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KNOWLEDGE OF NURSING STUDENTS TOWARDS COVID-19 VACCINATION AT BISHOP STUART UNIVERSITY. A CROSS-SECTIONAL STUDY.

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ABSTRACT.

Background:
The study aims to document the Knowledge of Nursing students about COVID-19 vaccination at Bishop Stuart University.

Methods:
The study employed a cross-sectional design and used quantitative data collection techniques. The study was conducted among nursing students of Bishop Stuart University Ruharo campus. A simple random sampling method was used to choose participants and a sample size of 139 Respondents was selected for the study. The data collected from questionnaires was entered and analyzed using a statistical package for social scientists (SPSS).

Results:
The study had a higher percentage of female participants (64.0%) than male participants (36.0%). Anyone who scored over 75% was regarded as having excellent knowledge, one who received between 50% and 75% was seen as having good knowledge, and one who received less than 50% was regarded as having poor knowledge (below 3 questions correctly answered).
In regards to the vaccines used in Uganda, AstraZeneca was 123(88.5), Johnson 123(88.5), Moderna 111(79.9), Covaxin 10(7.2), and Pfizer 89(64.0). Regarding vaccine safety, those safe without side effects were 20(14.4), those safe with some side effects 101(72.2), and those not safe with obvious side effects 18(12.9)Participants who got infected with COVID-19 after vaccination were 127(91.4) and those who were not infected after the vaccination 12(8.6), those that were suffering from COVID-19 and yet they were vaccinated were 39(28.1) and those that were not vaccinated and yet suffered from COVID-19 100(71.9), Those that were vaccinated with a second different vaccine were 103(74.1) and those who were not 36(25.9)

Conclusion:
Most of the participants had strong awareness about COVID-19 vaccination.

Recommendation:
The government should also initiate a fight against negative information circulating on social and news media replacing it with correct and rightful information as far as COVID-19 vaccination is concerned.

Keywords: *Knowledge, COVID-19, Vaccination, Nursing students*
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BACKGROUND OF THE STUDY.

Coronavirus disease (COVID-19) is a highly contagious respiratory disease caused by a newly discovered coronavirus. The severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) which has proved to be a global burden was first discovered in late December 2019 in Wuhan city in China and the resultant spread of the infection, COVID-19, has had an intense effect across the world compared to any other infection in 21st century(Viswanath *et al*., 2021). Globally, as of June 7th, 2022, 532 million cases of coronavirus had been recorded with the United States (US) confirming around 16% of all global cases, while 6.3million deaths globally were

recorded with the US sharing 1 million deaths of the cases (Elflein, 2022)

The majority of the countries have been relying on a combination of non-pharmaceutical interventions like wearing face masks, social distancing, temporary closure of institutions, and herbal medicine which was not very effective (Ali et al., 2020). However, vaccination is the most important reliable public health measure and effective strategy to protect the population from COVID-19. Globally, 65.9% of the world population has received at least one dose of the COVID-19 vaccine of 11.88 billion doses that have been administered. Only 16.2% of people in low-income countries have received at least a single dose. In the African region, 17.3% of the total population is fully vaccinated for 579.7 million doses administered. In Sub-Saharan Africa, only 4% of the population had been fully vaccinated against COVID-19. In Uganda, only 22.6% of its total population is fully vaccinated against COVID-19 for 21.1 million doses that have been administered.

Following WHO recommendations, Uganda launched a COVID-19 vaccination program in March 2021 with the AstraZeneca vaccine which was provided free of charge among priority groups which included health workers and individuals who were at risk of severe COVID-19.

From the time when Vaccination was initiated in Uganda guided by the Ministry of Health, there has been less compliance including the people in the risk groups, and this was evidenced by the presence of a small number of people presenting for vaccination activities. Reports from the government of Uganda also indicate that there is a low uptake of the COVID-19 vaccine in the country, with only about 400,000 people vaccinated by May 2021. Past reports have demonstrated that citizens refused the vaccine, not because it has not been offered but because the most frequent reason for not being vaccinated was the held misconceptions about the vaccine's efficacy, potential side effects, and political propaganda.

According to Uganda's Ministry of Health, it was a requirement that to open the economy most especially the schools and higher institutions of learning, every student was to be vaccinated. However, low uptake of the COVID-19 vaccine has been recorded among higher institutions of learning in Uganda including medical students (Kanyike et al., 2021). Despite this low uptake of the COVID-19 vaccine, few studies have been done regarding this study aimed at documenting the Knowledge of Nursing students towards COVID-19 vaccination at Bishop Stuart University.

METHODOLOGY.

Study setting.

