Innovations

Knowledge, Attitude and Perception of Senior Citizens (A2 Group)Towards Effectivity of COVID-19 Vaccines

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Received: 28 February 2022 **Accepted:** 8 March 2022 **Published:** 31 March 2022

Abstract

Vaccination has been practiced for so many years to weaken the possible effects of infectious diseases and to provide strong immunity to fight against those diseases. As the country experiences the massive effects of the COVID-19, specifically the health system, and vaccines are not accepted by some people, this study assessed the senior citizens' (A2 Group) knowledge, attitude, and perception (KAP) towards effectiveness of COVID-19 vaccines for senior citizens are the vulnerable ones in terms of this disease. The survey was conducted to 50 senior citizens through phone calls, messenger and google form in different streets/zones in Brgy. Daan Sarile, Cabanatuan City, Nueva Ecija. This was analyzed through descriptive-correlational analysis method. Out of all the respondents, 10% refused to get vaccinated but majority (80% or 40) of the respondents are vaccinated, where 44% of them were encouraged by social health-workers. For sources of information, 34% of the participants answered that they get COVID-19 vaccines related information from both media and relatives and they perceived interpersonal sources are very accurate source with mean average of 4.64. With the assessment for knowledge, 68% of the respondents are knowledgeable and 32% are not that knowledgeable about COVID-19 information. Out of 100% participants, 90% of the senior citizen respondents has a positive acceptance and attitude towards COVID-19 vaccines and poorly 10% identified as otherwise.Findings also revealed that respondents' perceived accurateness on digital media (e.g., social media platforms, websites, etc) and educational attainment are significantly associated. Also, respondents with lower education finds the digital media as accurate source of information about COVID-19. Moreover, results shows that respondents' marital status is significantly associated with their knowledge and perception on COVID-19 ($p<0.05$). It also shows that household size is also significantly associated ($p<0.025$) with the perception on COVID-19 vaccines. With this, the study found that majority of senior citizen are more likely willing to be vaccinated than to reject the immunization and has a high rate of positive acceptance towards COVID-19 vaccines.

Keywords: *1.COVID-19 vaccine, 2. knowledge, 3.Attitude and perception,4. A2 Group, 5.senior citizens, 6. COVID-19.*

Introduction

Vaccination has been practiced for so many years to weaken the possible effects of infectious diseases and to provide strong immunity to fight against those diseases. However, since there is an unsure method to ease the existing globally pandemic disease, different vaccines have been tested from different laboratories. According to the "Centers for Disease Control and Prevention" (2012), vaccines have the same germs that cause the disease. For example, the measles vaccine contains the measles virus, and the HIV vaccine contains HIV bacteria. But these germs help either kill or weaken the disease in someone's body. It also helps boost a person's immune system, that helps fight against pathogens that are a source of disease and infection. Additionally, after getting vaccinated, one developsa strong immune system to fight against the disease, including COVID-19 without getting the disease first.

As such, different vaccines for COVID1-9have passed testing in clinical laboratories. Some of these popular vaccines are; Astrazeneca developed by the University of Oxford, Sinovac from China, Pfizer, Janssen/Johnson & Johnson, and Moderna developed by the United States America. These vaccines have been allocated to different countries with limited uses and these vaccines work for the immunity to the virus. Some might also be able to stop transmission of the virus.

According to the past study Vaccination perception and coverage among healthcare students in France (2019), vaccines were perceived as unsafe despite the positive preliminary results vaccines for infants to fight against measles and other 11 diseases in France (2018). Some mothers refused to take vaccines while others are favored the use of vaccines. The study highlighted the increasing number in vaccine hesitancy, which affects a large number of the population, especially children.

In times of difficulties because of COVID-19, a lot of people use different resources to get information to increase their knowledge, and to mold their attitude and probable perception. These include interpersonal connection such as families/relatives, friends, neighbors, digital media platforms such as Facebook, Youtube, Tiktok, etc.,as well as traditional media like television, radio and newspaper. They also listen to input by public servant including health care workers, scientists and assistance by the government, LGU'S, etc.

However, misinformation and misconception are often brought by different platforms especially associated with popular and common digital media platforms such as Facebook. For example, there had been much misinformation about the drug hydroxychloroquine to be used as a potential treatment for the COVID-19, which caused a shortage of that drug for those who actually needed them.

