30	34.5	
K3. Children from the age of 5 can take the third coronavirus disease 2019 vaccine?	Yes	37	42.5	**0.425**
	No	19	21.8	
	Don't know	31	35.6	
K4. Taking overdose of third vaccine of coronavirus disease 2019 is very dangerous?	Yes	72	82.8	**0.828**
	No	12	13.8	

	Don’t know	3	3.4	
K5. Does the third coronavirus disease vaccine accelerate autoimmune illnesses?	Yes	41	47.1	**0.471**
	No	9	10.3	
	Don’t know	37	42.5	
K6. It is possible to get coronavirus disease 2019 after receiving the third coronavirus disease 2019 vaccine?	Yes	45	51.7	**0.517**
	No	17	14.9	
	Don’t know	29	33.3	
K7. If an individual wear COVID-19 recommended masks there is no necessity for vaccination against COVID-19?	Yes	14	16.1	
	No	61	70.1	**0.701**
	Don’t know	12	13.8	
K8. If social distancing is practiced, third coronavirus disease 2019 vaccine is not necessary?	Yes	8	9.2	
	No	60	69.6	**0.696**
	Don’t know	19	21.8	
K9. Besides receiving a coronavirus disease 2019 vaccines, they are some ways to slow the spread of COVID-19.?	Yes	54	62.1	**0.621**
	No	9	10.3	

	Don't know	24	27.6	
K10. All recommended vaccines should be taken so as to boost the immune system against coronavirus disease 2019?	Yes	53	60.9	**0.609**
	No	8	9.2	
	Don't know	26	29.9	
Total knowledge score				**5.667**

Table 4 illustrates the level of knowledge respondents have towards the third coronavirus disease 2019 vaccine among Bindura town residents. The average knowledge was 0.5567 which was found by dividing total knowledge score (5.667) by total knowledge question (10).To find the percentage knowledge average score ,the average score is then multiplied by 100% to give 56.67% which is quite fair. The majority of the total participants (85.1%) have heard about the third vaccine of coronavirus disease 2019. Only 21.8% of the participants have knowledge on how many vaccines an individual is supposed to take. Less than half of the participants (42.5%) were aware that even children from the age of 5 can take the third COVID-19 booster dose,35.6% mentioned that they don't know and 21.8 % were not aware. 82.8% of participants have knowledge that it is very dangerous to take third coronavirus diseases 2019 vaccine in excess. From table 4, more than half of the total respondents (50.5%) knew that it is not dangerous for health using the third vaccine of COVID-19. Less than half of the participants (47.1%) were aware that third vaccine of COVID-19 increase autoimmune illnesses, 42.5% said they don't know if it increase the autoimmune illness or not, while 10.3% were not aware.51.7% knew the possibility of getting COVID-19 after taking the third coronavirus disease 2019 vaccine.70.1% of the total respondents have knowledge that the is still need to wear mask even after receiving third vaccine of COVID 19. From the research, 60.9 % of the total participants were aware that even they practice social distancing the is still need take the third coronavirus disease 21019 vaccine and they are other ways to slow the spread of coronavirus disease 2019 and all dose should be finished so as to boost the immune system respectively.

4.4 SECTION C. ATTITUDE ON THE THIRD CORONAVIRUS DISEASE 2019 VACCINE

Table 5: *Attitudes towards the third coronavirus disease 2019 vaccine*..

Attitude Variable	Participant response			Score
		N	**%**	
A1. Is it very unsafe for health taking third coronavirus disease 2019 vaccine?	Yes	10	11.5	
	No	53	60.9	**0.609**
	Don't know	24	27.6	
A2. Third coronavirus disease 2019 vaccine decrease allergic reactions?	Yes	17	19.5	
	No	40	46.0	**0.46**
	Don't know	30	34.5	
A3.I believe that pharmaceutical companies make a lot of money through the third coronavirus disease 2019 vaccine.	Yes	26	29.9	
	No	46	52.9	**0.529**
	Don't know	15	17.2	
A4. Does the primary vaccines of COVID-19 provide the safe protection?	Yes	56	64.4	**0.644**
	No	19	21.8	