The study was carried out at Bishop Stuart University, which is situated in Kamukuzi Division, Mbarara City. The Christian University Bishop Stuart University's Ruharo campus offers a variety of programs, including bachelor's degrees in nursing science, nursing completion, nursing science diplomas, and nursing extension diplomas. Bishop Stuart University has a maximum enrollment of 250 students each academic year. Ruharo Mission Hospital and Mbarara Regional Referral Hospital are the two locations where nursing students at Bishop Stuart University can get the COVID-19 vaccine.

Study Design.

The study was cross-sectional in design and used quantitative data collection techniques. This design was chosen since it is quick and ensures that the data collection process is uninterrupted.

Study Population.

The study was conducted among nursing students of Bishop Stuart University Ruharo campus and recruited students doing the programs of BNS, BNC, DNE, and DNS in all years of study.

Sample Size.

The sample size was calculated using Taro Yamane's (1970) formula which states that

$$n = \frac{N}{1 + N(e)^2}$$

n= sample population

N=Total population/target population (214)

e= Desired margin of error (0.05)2

Thus $\frac{214}{1 + 214\ (0.05)2}$

= 139 Respondents were selected for the study.

Selection Criteria.

Inclusion Criteria.

The study included the university nursing students of Bishop Stuart University during the time of study who consented to participate.

Exclusion Criteria.

Those who were absent at the time of data collection.

Sampling Procedure.

A simple random sampling method was used to choose participants, the researcher chummed papers of the same size, color, and shape into a box, and participants who met the inclusion criteria were allowed to pick papers and those who picked yes were considered for the study until when the required sample was reached.

Data Collection Instrument.

A semi-structured questionnaire which was developed based on the literature review was used to collect data. The questionnaire consisted of three sections A, B, and C where section A contained the social demographic characteristics of the participant, section B contained individual factors for the COVID-19 vaccine Uptake, and C contained knowledge of nursing students towards COVID-19 vaccination.

Validity of the Instrument.

The study instrument was validated by checking for clarity, consistency, and coherence with the conceptual framework and objectives of the study and the statement of the problem by the research supervisor. The content validity index (CVI) was used in addition to the researchers' assessment. That is, the total numbers of valid items is di the total number of items.

$$\text{CVI} = \frac{\text{Number of relevant items}}{\text{Total number of items in the questionnaire}}$$

$$\text{CVI} = —$$

According to Kothari (2011), the research instrument is valid if the CVI is above 0.60. Since the overall CVI is ….. the research instrument is considered valid for the data collection.

Reliability of the Research Instrument.

To assess the usefulness and accuracy of the tool, the questionnaire was pretested on 10 research participants. Before beginning the real data collection, the tool underwent any necessary adjustments.

Data Collection Procedure

The approval letter was obtained from the head of the Department of Nursing Science at Bishop Stuart University for authorization. The purpose of the study was explained to the target group, and those who qualified for the study were individually interviewed using the self-administered questionnaire which they would fill out within 3 days. The questionnaires were then collected and kept by the researcher.

Data management.

After data collection, the questionnaires were kept safely and properly for privacy and confidentiality purposes. The questionnaires were kept in a locked box with a key and only the researcher was allowed to access them. No names were put on the questionnaires.

Data Analysis.

Data was entered into Excel and then exported to SPSS, coded and categorized into useful and relevant data, and exported for analysis. Data collected from questionnaires were entered and analyzed using a statistical package for social scientists (SPSS). Then tables, frequency, distribution, percentages, and graphs will be used where necessary to present results.

Ethical Considerations.

An approval letter was obtained from the head of the Department at Bishop Stuart University. Informed consent was obtained from willing Nursing students by signing the written consent first, the aims and objectives, and benefits of the study were explained to the respondents before filling out the questionnaire. Participants were free to withdraw their participation at any time during data collection. Confidentiality was ensured and respected throughout the study.

RESULTS.

The majority (36.0%) of the 138 participants who completed the surveys were between the ages of 21 and 23. The research study had a higher percentage of female participants (64.0%) than male participants (36.0%). The majority of participants (72.7%) were single. 48.2%, a significant portion, were Anglicans. BNS students made up the majority of the participants (61.2%). The majority (36.7%) were beginning their first year of study. According to Table 1, most of the participants (74.1%) resided in cities and the majority (65.5%) were unemployed.

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Table 1: Social demographic characteristics of the participants.

Variable	CATEGORY	N (%)
Age	(18-20) years	17(12.2)
	(21-23) years	50(36.0)
	(24-26) years	36(25.9)
	(27 and above) years	36(25.9)
Sex	Male	50(36.0)
	Female	89(64.0)
Marital status	Single	101(72.7)
	Married	36(25.9)
	Separated	2(1.4)
Religion	Anglican	67(48.2)
	SDA	5(3.6)
	roman catholic	40(28.8)
	Muslim	9(6.5)
	Pentecostal	18(12.9)
Program of study	DNS	6(4.3)
	DNE	10(7.2)
	BNS	85(61.2)
	BNC	38(27.3)
Year of Study	Year 1	51(36.7)
	Year 2	28(20.1)
	Year 3	41(29.5)
	Year 4	19(13.7)
Area of residence	Urban	103(74.1)
	Rural	36(25.9)
Employment status	Employed	48(34.5)
	Unemployed	91(65.5)

Uptake and factors influencing the uptake of the COVID-19 vaccine.