Information has the possibility to shape individual's acceptance and refusal of COVID-19 vaccines it affects individual's attitude and perception and therefore contributes to knowledge. The more that the respondents exposed to different sources of proper information regardingCOVID-19, the more information respondents can get. Moreover, it is critical and complex to spread accurate and transparent information about vaccines' safety and efficacy to acquire trust among individuals (El-Elimat et.al,2021). Therefore, the respondents trusted source of information and gaining an understanding through these sources are precarious for the success of any upcoming national vaccination campaign.

Akin to this, according to Smith (2014), seniors are the late adopters in technology compared to younger generations, who woke up in the era of technology and electronic gadgets. However, according to the Pew Research Center, the senior's digital life continues to develop and thus eases the technological barrier. The role of communication in spreading information specifically on vaccines in this time of COVID-19, has a lot of influence. Different factors may cause variances in the decision-making of a person, including scientific and emotional aspects.

Therefore, communication contributes as a powerful medium and tool in reinforcing information, addressing public health issues, and educating people about vaccines. Communication is able to reveal the truth along with misconceptions and misinformation. It also determines the strength of an argument and influences probable outcomes.

As the country experiences the massive effects of the COVID-19, specifically the health system, and vaccines are not accepted by some people, this study will assess the senior citizens' knowledge, attitude, and perception (A2 Group) towards effectiveness of COVID-19 vaccines for they are the vulnerable ones in terms of this disease. In addition, this study focuses on the factors affecting their decision to get vaccinated or not.

Objectives of the Study

Generally, this study aims to assess and measure senior citizens' (A2 group) knowledge, perception, and attitude towards effectiveness of COVID-19 vaccines. Specifically, it seeks to:

1. describe the socio-demographic profile of the respondents;
2. describe the respondents' source on information on COVID-19 vaccines and their perceived accurateness of the information;
3. describe the perception, knowledge, and attitude toward the COVID-19 vaccines of the respondents;
4. determine if there is a relationship between the respondents' socio-demographic profile and perceived accurateness of information from each source; and perception, knowledge, and attitude toward the COVID-19 vaccines of the respondents;
5. determine if there is a relationship between the respondents' preferred source of information about COVID-19 vaccines and their perception, knowledge, and attitude toward the COVID 19 vaccines.

Methodology

Respondents and Sampling Procedure

The focus and scope of this study is bound only to the residents of Brgy. Daan Sarile, Cabanatuan Nueva Ecija Philippines. A total of 50 samples served as the respondents of the study and purposive-sampling technique was applied. Specifically, 5 streetswere selected randomly and 10 respondents in each purok served as the samples. This was done through email, phone call, messenger, and with the help of barangay staff, the barangay secretary and the social worker.

Research Design and Instrument

The researcher used descriptive analysis and quantitative design of study in collecting data. Initially, pre-testing of questionnaire was done and resulted a Cronbach's alpha of 0.768. The alpha reliability was calculated from the 16-item questions with a five-point Likert scale. The reliabilities for all measures exceeded the critical value of 0.70, signifying that the entire measure is highly reliable.

Moreover, some statements of the questionnaire were based on the study by Islam, M.S (2021). The participants were made to accomplish a consent form that gave them an overview about the study being conducted.

Procedure for Data Analysis

The study used thedescriptive-correlational analysis method. Specifically, the data gathered were encoded and organized using MS Excel and were summarized using Statistical Package for Social Sciences (SPSS).

Results

Socio-Demographic Profile of the Respondents

Table 1 shows that most of the respondents are 71-75 years old, 42% of the total respondents. Also, 60-65 years old were 20% of the respondents, and 66–70 years old were26%. Among of the participants, 27 (54%) were female and 23 were (46%) males. 40% of the participants were married and widowed; 10% were single and 8% were separated.

Also, 76% of the total respondents had more than four people as their household size and 24% had four and below people in their household. For educational attainment, 38% were elementary undergraduate and 30% were elementary graduate. Also, 10% were high school graduates and 10% were college graduates.

Vaccinated Respondents with Proportion of Individuals that Encourage Them

As shown in figure 1, out of all the respondents, 10% answered 'No' and refused to get vaccinated but majority (90% or 40) of the respondents answered 'Yes' and are vaccinated. Out of the total respondents, with 44% were encouraged by social health-workers to get vaccinated, 38% decided by them selves and the 18% were encouraged by their relatives and other family members.

