

Factors Affecting COVID-19 Vaccination: A PNG Perspective

By

Jack Assa & Moses Sakai

School of Business and Public Policy, University of Papua New Guinea

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“Pathways to development amid COVID-19 and beyond PNG’s 10th election

Outline of Presentation

- Background of the study
- Research problem
- Research objectives
- Theoretical Framework of the study
- Research Method
- Results
- Discussion
- Conclusion
- Reference
- Acknowledgment

Background of the Study

- Coronavirus disease 2019 (COVID-19) is a deadly infectious virus that is afflicting almost all the countries in the world.
- It was first discovered in China in 2019.
- As of 18th October 2022, more than 621 million COVID-19 confirmed cases with over 6.5 million deaths were recorded globally.
- 668 deaths and 45,264 confirmed cases were recorded in Papua New Guinea (PNG) as of 14th October 2022. Apart from the deaths, the pandemic severely affected all the sectors of the economy – health, education, trade, manufacturing, transportation and others.

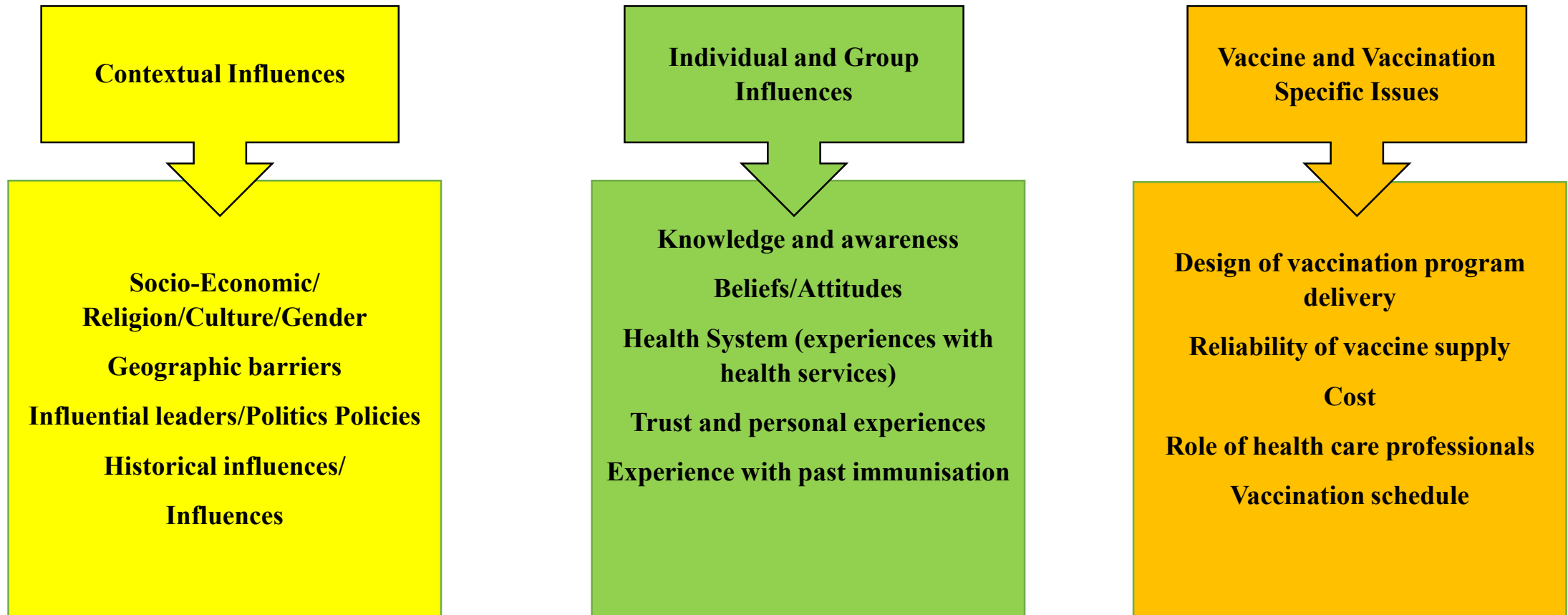
Research Problem

- Despite being recognized as one of the most successful public health measures, vaccination is perceived as unsafe and unnecessary by a growing number of people.
- As of 14th October 2022, only 348,938 of the population is vaccinated in PNG.
- The public health threat is not just COVID-19 but the unwillingness of the people to uptake the vaccine.