	Don’t know	12	13.8	
A5. Are you afraid of serious unknown long-term effects of the third vaccine of coronavirus disease 2019 in future?	Yes	35	40.2	
	No	39	44.8	**0.448**
	Don’t know	13	14.9	
A6. I believe that the newly third coronavirus disease 2019 vaccine is safe and effective.	Yes	46	52.9	**0.529**
	No	4	4.6	
	Don’t know	37	42.5	
A7. Third coronavirus disease 2019 vaccine will not add any further protection against COVID-19.	Yes	2	2.3	
	No	62	71.3	**0.713**
	Don’t know	23	26.4	
A8. Are you willing to be immunized against coronavirus disease 2019 if you have to pay for the vaccine?	Yes	52	59.8	
	No	32	36.8	**0.368**
	Don’t know	3	3.4	
A9. It is my belief that if there is any available vaccine for	Yes	62	71.3	**0.713**

the disease, it should be used.				
	No	7	8.0	
	Don't know	18	20.7	
A10. Are you willing to take the third coronavirus disease 2019 vaccine if you are to be paid $100 USD?	Yes	50	57.5	
	No	29	33.3	**0.33**
	Don't know	8	28.2	
A11.I took the last dose a 1 year ago, so there will be no need to take the third COVID-19 vaccine for at least 5 years?	Yes	3	3.4	
	No	53	60.9	**0.609**
	Don't know	31	35.6	
A12.The effectiveness of the coronavirus disease 2019 vaccine been scientifically verified.	Yes	40	56	**0.56**
	No	14	16.1	
	Don't know	33	27.9	
Total attitude score				**6.512**

From table 5 above average attitude score was 6.512 divided by 12 questions meaning 0.543 and 54.3% when converted to percentages. The score is quite fair. According to table 5, 60.9% were

willing to receive the third coronavirus disease 2019 vaccine because they believed that it is not dangerous for health to use vaccine. 46% of participants were also willing because they were believe that the vaccine increase the allergic reactions. More than half of the participant (52.9%) doesn't believe that pharmaceutical companies make a lot of money through the third coronavirus disease 2019 vaccine. For the question "Does the first two doses of the coronavirus disease 2019 vaccine give the safe protection?" 54.4% of the total participants answered it positively. Only 44.8%v of participant were not worried about serious unknown long-term effects of the third coronavirus disease 2019 vaccine in the future .From the study 52.9% of the total participants have positive attitude on the vaccine because they believe that it is safe and effective, 42.5% were responded that they don't know if the third coronavirus disease 2019 vaccine is safe and effective while 4.6% of the participants answered ngatively.71.3% believe that the booster dose will add further protection to them against COVID-19. 71.3% responded yes to the question "I believe that if there is any available vaccine for the disease, it should be used", this shows a favorable attitude toward the third vaccine of COVID-19.More than half of the participant (56%) shows favorable attitude toward the third coronavirus disease 2019 vaccine because they believed that the effectiveness of the COVID-19 vaccine booster dose have been scientifically verified.57.5% of the total participant were willing to take the third COVID-19 vaccine booster dose they are to be paid $100 USD while only 33.3% of the total participants don't need any pay to receive the booster dose.

4.5 SECTION D. PRACTICES ON THIRD CORONAVIRUS DISEASE 2019 VACCINE

Table 6 : *Practices towards third coronavirus disease 2019 vaccine.*

Practice Variable	**Participant response**			**Score**
		N	**%**	
P1. Have you received the third coronavirus disease 2019 vaccine?	Yes	57	65.6	**0.655**
	No	30	34.4	