Sources of Information on COVID-19 Vaccines

As revealed in Table 2, most of the respondent's source of information on COVID-19 vaccines was their family and watching television with 100%. It was followed by neighbors with 60%, 26% on their friends, 18% of the respondents answered they get information on radio and only 14% answered social networking sites.

Preferred Source of Information

Figure 2 shows the graphic illustration of percentage among individuals preferred source of information. 34% of the participants answered that they get COVID-19 vaccines and information from both media and relatives. Majority came from interpersonal decision such as; family members, friends and relatives 52% and less than 14% brought by media.

This may be caused by experiencing technical difficulties in accessing information online due to poor internet connection, power interruption, and lack of enough knowledge on using the gadget and social media platforms (Beltran et. al, 2021)

Perceived Accurateness of Information Received on COVID-19

The respondents perceived accurateness of information as follows:40 or 80% of the respondents with the mean average of 4.64 answered that interpersonal sources are very accurate. In digital media platforms, 41 or 82% of the respondents with mean average of 1.32 answered digital media platforms as very inaccurate. 23 or 46% of the respondents found traditional, media platforms as a very accurate as source of information. This is presented in Table 3.

According to (Lee et.al,) personnel who have training grounded in health studies should acknowledge that health communication is vigorous process hence, it shapes the person's cognitive and psychological factors. (Loeb et.al, 2021) found and stated that social media has

continued to be the source of misinformation regarding the spread of COVID-19 information. Quite a lot of authors have scrutinized how social media platforms affect the respondent's vaccine hesitancy s by choosing to believe personal narratives over realistic data and connecting anti-vaccination themes to broader belief systems of freedom of choice.

Knowledge, attitude and perception towards COVID-19 vaccines

As shown in table 4, 68% of the respondents are knowledgeable and 32% are not that knowledgeable. Out of five statements in the knowledge section, the only statement with poor score is the statement *"Covid-19 vaccination may protect other people who do not receive vaccine"* with 17 or 34% answers shows that respondents are knowledgeable to determine the purpose of COVID-19 vaccines.

Out of 100% participants, 90% of the senior citizen respondents has a positive acceptance and attitude towards COVID-19 vaccines and poorly 10% identified as otherwise. According to the survey, 48% of the respondents answered true about their perception on COVID-19 vaccines majority of the respondents with 52% answers false to the statements on their perceptions towards COVID-19 vaccines.

According to (Mohamed et. al, 2021) the accomplishment of any vaccination or immunization program depends upon the acceptance and behavior of the respondents and the agreement level between accepting or rejecting vaccination programs.

Assessing the respondent's knowledge towards COVID-19 vaccines, five out of five statements answered correctly. Respondents seemed knowledgeable about the information of COVID-19 vaccines. In the statements *(1.Covid-19 vaccines use inactivated corona virus as the antigen 21 or 42% correctly agree with M = 4.060), (2. Covid-19 stimulates body to produce anti-body T-cells and memory cells to combat Covid-19 21 or 42% correctly agree with M = 3.980), (3. Covid-19 vaccines protect the receiver from getting Covid-19 infection 19 or 38% are agree about the statement), (4. Covid-19 vaccination may protect other people who do not receive vaccines 17 or 34% identified as neither agree or disagree about the accurateness of the statement), (5. Vaccine production involves animal study, 3 phases of clinical trials that cover thousands of people and evaluated by the authority to ensure the vaccine effectively and safety 22 or 44% agree with M = 3.840)* answers were collected are close to the high score of (4.20-5.00) specifically strongly agree about the statements. (See table 4.1)

For respondent's attitude towards getting vaccinated with COVID-19, five statements were created and out of six statement, statement one get the highest correct answer *"I want to be vaccinated because it will protect me from getting infected"* 42 or 84% strongly agree with M = 4.660. (See table 4.2)

Out of the total respondents, 38 or 76% with M = 4.580 answered that they are willing to be vaccinated because they believe vaccination is safe. While, 28 or 56% answered with the M = 4.320, decided to take vaccine without hesitation. However, 35 or 70% with M = 4.480 still and are willing to be vaccinated even there are negative information about COVID-19 vaccines. Thus, 24 or 48% strongly agree with M = 4.120 of the respondents answer that they prefer vaccine rather than natural immunity. Nonetheless, the 37 or 74% answer strongly agree with M=4.57 says that they will recommend to their family/friends/ relatives to be vaccinated. (See table 4.3)

According to Nwagbara et.al, Evaluating and weighing the KAP regarding to COVID-19 pandemic to the public mass would be helpful to address public health issues and to provide better understanding especially individuals with poor-access to information related to the disease and the development of preventive strategies and health promotion programs (Azlan et.al,).