Research Objectives

- **To determine the factors driving COVID-19 vaccine hesitancy**
 - To assess the knowledge of the public in relation to Covid-19 vaccines
 - To determine the level of trust people have for the vaccines

Theoretical Framework Used in the Study



WHO SAGE Vaccine Hesitancy (VH) Model (Dubé et al., 2014) = mapped the determinants of Vaccine Hesitancy

Research Methodology

- A Survey (Quantitative research instrument) was used for this study.
- Conducted between June and August 2022.
- No of participants N= 205 (Male n=112, Female n=93)
- Used purposing sampling. **All** the participants have not received COVID-19 Vaccination.
- Deployed a 5-point Likert items (Cummins and Gullone,2000) ranging from Strongly Disagree (1) , Disagree (2), Neither Agree nor Disagree (3), Agree (4) and Strongly Agree (5).
- We use mode as the central tendency to analyze the data.
- 3 core variables - 54 Items
 - Contextual influences (18 items)
 - Individual and Group Influence (18 items),
 - Vaccines/Vaccination (18 items)
- Used SPSS version 16 to analyze the data

Results

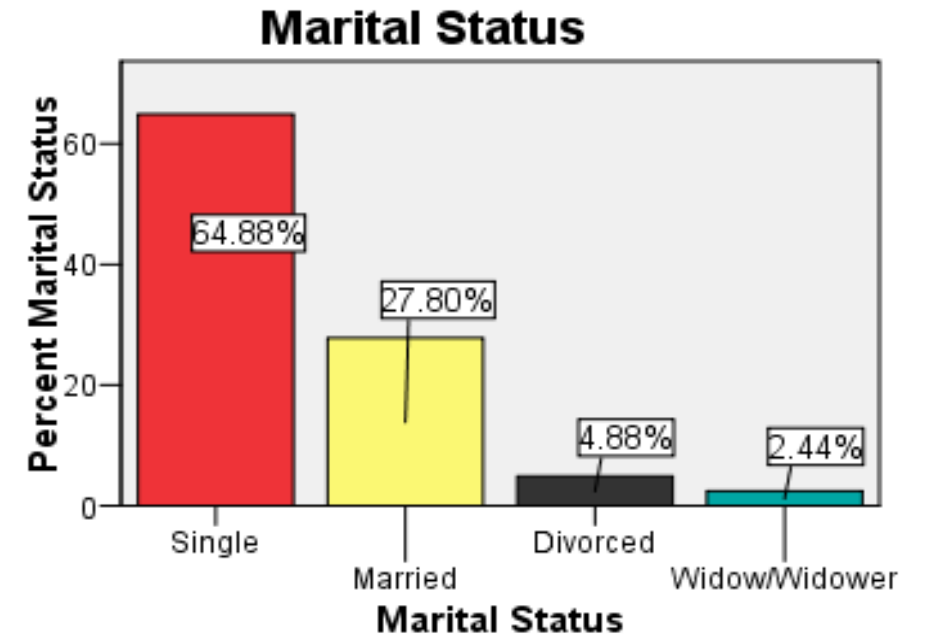
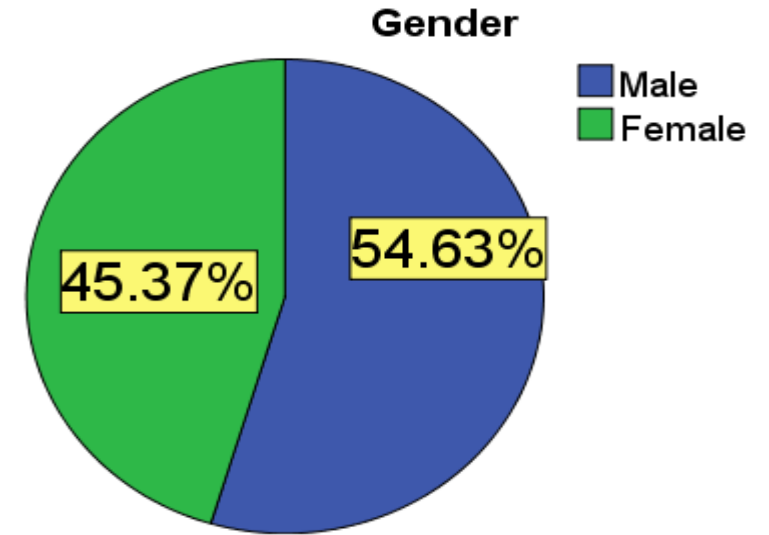
- The survey consist of 54 items and value for Cronbach's Alpha for the survey was $\alpha = 0.701$ (acceptable internal consistency).