P2.I will carry on maintaining social distance and sanitizing even after receiving the third coronavirus disease 2019 vaccine.	Yes	56	64.4	**0.644**
	No	31	35.6	
P3.I will only receive the third coronavirus disease 2019 vaccine to secure my job at the work place**.**	Yes	29	33.3	
	No	58	66.7	**0.667**
P4.I will only take third coronavirus disease 2019 vaccine so that l will be able to be able to travel**.**	Yes	28	32.2	
	No	59	67.8	**0.678**
P5.I will only take third COVID-19 vaccine booster dose to please my friends and family**.**	Yes	16	18.4	
	No	71	81.6	**0.816**
P6.l will take third coronavirus disease 2019 vaccine or any other additional coronavirus disease 2019 vaccine without any fear.	Yes	51	58.6	**0.586**
	No	36		
P7.I will encourage my family, friends and relatives to take the third coronavirus disease 2019 vaccine.	Yes	67	77.1	**0.77**
	No	19	22.9	
Total practice score				**4.149**

Table 6 shows that the average score of practices towards third coronavirus disease 2019 vaccine was 4.149 out of 7 which make up 59.3%.The average score is quite fair.

57(65.6%) of the total participants have already received the third coronavirus disease 2019 vaccine.64.4% of participants states that they will continue maintaining social distance and sanitizing even after receiving the third coronavirus disease 2019 vaccine. 81.6 % of participant answered "No" on the question "I will only receive third coronavirus disease 2019 vaccine to please my friends and family "56.6% of participants said they will take third COVID-19 vaccine or any other additional COVID-19 vaccine without any fear .In addition to that ,more than half of the 67 out of 87 (77.1%) of the participants promised to encourage their family, friends and relatives to take the third coronavirus disease 2019 vaccine.

4.6 THE INFLUENCING FACTORS OF KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS THIRD VACCINE OF CORONAVIRUS DISEASE 2019

Table 7*: Influencing factors of knowledge, attitudes and practices towards the third coronavirus disease 2019 vaccine.*

Variable		OR(95% CI)	P-value
Gender	Male	1.78(0.624-2.873)	0.032*
	Female	**Reference**	
Age	18-25	0.21(0.06-7.67)	0.256
	26-33	2.35(0.008-18.83)	
	34-41	0.39(0.006-7.16)	
	42-49	0.84(0.010-69.08)	
	50+	**Reference**	
Residential location	Low density	1.89(2.99-12.36)	
	Medium density	0.94(0.22-4.36)	
	High density	**Reference**	0.001*
	Married	1.7(0.57-52.24)	
Marital Status	Single	0.39(0.014-11.34	0.985
	Divorced	**Reference**	
Religion	Christianity	0.409(0.04-3.73)	0.965
	Other	**Reference**	
Household position	Father	2.36(0.22-8.96)	0.855
	Mother	0.156(0.36-11.25)	

	Son	0.36(0.22-6.96)	
	Daughter	**Reference**	
Highest education level	Primary	**Reference**	
	Secondary	3.66(2.36-62.33)	
	Tertiary	2022(2.16-58.3)	0.034 *
Employment status	Unemployed	**Reference**	
	Employed	0.88(0.54-1.44)	
	Student	1.62(1.05-2.51)	0.03*
Any chronic disease	Yes	1.06(0.65-173)	0.002*
	No	**Reference**	
Have you received first two doses of the COVID-19 vaccine?	Yes	3.05(1.40-1.31)	0.001*
	No	**Reference**	

*Significant at 5% significant

Table 7 above shows the logistic regression analysis output of factors associated with the knowledge, attitude and practices of participants towards third vaccine of coronavirus disease 2019. Factors affecting the third coronavirus disease 2019 vaccine were tested at 5%, significance, and 95% confidence interval. From the table, only 6 variables namely gender, highest education level, residential location, employment status, having a chronic disease and received first two doses of the coronavirus disease 2019 vaccine had significant good KAP scores at 5 % significance level. Accordingly, high good KAP which were found to be significantly associated with gender in which males were about 1.78 times more likely to have a higher good KAP than females (OR=1.78, CI=0.624-2.873 p=0.032). From the study, those who had attained tertiary education and secondary education had statistically significant (20.22 and 3.66 respectively) had more probabilities of having good KAP scores than those who had