Relationship between the Socio-Demographic Profile and Perceived Accurateness of Information about COVID-19 Vaccines

According to table 5, respondents' perceived accurateness on digital media (e.g., social media platforms, websites, etc) and educational attainment are significantly associated. Using Spearman rank correlation, educational attainment was ranked from 1 being the highest level of education to 6 referring to a primary education; while perceived accurateness was in a 5-point liker scale. Results showed that there is a positive relationship between the two educational attainment and the perception variables. This indicates that respondents with lower education find the digital media (e.g., social media platforms, websites, etc) as an accurate source of information about COVID-19.

Relationship between the Respondents' Socio-Demographic Profile and KAP on COVID-19 Vaccines

Table 6 shows the correlation analysis between the respondents' socio-demographic profile and KAP on COVID-19 vaccines. Results shows that respondents' marital status is significantly associated with their knowledge and perception on COVID-19 ($p<0.05$). Moreover, it shows that household size is also significantly associated ($p<0.025$) with the perception on COVID-19 vaccines.

According to WAKE A.D (2020) different studies from different countries show different relationships between the respondents' socio-demographic characteristics and significant connection related to COVID-19 vaccines. In China, studies show that knowledge was significantly different across genders, age-groups, categories of marital status, education levels, and residence. in Bangladesh, knowledge was also significantly diverged across age, gender, education levels, residences, income groups, and marital status. Additionally, in Tanzania, studies showed that education level was significantly associated with good knowledge.

Relationship between the respondents' preferred source of information about COVID-19 vaccines and KAP on COVID-19 vaccines

Table 7 shows the correlation analysis between the respondents' preferred source of information about COVID-19 vaccines and KAP on COVID-19 vaccines. Results shows that there is no significant relationship between the respondents' preferred source of information about COVID-19 vaccines and KAP on COVID-19 vaccines.

According to (Mohamed et.al, 2021) misconception and misinformation has already existed in the digital media platforms specially in social media even before COVID-19 and during the occurrence of the globally pandemic disease. Information on COVID-19 vaccines have been around the social media, repeatedly shared with different rumors without empirical evidence. Hence, the use of mRNA genetic material in several vaccines have been sensationalized by some, with the false claims that the vaccine can alter human DNA. Additionally, the rapid development of COVID-19 vaccines has reportedly raised concerns regarding the safety and long-term effects, even among the medical staff.

Information has the possibility to shape individual's acceptance and refusal of COVID-19 vaccines. It affects the individual's attitude and perception and therefore contributes to knowledge.The more that the respondents are exposed to different sources of information regarding to the COVID-19, the higher information that the respondents can get. Moreover, it is critical and complex to spread accurate and transparent information about vaccines' safety and efficacy to acquire trust among individuals (El-Elimat et.al,2021). Therefore, the respondents' trusted source of information and gaining an understanding through these sources, is precarious for the success of any upcoming national vaccination campaign.

Conclusion

In conclusion, the study found that majority of senior citizen in residents of Brgy. Daan Sarile, Cabanatuan is more likely willing to be vaccinated than to reject the immunization. With this, Brgy. Daan Sarile senior citizens has a high rate of positive acceptance towards COVID-19 vaccines.

Also, the paper shows that the source of information plays an important role in dissemination of information especially in times of globally pandemic disease and addressing public health precautionary. Relevant and accurateness of source has a big part of individual's life to clearly define who they trust and have a comprehensive understanding about the information being laid down.

This study also reflects that having high-level of knowledge, positive attitude and good perception of COVID-19 vaccination leads to active participation of the community to embattle the COVID-19 through vaccination which can mitigate the situation of the pandemic.