Reliability Statistics

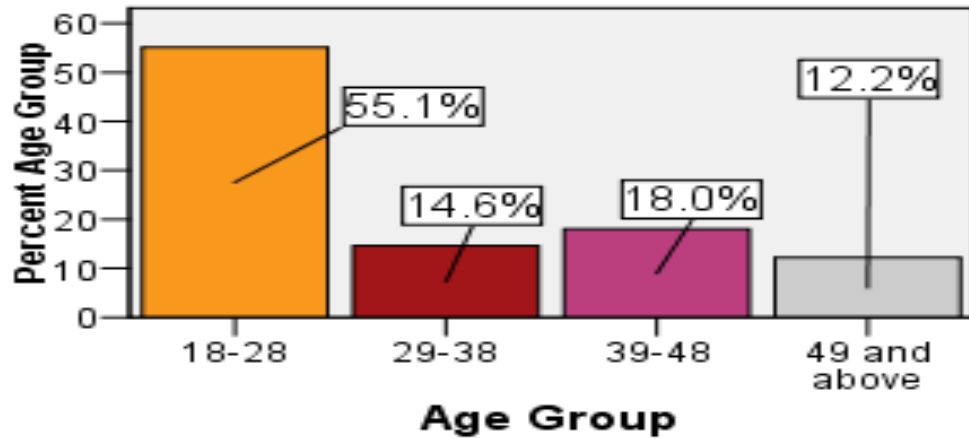
Cronbach's Alpha	N of Items
.701	54

Demographic variables

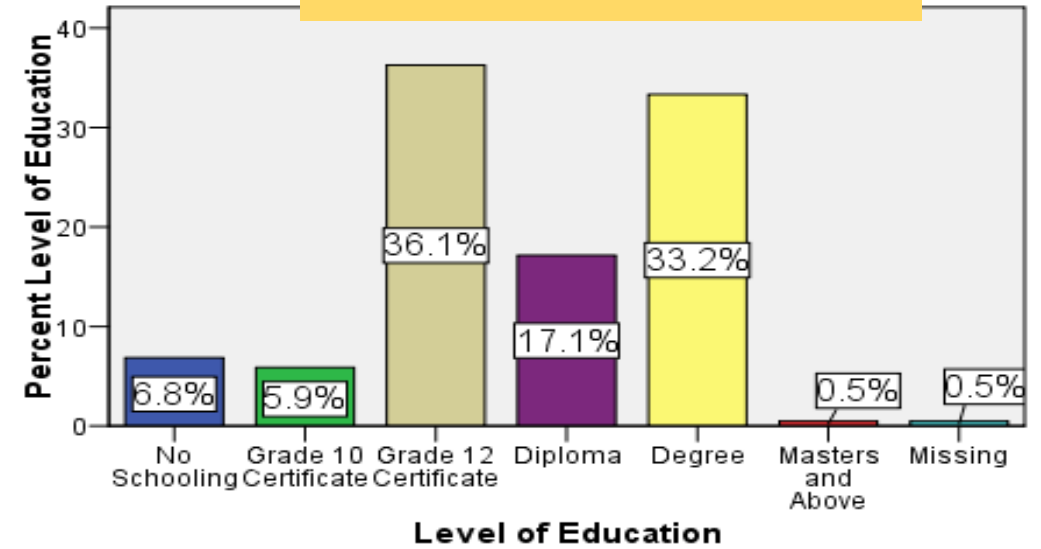
Demographic Variables	N		%
Gender	Male	112	54.6
	Female	93	45.4
Marital Status	Married	57	27.8
	Single	133	64.9
	Divorced	10	4.9
	Widow/Widower	5	2.4
Age Category	18-28	113	55.1
	29-38	30	14.6
	39-48	37	18
	49 and above	25	12.2
Level of Education	No Schooling	14	6.7
	Up to Grade 10	12	5.9
	Up to Grade 12	74	36.1
	Diploma	35	17.1
	Bachelor Degree	68	33.2
	Masters and Above	1	0.5
Employment Status	Employed	44	21.5
	Unemployed	161	78.5
Region	Southern	41	20
	New Guinea Islands	26	12.7
	Momase	55	26.8
	Highlands	82	40