attained primary education with p-value of 0.034. Furthermore, residence of the respondents was significantly linked to good KAP scores with p-value of 0.001 significance. Employment status significantly affected the KAP of the third coronavirus disease vaccine with a p-value of 0.03 significance. Having a chronic disease also influence the KAP of the third coronavirus disease 2019 vaccine with significance of p-value of 0. 002. From the study receiving the first two doses of COVID-19 significantly influence the KAP of the third coronavirus disease 2019 vaccine with a p-value of 0.001. However, the odds for an age, personal household position, marital status and religion were insignificantly affecting the third coronavirus disease 2019 vaccine p-value of (p=0.256, 0.965, 0.855, 0.985) respectively.

CHAPTER 5: DISCUSION

5.1 KNOWLEDGE TOWARDS THE THIRD VACCINE OF CORONAVIRUS DISEASE 2019

From the study, the respondents had a fair knowledge third coronavirus disease 2019 vaccine (56.67%). Findings in this study are similar with a result from a study conducted in Bangladeshi on the knowledge, attitudes and perceptions towards coronavirus disease 2019 vaccination, where the average knowledge score was also fair (57%) (Islam et al, 2021).The results of this study was lower than the research carried out in Ethiopia on the KAP of the second vaccine of COVID-19 where 60.8% was their average knowledge score (Jairoun et al, 2022). The inconsistency in these studies may be caused by changes in the study population, vaccine type, or socio-demographic features of the respondents in the survey.

Table 4 reveals that 82.8% of the total participants were aware that it is very risk to take third coronavirus disease 2019 vaccine in excess. The results were consistent with results from the research which was done in Ethiopia where they found that 91.6% of the total respondents were aware about the risks of taking the second vaccine of coronavirus disease 2019 in excess (Adella, 2022)**.**

Table 4 shows that majority of the participants (85.1 %,) have heard about the third coronavirus disease 2019 vaccine. The result were inconsistent with the study carried out in UAE where more than half of the participants exhibited low levels of awareness on this subject, as just 44.6% of the participants were aware of the third vaccine of coronavirus disease 2019 (Jairoun et al, 2022). This might be due to the education status of the participants, having access to TVs, radios, awareness fliers concerning third coronavirus disease 2019 vaccine on billboards in Bindura urban.

In this study, it was found that less than half of participants (21.8%) were aware on the number of COVID-19 an individual is supposed to take and the rest were not aware. This is consistent with the study which was carried out in Oman on knowledge, attitudes, and practices toward the vaccine of COVID-19 where 45% of participants were aware that the vaccine would come in two

shots. (Al-Balushi et al, 2021). This because the disease is still new that vaccine is still invented so the numbers of vaccines an individual is supposed to take are changing any time and information will take time to be known by everyone.

From the study less than half (42.5%) of total participants were aware that everyone from the age of 5 can take the third coronavirus disease 2019 vaccine. The findings were higher than of the study which was carried out in Malaysia where 14.7% of participants correctly responded to the statement "Everyone, including children, can take the vaccination of COVID-19." (Mohamed et al, 2021)**.**

5.2 ATTITUDE TOWARDS THE THIRD CORONAVIRUS DISEASE 2019 VACCINE

From the study average attitude score was 54.3% which is fair .The results were lower than of the study which was carried out in Ethiopia and the other one in UAE with average attitude score of 79.7 % (Adella, 2022) and 70.2% respectively (Jairoun et al, 2022). The difference in the results might be due to the socioeconomic factors of participants from high, medium and low densities.

From the research 71.3% of total respondents were willing to receive the third coronavirus disease 2019 vaccine because they believed that it adds further protection to them against COVID-19. These results contradict with the research that was carried out in Iraq where 48.8% of the total respondents believed that the third vaccine of COVID-19 will not add any further protection against COVID-19 (Al-Qerem et al, 2022) The difference in the results might due to history of health the participants have i.e. having a chronic disease .