Recommendations

After a comprehensive study of data, the following recommendations are hereby made:

1. This study suggests that government, health institutions and media practitioners should intensively provide and promote a widespread awareness about laying down COVID-19 vaccines and relevant information. Because according to this study, most of the respondents trusted source of information are interpersonal connection and media platforms.
2. There is a need to expand vaccine uptake in response to the COVID-19 pandemic, health education and communication from authoritative sources should be disseminated for the people to have enough knowledge, positive attitude and perception to reduce the vaccine hesitancy.
3. LGU's and trusted members of the family should take accountable actions and transparent communication about how COVID-19 vaccines works.
4. Future researcher may focus onj the

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Table 1 to 7

Table 1. ***Socio-demographic profile of the respondents***

Profile	Frequency	Percentage
Age		
60-65	10	20.00
66-70	13	26.00
71-75	21	42.00
more than 75	6	12.00
Mean	*70.34*	
SD	*5.15*	
Sex		
Female	27	54.00
Male	23	46.00
Marital status		
Married	20	40.00
Single	5	10.00
Common-law	1	2.00
Widowed	20	40.00
Separated	4	8.00
Household Size		
4 and below	12	24.00
more than 4	38	76.00

Mean	*5.10*	
SD	*1.07*	
Educational attainment		
college graduate	4	8.00
college undergraduate	5	10.00
high school graduate	5	10.00
high school undergraduate	2	4.00
elementary graduate	15	30.00
elementary undergraduate	19	38.00

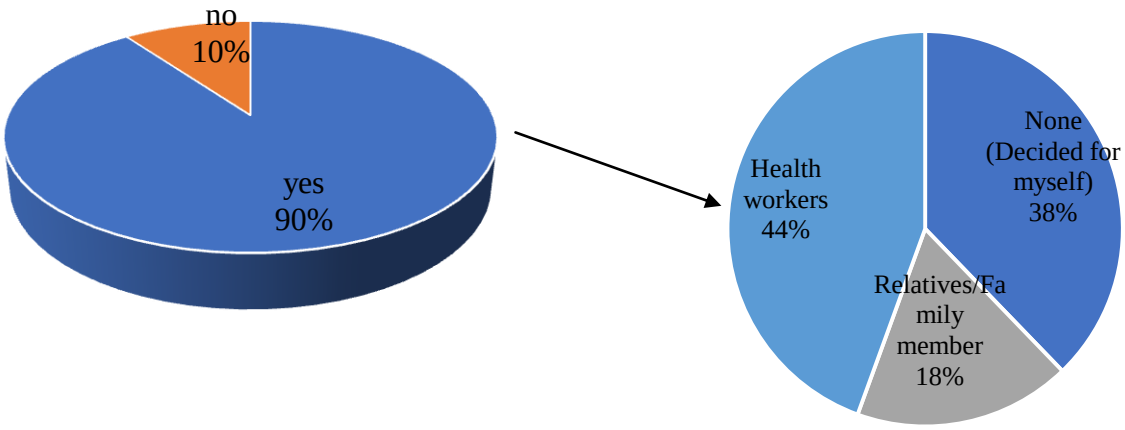

Figure 1. ***Distribution of vaccinated respondents with proportion of individuals that encourage them***

Table 2. ***Distribution of respondents' source of information on COVID-19 vaccines***

Source	Frequency	Percentage
Family	50	100.00
Friends	13	26.00
Neighbors	30	60.00
Television	50	100.00
Radio	9	18.00
Social networking sites	7	14.00

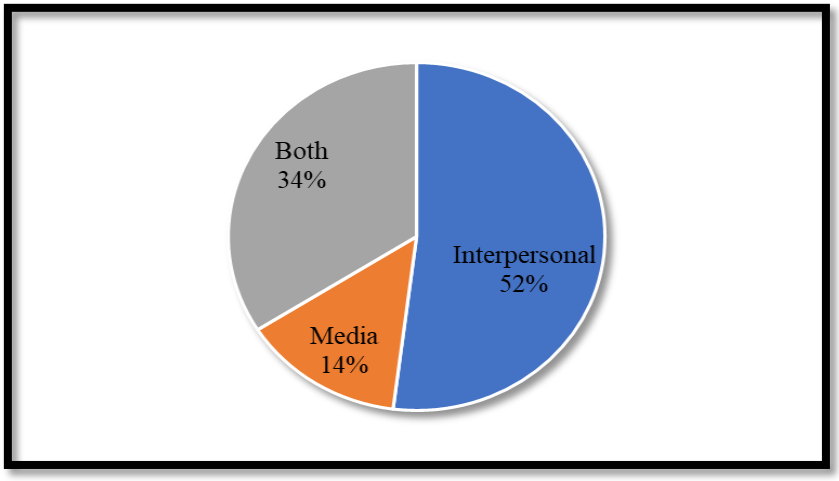

Figure 2. ***Respondents' preferred source of information on COVID-19 vaccines***