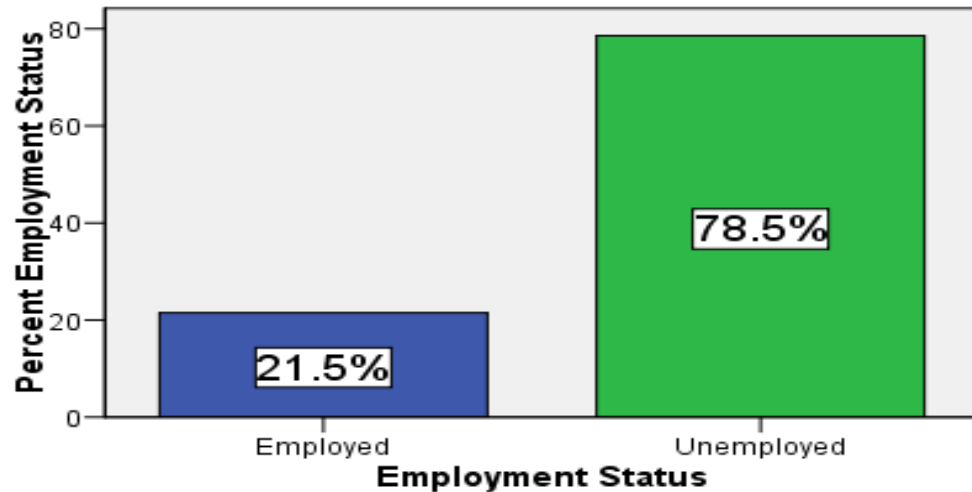
Age Group



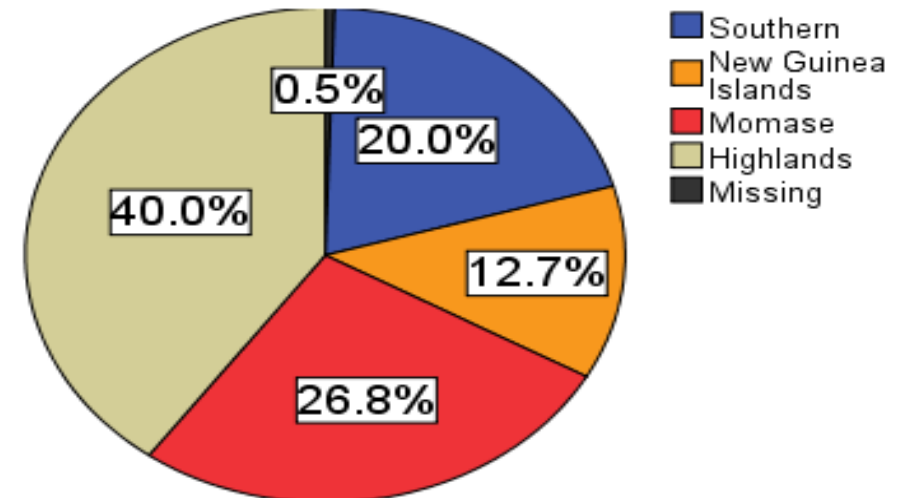
Level of Education



Employment Status



Region (Origin)