According to table 5, 59.8 % of the participants were willing to pay to take the third coronavirus disease 2019 vaccine and the rest were not willing to pay for them to get vaccinated. The results were consistent with, study conducted in Malaysia, where 70% of those sampled 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, this research shows that 57.7% of the participants were willing to receive the third coronavirus disease 2019 vaccine if they are to be paid $100 USD, and only 33.3% of participants mentioned that they do not need any payment for them to get vaccinated. This might be caused by financially unstable and they just want to take among the advantage of the vaccination program.

From the study 56 % believed that the effectiveness of the third coronavirus disease 2019 vaccine have been scientifically proven, 27.9% were not sure and 16.1 % said it is not scientifically verified .These results contradict with the research which was done in Iraq towards the third COVID-19 vaccine where 38.8% of participants believed that the third coronavirus disease 2019 vaccine have been scientifically proven (Al-Qerem et al, 2022) . The difference might be as a result of education status of participants and religion.

Table 5 revealed that 54.4% of the total participants answered positively on the question "I believe that first two doses of the COVID-19 vaccine give the safe protection" The results were consistent with the findings which was done among health professionals working at public health facilities in a low-Income country where 51.1% of respondents said the recently discovered that the second COVID-19 vaccine is safe so, they were willing to take the COVID 19 vaccines without any fear. (Sonmeza et al, 2022).

5.3 PRACTICES TOWARDS THE THIRD VACCINE OF CORONAVIRUS DISEASE 2019

According to table 6, the average practice score for participants was 59.3% which was quite fair. 65.5% of the total participants have received the third COVD-19 vaccine .The participants' reasons for taking the third vaccine of coronavirus disease 2019 were positive safety 44(50.6%) of the total participants, and 29.9 % mentioned that it was a job/school mandate to take the vaccines.9.2 % of participants didn't take the vaccine dose because of their church beliefs and others were not talking because of negative safety effects from the third vaccine.

Table 6 revealed that, 77.1% of the total participants promised to encourage their family, friends and relatives to receive the third coronavirus disease 2019 vaccine. In addition, 56.6% of the participants said they will take third vaccine of the coronavirus disease 2019 or any other additional coronavirus disease 2019 vaccine without any hesitation. The results were consistent with the findings from a cross-sectional community survey carried out in Bangladesh where 60% of total participants were unhesitatingly to receive the vaccine, and 66% would encourage their family or friends to do the same (Islam et al, 2021).

5.4 THE INFLUENCING FACTORS OF KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS THIRD VACCINE OF CORONAVIRUS DISEASE 2019

The factors influencing Covid-19 vaccination are complex and context-specific, and they differ depending on the time, gender and place (Adella, 2022). According to the study, the respondent's knowledge was quite fair, with a score of 56.7%. The respondents' attitude was also fair, with a score of 54.3%. The practice score was good, with a score of 59.3%.

In the study, factors influencing the KAP of third vaccine of COVID-19 were gender, highest education level, and residential location, employment status, having a chronic disease and received primary vaccines of coronavirus disease 2019 with a p-value less than 0.05. The findings from the study were consistent with a research that was conducted in Aseer region of KSA among patients visiting dental clinics gender, residency area, education, nationality, and occupation have significance association with the knowledge, attitude and hesitance towards third COVID -19 vaccine with $p<0.05$ (Abullais et al. 2022).

Table 7 revealed that males were 1.99 times more likely to have a good KAP score as compared to females. The difference might be due to increase in daily activity for males compared to females which exposes them to various information about the covid-19 pandemic. The residential location was also found to be statistically significant in association to higher good KAP scores. Respondents from low density and medium density were 1.89 and 0.94 respectively more times likely to have good scores than those from the high-density suburbs. This is explained by the fact that low density inhabitants have more information sources ranging from television, radios, social media because their suburbs will be connected with WIFI compared to those in the high-density suburbs. The results were similar to the study carried out among patients visiting dental clinics in Aseer region of KSA who found out that the distribution of knowledge levels (fair or good) was significantly higher among participants in urban areas than participants from rural areas (Abullais et al,2022).