Table 3. ***Percentage of perceived accurateness of information received about COVID-19***

Particulars	very accurate	Accurate	neither inaccurate nor accurate	inaccurate	very inaccurate	Mean	remarks
	n (%)	n (%)	n (%)	n (%)	n (%)		
Interpersonal	40 (80)	6 (12)	2 (4)	0 (0)	2 (4)	4.64	very accurate
Digital media platforms	1 (2)	2 (4)	0 (0)	6 (12)	41 (82)	1.32	very inaccurate
Traditional media platforms	23 (46)	7 (14)	16 (32)	3 (6)	1 (2)	3.96	accurate

Note: 1.00-1.79 very inaccurate, 1.80-2.59 inaccurate, 2.60-3.39 Neither, 3.40-4.19 accurate, 4.20-5.00 very

Table 3.1. ***Respondents' perceived accurateness of the information about COVID-19 vaccines on different sources of information***

Particulars	very accurate	accurate	neither inaccurate nor accurate	inaccurate	very inaccurate	mean	remarks
	n (%)	n (%)	n (%)	n (%)	n (%)		
Interpersonal							

Family	43 (86)	5 (10)	0 (0)	0 (0)	2 (4)	4.74	very accurate
Friends	24 (48)	22 (44)	2 (4)	0 (0)	2 (4)	4.32	very accurate
Neighbors	22 (44)	18 (36)	7 (14)	1 (2)	2 (4)	4.14	accurate
Digital media platforms							
Facebook	6 (12)	1 (2)	15 (30)	12 (24)	16 (32)	2.38	Inaccurate
Tiktok	0 (0)	1 (2)	1 (2)	1 (2)	47 (94)	1.12	very inaccurate
YouTube	1 (2)	2 (4)	0 (0)	2 (4)	45 (90)	1.24	very inaccurate
Traditional media platforms							
TV	44 (88)	3 (6)	1 (2)	0 (0)	2 (4)	4.74	very accurate
Radio	20 (40)	5 (10)	3 (6)	3 (6)	19 (38)	3.08	Neither

Note: 1.00-1.79 very inaccurate, 1.80-2.59 inaccurate, 2.60-3.39 Neither, 3.40-4.19 accurate, 4.20-5.00 very accurate

Table 4. ***Percentage of respondents that are knowledgeable and have a positive attitude and perception towards COVID-19 vaccines***

	Knowledgeable / Positive attitude and perception	Otherwise	Total
Knowledge	68.00	32.00	100.00
Attitude	90.00	10.00	100.00
Perception	48.00	52.00	100.00

Table 4.1. ***Respondents' knowledge of COVID-19 vaccines***

Particulars	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	mean	remarks
	n (%)	n (%)	n (%)	n (%)	n (%)		
1. Covid-19 vaccines use inactivated coronavirus as the antigen	21 (42)	18 (36)	7 (14)	1 (2)	3 (6)	4.060	Agree
2. Covid-19 stimulates	21 (42)	12 (24)	14 (28)	1 (2)	2 (4)	3.980	Agree

	body to produce anti-body T-cells and memory cells to combat Covid-19						
3.	Covid-19 vaccines protect the receiver from getting Covid-19 infection	20 (40)	19 (38)	4 (8)	3 (6)	4 (8)	3.960	Agree
4.	Covid-19 vaccination may protect other people who do not receive vaccine	10 (20)	7 (14)	5 (10)	17 (34)	11 (22)	2.760	Neither
5.	Vaccine production involves animal study, 3 phases of clinical trials that cover thousands of people and evaluated by the authority to ensure the vaccine effectively and safety.	22 (44)	10 (20)	11 (22)	2 (4)	5 (10)	3.840	Agree