Contextual Influences on Vaccine Hesitancy

No	Items	Strongly Disagree		Disagree		Neither agree nor Disagree		Agree		Strongly Agree		Total Response	Total Score	Average Score
		No	%	No	%	No	%	No	%	No	%			
1	I trust the mainstream and social media for information on COVID-19	36	17.3	46	22.12	34	16.3	72	34.6	17	8.2	205	603	2.9
2	Reports I heard/read in the main stream or social media made me re-consider the choice to have myself vaccinated	35	16.8	49	23.56	45	21.6	62	29.8	12	5.8	203	576	2.8
3	Based on the information I get from media, I'm against COVID-19 vaccine	16	7.7	23	11.06	65	31.3	59	28.4	40	19.2	203	693	3.4
4	I agree with leaders that do not agree to vaccination	14	6.7	21	10.1	68	32.7	46	22.1	54	26.0	203	714	3.5
5	Leaders (religious, political, teachers, health care workers) in my community support vaccines	27	13.0	40	19.23	67	32.2	57	27.4	10	4.8	201	586	2.9
6	My religious pastor/imam/priest advocates/advocated against vaccination	26	12.5	25	12.02	84	40.4	39	18.8	29	13.9	203	629	3.1
7	Events in the past discouraged me from getting COVID-19 vaccine	22	10.6	24	11.54	62	29.8	63	30.3	33	15.9	204	673	3.3
8	My religion / philosophy / culture recommend against vaccine	36	17.3	42	20.19	61	29.3	39	18.8	27	13.0	205	594	2.9
9	I would refuse vaccine for myself or for my family members	27	13.0	30	14.42	26	12.5	61	29.3	59	28.4	203	704	3.5
10	My government is making decisions in my best interest with respect to vaccines	29	13.9	54	25.96	39	18.8	56	26.9	27	13.0	205	613	3.0
11	I'm convinced that my government purchases the highest quality vaccines available	30	14.4	53	25.48	67	32.2	38	18.3	17	8.2	205	574	2.8
12	I would get vaccine for the purpose of employment, travel etc...	26	12.5	38	18.27	29	13.9	51	24.5	58	27.9	202	683	3.4
13	The distance and time needed to get to the nearest vaccination station and cost has prevented me from getting vaccination	55	26.4	63	30.29	51	24.5	24	11.5	10	4.8	203	480	2.4
14	I don't like waiting for long hours to get vaccine	34	16.3	54	25.96	60	28.8	34	16.3	22	10.6	204	568	2.8
15	I believe the vaccine producers are interested in my health	48	23.1	29	13.94	62	29.8	49	23.6	15	7.2	203	563	2.8
16	Governments are pushed by lobbyists or industry to recommend certain vaccines	11	5.3	16	7.692	67	32.2	70	33.7	39	18.8	203	719	3.5
17	Vaccine producers are interested in money than people's health	15	7.2	29	13.94	35	16.8	71	34.1	55	26.4	205	737	3.6
18	I trust vaccine companies to provide safe and effective vaccines	31	14.9	53	25.48	63	30.3	38	18.3	17	8.2	202	563	2.8

Individual and Group Influences on Vaccine Hesitancy

No	Factors Contributing to Vaccine Hesitancy	Strongly Disagree		Disagree		Neither agree or disagree		Agree		Strongly Agree		Total Response	Total Score	Average Score
		No	%	No	%	No	%	No	%	No	%			
1	I have seen/heard of people getting sick after getting vaccine	7	3.4	18	8.7	28	13.5	81	38.9	70	33.7	204	801	3.9
2	I know of people who died after getting vaccine	15	7.2	14	6.7	65	31.3	57	27.4	52	25.0	203	726	3.6
3	My experiences with past vaccines prevented me from being immunized/ vaccinated	32	15.4	59	28.4	55	26.4	37	17.8	19	9.1	202	558	2.8
4	I belief in home and natural therapies more than vaccine	18	8.7	11	5.3	25	12.0	63	30.3	88	42.3	205	807	3.9
5	Eating healthy food and steam budding can strengthen our immune system and prevent disease, hence, COVID-19 vaccine is not needed.	14	6.7	11	5.3	18	8.7	63	30.3	97	46.6	203	827	4.1
6	Vaccines overloads can destroy the immune system	5	2.4	12	5.8	49	23.6	64	30.8	75	36.1	205	807	3.9
7	There are other (better) ways to prevent diseases which can be prevented by the vaccine.	15	7.2	10	4.8	27	13.0	68	32.7	83	39.9	203	803	4.0
8	I know the purpose of the COVID-19 vaccine	11	5.3	26	12.5	56	26.9	84	40.4	28	13.5	205	707	3.4
9	Health workers provided us with sufficient information to make decision on vaccine	26	12.5	32	15.4	63	30.3	62	29.8	20	9.6	203	627	3.1
10	The side effects of the vaccines are openly discussed by the government and health officials	34	16.3	62	29.8	48	23.1	44	21.2	16	7.7	204	558	2.7
11	The government and health officials are forcing us get the vaccine which I don't want to get	15	7.2	23	11.1	76	36.5	47	22.6	44	21.2	205	697	3.4
12	I feel that my health workers care about what is best for me	10	4.8	32	15.4	90	43.3	51	24.5	21	10.1	204	653	3.2
13	I'm very concern that I might have a serious side effect after getting vaccine	10	4.8	7	3.4	41	19.7	52	25.0	95	45.7	205	830	4.0
14	I am concern that the vaccine might not prevent COVID-19	7	3.4	17	8.2	34	16.3	78	37.5	67	32.2	203	790	3.9
15	COVID-19 can only kill people with underlying sickness. That is why I didn't get the vaccine.	11	5.3	14	6.7	42	20.2	79	38.0	59	28.4	205	776	3.8
16	I believe that vaccines are not needed when it is not really killing people in my area	18	8.7	15	7.2	43	20.7	51	24.5	78	37.5	205	771	3.8
17	I will get vaccine when I see all my friends and family members are vaccinated first	44	21.2	65	31.3	47	22.6	33	15.9	16	7.7	205	527	2.6
18	My close friends and family members are not vaccinated	7	3.4	32	15.4	64	30.8	65	31.3	37	17.8	205	708	3.5