From the study it was found that participants with chronic illness were1.06 times more likely to have good knowledge, attitudes and practices toward third COVID-19 vaccine. This results is consistent with the one carried out in Ethiopia where participants with prolonged illnesses were 2.142 times more likely than those without such conditions to have good knowledge of the second vaccine of COVID-19 (Adella, 2022).Furthermore, the odds of high good KAP score in

tertiary and secondary education were 20.29 and 5.1 (respectively) times more likely than those who went to primary school. This could be due to the ability of those who have higher education to comprehend and understand information as it comes as well as the ability to search for information.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

In summary, Bindura town residents demonstrated, fair knowledge, fair attitudes and fair practices towards the third coronavirus disease 2019 vaccine. The third vaccine of COVID-19 and KAP were substantially correlated with location, gender, and a positive COVID-19 test. Most of the male residents from the study were already received the third coronavirus disease 2019 vaccine. The overwhelming majority of those surveyed who had received the two primary vaccines of COVID-19 and those who had chronic diseases showed favorable attitudes regarding the third coronavirus disease 2019 vaccine. The majority of respondents expressed signs of some nervousness, doubt, and concern about what might happen to them in the future once they receive the third vaccine of COVID-19, despite having a fair understanding of and excellent habits around the vaccination. This clearly implicate the need to fill the knowledge gap in third coronavirus disease 2019 vaccine among Bindura town residents which may help them to increase their understanding to improve distribution of the vaccine to all targeted groups so as to reduce the spread rate of the disease.

6.2 RECOMMENDATIONS

To improve the knowledge ,attitudes and practices of Bindura urban residents towards third COVID-19, and to dispel all misconceptions regarding the third vaccine of COVID-19 they is need for:

Advanced public health education interventions and public sensitization awareness regarding the third COVID-19 vaccine,

Freely give residesnts the third COVID-19 vaccine and other vaccinations related pamphlets to read, for example at clinic as they wait for attendance to boost their knowledge on vaccination developments.

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APPENDICIES

APPENDIX 1: RESEARCH QUESTIONNAIRE

RESEARCH QUESTIONAIRE **:**(Knowledge, Attitude and Practices towards the third coronavirus disease 2019 vaccine)

My name is Svodai Musengi Registration Number B1953822 from the faculty of Agriculture and Environmental Science. I would like to conduct a study survey in Bindura high, medium and low density for my final year dissertation. The study is for learning purposes and seeks to assess the knowledge, attitudes, and practices towards the third coronavirus disease 2019 vaccines among residents in ward 4 and 6 (high density), ward 8 and 10(medium density),and Ward 1and 11(low density), in Bindura town. Your voluntary cooperation will be greatly appreciated if you can allow me to interview you based on this questionnaire. Feel free to answer, all ethical considerations were observed.

INSTRUCTIONS TO PARTICIPANTS

- *Tick on the appropriate answer and fill were ever possible.*
- *Do not write your name on any part of the paper.*

SECTION A: SOCIO- DEMOGRAPHICS CHARACTERISTICS

1. Age (years): 18-25 ☐ 26-33 ☐ 34-41 ☐ 42-49 ☐ 50 + ☐
2. Sex: Male ☐ Female ☐
3. Place of residence: Low density ☐ Medium density ☐ High density ☐
4. Relationship status: Married ☐ Divorced ☐ Single ☐
5. Household position Father ☐ Mother ☐ Son ☐ Daughter ☐
6. Highest Educational level: Primary ☐ Secondary ☐ Tertiary ☐
7. Employment: Unemployed ☐ Employed ☐

8. Medical background: Do you have any chronic diseases? Yes ☐ No ☐
9. Reason for taking COVID-19 vaccine?

……

10. I have taken the first two doses of the COVID-19 vaccine. Yes ☐ No ☐
11. Did you received the third COVID-19 vaccine booster dose? Yes☐ No ☐