77.0% of the participants had received a COVID-19 vaccination, compared to 33.0% who had not. The desire to protect oneself (71.2%), the desire to protect friends and family (66.9%), the desire to travel freely within and abroad (51.1%), and compulsory in the workplace (11.5%) were reported by those who received the COVID-19 vaccine. Those who did not receive the COVID-19 vaccine cited the following reasons as barriers to vaccination: concern about the vaccine's side effects (18.7%), concern about its safety (15.8%), plan to wait and take it later (10.1%), lack of trust in the institutions that produce the vaccines (10.1%), and myths and conspiracy about the vaccines (15.1%).

Knowledge of Nursing students towards COVID-19 vaccination.

All of the participants (100%) had heard about the COVID-19 vaccination; the news media (74.1%) and social media (68.3%) were the most prevalent information sources. The majority of the participants (72.2%) believed the COVID-19 vaccine to be safe with minor adverse effects. The majority of participants (70.9%) stated that the vaccine is administered twice. AstraZeneca and Johnson & Johnson vaccines are most frequently used in Uganda (88.5% and 88.5%, respectively). 87.7% of participants were aware that the COVID-19 vaccine offers protection against COVID-19, and 99.3% were aware that the vaccine is administered intravenously. 38.1% of individuals were unaware that the COVID-19 vaccines use inactivated coronavirus, compared to 54.7% of participants. 91.4% of participants believed that one can be infected with COVID-19 even when he/she is vaccinated. 71.9% of the participants knew that one can be vaccinated against COVID-19 while suffering from it (COVID-19) 74.1% of the participants believed that one can be vaccinated with a second different vaccine. Generally, the majority of the participants (77.0%) had good knowledge about COVID-19 vaccination, 19.4% had excellent knowledge, and 3.6% of the participants had poor knowledge.

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Table 2: Showing Knowledge of Nursing students towards COVID-19 vaccination.

Variable	Options	N (%)
Heard about COVID-19 Vaccination	yes	139(100)
Source of information	social media	95(68.3)
	religious leaders	54(38.8)
	Word of mouth	64(46.0)
	News media	103(74.1)
	Official websites	33(23.7)
Vaccine safety	safe without side effects	20(14.4)
	safe with some side effects	101(72.2)
	not safe with obvious side effects	18(12.9)
Doses	1 dose	85(61.2)
	2 doses	111(79.9)
	3 doses	57(41.0)
Vaccines used in Uganda	Astrazeneca	123(88.5)
	Johnson Johnson	123(88.5)
	Moderna	111(79.9)
	Covaxin	10(7.2)
	Pfizer	89(64.0)
Protection.	yes	121(87.1)
	No	18(12.9)
The COVID-19 vaccine was given via injection.	Yes	138(99.3)
	No	1(0.7)
The COVID-19 vaccines use inactivated coronavirus	Yes	76(54.7)
	No	10(7.2)
	Don't know	53(38.1)
Infected with COVID-19 after vaccination	yes	127(91.4)
	No	12(8.6)
Vaccinated while suffering from COVID-19	yes	39(28.1)
	No	100(71.9)
Vaccinated with a second different vaccine	Yes	103(74.1)
	no	36(25.9)

The total level of knowledge of study participants.

The knowledge of the participants was evaluated using a total of 8 questions, which were scored and then translated into frequencies and percentages. Anyone who scored over 75% was regarded as having excellent knowledge (6 questions and above correctly answered). One who received between 50% and 75% was seen as having good knowledge (four or five questions correctly answered), and one who received less than 50% was regarded as having poor knowledge (below 3 questions correctly answered).

Table 3 shows the total level of knowledge of the study participants.

Knowledge levels	Knowledge scores	N (%)
Poor	<50%	5(3.6)
Good	50-75%	107(77.0)
Excellent	>75%	27(19.4)

Relationship between Knowledge and Socio-demographic variables of Nursing students towards COVID-19 vaccination.

The study results indicated significant relationships between the program of study x^2(df=6) =26.913 p value=0.000, year of study x^2(df=6) =14.186 p value=0.002 with knowledge levels. Prevalence and knowledge levels were also compared and the results indicated a significant relationship x^2(df=) =1.129 p value=0.004. A p-value of >0.05 was considered to be significant.

Table 4: showing the relationship between knowledge and socio-demographic variables of nursing students toward COVID-19 vaccination.