Vaccine/Vaccination- Specific Issues

No	Factors Contributing to Vaccine Hesitancy	Strongly Disagree		Disagree		Neither agree nor disagree		Agree		Strongly Agree		Total Response	Total Score	Average Score
		No	%	No	%	No	%	No	%	No	%			
1	I believe that COVID 19 vaccine(s) is/are safe for everyone	52	25.0	63	30.3	48	23.1	24	11.5	17	8.2	204	503	2.5
2	I believe some vaccines like measles are safer than COVID 19 Vaccines	15	7.2	25	12.0	76	36.5	55	26.4	31	14.9	202	668	3.3
3	COVID - 19 vaccine has been used or tested for a long period	62	29.8	53	25.5	65	31.3	12	5.8	12	5.8	204	471	2.3
4	I trust the companies who are making this new vaccine	70	33.7	42	20.2	58	27.9	19	9.1	12	5.8	201	464	2.3
5	I will delay myself from taking COVID-19 Vaccine because it was introduced recently	21	10.1	21	10.1	39	18.8	59	28.4	64	30.8	204	736	3.6
6	I am willing to get the COVID-19 Vaccine	117	56.3	29	13.9	19	9.1	24	11.5	16	7.7	205	408	2.0
7	I prefer oral administration (doses) than injection	37	17.8	40	19.2	78	37.5	20	9.6	28	13.5	203	571	2.8
8	Pain after injection has made me to reconsider vaccination through injection	44	21.2	36	17.3	78	37.5	19	9.1	24	11.5	201	546	2.7
9	Vaccination program should be rolled out at the clinics and not in the streets and road sides	9	4.3	38	18.3	52	25.0	43	20.7	61	29.3	203	718	3.5
10	Medical consultations must be done first before vaccine is given	12	5.8	29	13.9	21	10.1	57	27.4	85	40.9	204	786	3.9
11	I like the idea of mass vaccination	60	28.8	52	25.0	38	18.3	28	13.5	6	2.9	184	420	2.3
12	I have confidence in our health system and the way they are handling COVID 19 Vaccination Program	31	14.9	61	29.3	61	29.3	36	17.3	16	7.7	205	560	2.7
13	I think Vaccines made in Europe and America are safer than those made in India, China and other Asian countries.	20	9.6	43	20.7	99	47.6	23	11.1	20	9.6	205	595	2.9
14	I am happy to take multiple COVID-19 vaccine booster in order to fight the deadly disease	69	33.2	51	24.5	44	21.2	28	13.5	13	6.3	205	480	2.3
15	It is not healthy to get multiple vaccines	16	7.7	23	11.1	56	26.9	40	19.2	68	32.7	203	730	3.6
16	I am willing to get vaccine if it is free and not going to cost any amount	34	16.3	30	14.4	87	41.8	36	17.3	17	8.2	204	584	2.9
17	Some health care professionals are not vaccinated and they are strongly against COVID 19 vaccine	9	4.3	12	5.8	77	37.0	64	30.8	43	20.7	205	735	3.6
18	Some health care workers do not trust COVID -19 vaccine	13	6.3	14	6.7	85	40.9	40	19.2	36	17.3	188	636	3.4

Table 1

		Gender					
		Male		Female		Others	
		Count	Table N %	Count	Table N %	Count	Table N %
V-INVNF4 - I am willing to get the COVID-19 Vaccine	Strongly Disagree	65	31.9%	51	25.0%	0	.0%
	Disagree	15	7.4%	13	6.4%	0	.0%
	Neither Agree nor Disagree	9	4.4%	10	4.9%	0	.0%
	Agree	14	6.9%	11	5.4%	0	.0%
	Strongly Agree	9	4.4%	7	3.4%	0	.0%

Gender vs “I am willing to get the COVID-19 vaccine”