	SECTION B: KNOWLEDGE ON THIRD CORONAVIRUS DISEASE VACCINE.	
Number	**Knowledge**	**Answers**
1.	Have you heard about the third coronavirus disease 2019 vaccine?	Yes ☐ No ☐
2.	How many vaccines is an individual supposed to take?	2 ☐ 3 ☐ 4 ☐ Don't know ☐
3.	Children from the age of 5 can take the third coronavirus disease 2019 vaccine?	Yes ☐ No ☐ Don't know ☐
4.	Taking overdose of third vaccine of coronavirus disease 2019 is very dangerous?	Yes ☐ No ☐ Don't know ☐
5.	Does the third coronavirus disease vaccine accelerate autoimmune illnesses?	Yes ☐ No ☐ Don't know ☐
6.	It is possible to get coronavirus disease 2019 after receiving the third coronavirus disease 2019 vaccine?	Yes ☐ No ☐ Don't know ☐
7.	If social distancing is practiced, third COVID-19 vaccine booster dose is not necessary?	Yes ☐ No ☐ Don't know ☐
8.	If social distancing is practiced, third coronavirus disease 2019 vaccine is not necessary?	Yes ☐ No ☐ Don't know ☐
9.	Besides receiving a coronavirus disease 2019	Yes ☐ No ☐ Don't know ☐

	vaccines, they are some ways to slow the spread of COVID-19.?	
10.	All recommended vaccines should be taken so as to boost the immune system against COVID-19.	Yes ☐ No ☐ Don't know ☐
	SECTION C ATTITUDES	
11.	Is it very unsafe for health taking third coronavirus disease 2019 vaccine?	Yes ☐ No ☐ Do not know ☐
12.	Does the third coronavirus disease 2019 vaccine increase allergic reactions?	Yes ☐ No ☐ Do not know ☐
13.	I believe that pharmaceutical companies make a lot of money through the third coronavirus disease 2019 vaccine?	Yes ☐ No ☐ Do not know ☐
14.	Does the first two doses of the coronavirus disease 2019 vaccine give the safe protection?	Yes ☐ No ☐ Do not know ☐
15.	Are you afraid of serious unknown long-term effects of the third coronavirus disease 2019 vaccine in the future?	Yes ☐ No ☐ Do not know ☐
16.	I believe that the newly third coronavirus disease vaccine booster dose is safe and effective.	Yes ☐ No ☐ Do not know ☐
17.	Third coronavirus disease 2019 vaccine will not add any further protection against COVID-19.	Yes ☐ No ☐ Do not know ☐
18.	Are you willing to be vaccinated against COVID-19 if you have to pay for the vaccine?	Yes ☐ No ☐ Do not know ☐
19.	It is my belief that if there is any available vaccine for the disease, it should be used.	Yes ☐ No ☐ Do not know ☐

20.	Are you willing to take the third coronavirus disease 2019 vaccine if you are to be paid $100 USD?	Yes ☐ No ☐ Do not know ☐
21.	I took the last dose a 1 year ago, so there will be no need to take the third vaccine of COVID-19 for at least a 5 years?	Yes ☐ No ☐ Do not know ☐
22.	The effectiveness of the third coronavirus disease 2019 vaccine dose have not been scientifically verified.	Yes ☐ No ☐ Do not know ☐
	SECTION D: PRACTICES	
23.	Have you received the third coronavirus disease vaccine?	Yes ☐ No ☐
24.	I will carry on maintaining social distance and sanitizing even after receiving the third coronavirus disease 2019 vaccine.	Yes ☐ No ☐
25.	I will only receive the third coronavirus disease vaccine to secure my job at the work place.	Yes ☐ No ☐
26.	I will only take third coronavirus disease 2019 vaccine so that l will be able to be able to travel.	Yes ☐ No ☐
27.	I will only take third coronavirus disease 2019 vaccine to please my friends and family.	Yes ☐ No ☐
28.	I will take third coronavirus disease 2019 vaccine or any other additional COVID-19 vaccine dose without any fear.	Yes ☐ No ☐
29.	I will encourage my family, friends and relatives to take the third coronavirus disease 2019 vaccine	Yes ☐ No ☐

	booster dose	