Variable	Categories	Knowledge Score			X^2	df	P value
		Poor	Good	Excellent			
Programme of Study	DNS	0(0.0)	6(5.6)	0(0.00)	26.913	6	0.000
	DNE	3(60.0)	7(6.5)	0(0.00)			
	BNS	2(40.0)	67(62.5)	16(59.3)			
	BNC	0(0.00)	27(25.2)	11(40.7)			
Year of Study	year 1	3(60.0)	46(43.0)	2(7.4)	14.186	6	0.002
	year 2	1(20.0)	18(16.8)	9(33.3)			
	year 3	1(20.0)	30(28.0)	10(37.0)			
	year 4	0(0.00)	13(12.1)	6(22.2)			
Employment Status	Employment	2(40.0)	36(33.6)	10(37.0)	0.178	2	0.915
	unemployed	3(60.0)	71(66.4)	17(63.0)			
Vaccinated	Yes	3(60.0)	82(76.6)	22(81.5)	1.129		0.004
	No	2(40.0)	25(23.4)	5(18.5)			

DISCUSSION.

Knowledge of Nursing students towards COVID-19 vaccination.

The majority of the participants in this survey have a strong awareness of the COVID-19 vaccination, according to the study's findings. They get access to all the information about COVID-19 through posters in the hospitals and campus areas because they are nursing students and are among the health workers who were given priority during the launch of the COVID-19 immunization. The study plan and academic year were the key variables affecting their awareness of the COVID-19 vaccine. These findings were consistent with a study on COVID-19 knowledge, beliefs, and vaccination acceptance among high-risk individuals in Ho Chi Minh City, which found that overall, understanding of COVID-19 was rated as being relatively excellent (Nguyen DD et al., 2021). The results were slightly lower and different from those of the study done in China on Nursing students' attitudes, knowledge, and willingness to receive the COVID-19 vaccine where a small percentage of the respondents knew the COVID-19 vaccine. The main factors which were influencing knowledge were gender, academic background, and grade (Jiang et al., 2021). These results were also slightly higher than those of the study which was done on Public Knowledge, Attitude, and Perception towards COVID-19 Vaccination in Saudi Arabia which showed that 76% of the participants had satisfactory knowledge of the COVID-19 vaccine (Salman et al., 2021).

The results of this study showed that all the participants had ever heard about COVID-19 vaccination which is higher than that of the study done on Knowledge, attitude, and practice towards COVID-19 vaccination acceptance in West India where only a small number of the respondents were aware of The COVID-19 vaccine, with the rest either believing that it did not exist, or they didn't know about it. (Kumar et al., 2021). It was also slightly higher than that of the study done in Nigeria about COVID-19 vaccine hesitancy among staff and students in a Nigerian tertiary educational institution survey whereby the majority of the participants were aware of COVID-19 vaccination (Esimone et al., 2021).

This study also revealed that news media and social media were the primary information sources for COVID-19 vaccination information. This was because they possess smartphones and other electronic devices that allow them to access advertisements for the COVID-19 vaccine. These outcomes are better than those of a study conducted in Bangladesh on knowledge, attitudes, and views on the COVID-19 vaccination, which relied more on mass media, the internet, social media, and newspapers (Islam et al., 2021). However, these findings were consistent with a study on COVID-19 knowledge, beliefs, and vaccination acceptance among high-risk individuals in Ho Chi Minh City, where the majority of the identified knowledge sources were television and social media (Nguyen DD et al., 2021).

In this study, a few of the participants believed that one can be vaccinated while suffering from COVID-19 while the majority denied it which is higher than that in a study done on the COVID-19 vaccine hesitancy among staff and students in a Nigerian tertiary educational institution. (Ugochukwu, I. C., et al., 2021).

Most participants in this study thought the vaccine was safe with some side effects. This is because they have a sufficient understanding of the COVID-19 vaccine, as evidenced by the higher percentage of participants who held this opinion compared to the study on knowledge, attitudes, and practices regarding the COVID-19 vaccine in Oman, which only included participants from Oman (Islam, M.S., et l.,2021).

RECOMMENDATIONS.

The government should also initiate a fight against negative information circulating on social and news media replacing it with correct and rightful information as far as COVID-19 vaccination is concerned.

STRENGTH.

Participants had equal chances of participation hence no biased information. Sampled participants were representative of the study population. Quantitative research methods were employed, and data were analyzed using appropriate statistical tests to minimize errors.

ACKNOWLEDGMENT.

I humbly thank the Almighty God for the blessings, protection, guidance, and knowledge He has given me since the first day of this journey.

I want to sincerely thank my Mum and Aunt for always being there for me. May God continue to bless them richly.

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CONFLICT OF INTEREST.

The author declares no competing interests.

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