Note: 1.00-1.79 Strongly disagree, 1.80-2.59 Disagree, 2.60-3.39 Neither, 3.40-4.19 Agree, 4.20-5.00 Strongly agree

Table 4.2. ***Respondents' attitude towards getting vaccinated with COVID-19 vaccines***

Particulars	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	mean	remarks
	n (%)	n (%)	n (%)	n (%)	n (%)		
1. I want to be vaccinated because it will protect me from getting infected	42 (84)	4 (8)	1 (2)	1 (2)	2 (4)	4.660	Strongly Agree
2. I am willing to be vaccinated because it is safe	38 (76)	8 (16)	1 (2)	1 (2)	2 (4)	4.580	Strongly Agree
3. I want to be vaccinated without hesitation	28 (56)	16 (32)	2 (4)	2 (4)	2 (4)	4.320	Strongly Agree
4. I want to be vaccinated though there are negative information about COVID-19 vaccines	35 (70)	9 (18)	3 (6)	1 (2)	2 (4)	4.480	Strongly Agree
5. I prefer vaccine rather than natural immunity	24 (48)	13 (26)	10 (20)	1 (2)	2 (4)	4.120	Agree
6. I will recommend to my family/friends/ relatives to get vaccinated	37 (74)	8 (16)	1 (2)	1 (2)	2 (4)	4.57	Strongly Agree

Note: 1.00-1.79 Strongly disagree, 1.80-2.59 Disagree, 2.60-3.39 Neither, 3.40-4.19 Agree, 4.20-5.00 Strongly agree

Table 4.3. ***Respondents' perception in effects of COVID-19 vaccines***

Perceptions	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	mean	remarks
	n (%)	n (%)	n (%)	n (%)	n (%)		
1. Covid-19 vaccines have extreme side effects.	11 (22)	10 (20)	8 (16)	14 (28)	7 (14)	3.080	Neither
2. The covid-19 vaccines cause death to others.	7 (14)	11 (22)	15 (30)	14 (28)	3 (6)	3.100	Neither
3. The covid vaccine could give you the virus.	4 (8)	8 (16)	11 (22)	23 (46)	4 (8)	2.700	Neither
4. The covid vaccine can protect you from the virus for lifetime.	6 (12)	11 (22)	6 (12)	16 (32)	11 (22)	2.700	Neither
5. The covid vaccine can give you other diseases	6 (12)	9 (18)	7 (14)	17 (34)	11 (22)	2.640	Neither

Note: 1.00-1.79 Strongly disagree, 1.80-2.59 Disagree, 2.60-3.39 Neither, 3.40-4.19 Agree, 4.20-5.00 Strongly agree

Table 5. ***Correlation Analysis between the respondents' socio-demographic profile and perceived accurateness of information about covid-19 vaccines on each platform***

Profile	Interpersonal	Digital media	Traditional media
Age [a]	0.152	0.182	0.187
Sex [b]	0.282	0.329	0.19
Marital status [b]	0.196	0.159	0.336
Household size [a]	-0.065	-0.214	0.054
Educational attainment [a]	-0.233	0.333*	-0.19

Note: * Significant at 0.05 level (p<0.05). [a] Spearman rank coefficient. [b] Cramer's V Effect size.

Table 6. ***Correlation Analysis between the respondents' socio-demographic profile and KAP on COVID-19 vaccines***

	Knowledge	Attitude	Perception
Age	0.273	0.148	0.148
Sex	0.055	0.174	0.157
Marital status	0.501*	0.408	0.565*
Household size	0.185	0.031	0.259*
Educational attainment	0.287	0.333	0.14

Note: * Significant at 0.05 level (p<0.05). Values are Cramer's V Effect size.

Table 7. ***Correlation Analysis between the respondents' preferred source of information about COVID-19 vaccines and KAP on COVID-19 vaccines***

	Knowledge			**Attitude**			**Perception**		
	knowledgeable	Not	effect size	Positive attitude	Not	effect size	Positive perception	Not	effect size
Preferred Source of Information			0.053			0.135			0.199
Interpersonal (n=26)	*18*	*8*		*23*	*3*		*10*	*16*	
Media (n=7)	*5*	*2*		*7*			*4*	*3*	
Both (n=17)	*11*	*6*		*15*	*2*		*10*	*7*	

Note: * Significant at 0.05 level (p<0.05). Values are Cramer's V Effect size.