Table 1

		Age Group							
		18-28		29-38		39-48		49 and above	
		Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %
V-INVNF4 - I am willing to get the COVID-19 Vaccine	Strongly Disagree	61	29.9%	19	9.3%	20	9.8%	16	7.8%
	Disagree	19	9.3%	6	2.9%	2	1.0%	1	.5%
	Neither Agree nor Disagree	12	5.9%	1	.5%	5	2.5%	1	.5%
	Agree	14	6.9%	3	1.5%	4	2.0%	4	2.0%
	Strongly Agree	6	2.9%	1	.5%	6	2.9%	3	1.5%

Age Group vs “I am willing to get the COVID-19 Vaccine”

Table 1

		Age Group							
		18-28		29-38		39-48		49 and above	
		Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %
IGI-RB1 - I'm very concern that I might have a serious side effect after getting vaccine	Strongly Disagree	6	2.9%	2	1.0%	2	1.0%	0	.0%
	Disagree	5	2.5%	0	.0%	2	1.0%	0	.0%
	Neither Agree nor Disagree	21	10.3%	5	2.5%	7	3.4%	8	3.9%
	Agree	32	15.7%	3	1.5%	12	5.9%	4	2.0%
	Strongly Agree	48	23.5%	20	9.8%	14	6.9%	13	6.4%

Age group vs “I’m very concern that I might have a serious side effect after getting vaccine”

Table 1

		Age Group							
		18-28		29-38		39-48		49 and above	
		Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %
V-RSVS1 - I have confidence in our health system and the way they are handling COVID 19 Vaccination Program	Strongly Disagree	22	10.8%	3	1.5%	4	2.0%	2	1.0%
	Disagree	37	18.1%	7	3.4%	11	5.4%	5	2.5%
	Neither Agree nor Disagree	32	15.7%	11	5.4%	9	4.4%	9	4.4%
	Agree	15	7.4%	5	2.5%	10	4.9%	6	2.9%
	Strongly Agree	7	3.4%	4	2.0%	3	1.5%	2	1.0%

Age Group vs “I have confidence in our health system and the way they are handling COVID 19 Vaccination Program”

Table 1

		Region							
		Southern		New Guinea Island		Momase		Highlands	
		Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %
IGI-BAHP2 - Eating healthy food and steam budding can strengthen our immune system and prevent disease, hence, COVID-19 vaccine is not needed.	Strongly Disagree	5	2.5%	3	1.5%	2	1.0%	3	1.5%
	Disagree	0	.0%	1	.5%	0	.0%	10	5.0%
	Neither Agree nor Disagree	6	3.0%	0	.0%	4	2.0%	8	4.0%
	Agree	14	7.0%	8	4.0%	18	9.0%	24	11.9%
	Strongly Agree	15	7.5%	14	7.0%	29	14.4%	37	18.4%

“Region vs “Eating healthy food and steam budding can strengthen our immune system and prevent disease, hence, COVID-19 vaccine is not needed”

Contextual Influences on Vaccine Hesitancy

Determinants of VH	SD %	D %	N %	A %	SA %	Mode
Trusting social and mainstream media for information on COVID-19	17.3	22.12	16.3	34.6	8.2	4
Decision not to vaccinate or delay was made based on social media information	16.8	23.6	21.6	29.8	5.8	4
Leaders in communities support COVID-19 vaccines	13.0	19.23	32.2	27.4	4.8	3
I would get vaccine for the purpose of travel or employment	12.5	18.3	13.9	24.5	27.9	5
The cost, distance and time needed to go to the nearest health centre and for vaccine is an obstacle	26.4	30.3	24.5	11.5	4.8	2
My religion/ philosophy/culture recommend against vaccine	17.3	20.19	29.3	18.8	13.0	3
Vaccine producers are interested in money than people's health	23.1	13.94	16.8	34.1	26.4	4

Individual and Group Influences on VH

Determinants of VH	SD %	D %	N %	A %	SA %	Mode
I belief in home and natural therapy more than vaccine	8.7	5.3	12	30.3	42.3	5
Eating healthy food and steam therapy is important than COVID-19 vaccine	6.7	5.3	8.7	30.3	46.6	5
I've seen or heard of people getting sick after getting the COVID-19 vaccine	3.4	8.7	13.5	38.9	33.7	4
Past experiences prevented me from getting COVID-19 vaccine	15.4	28.4	26.4	17.8	9.1	2
Fear of side effects	4.8	3.4	19.7	25.5	45.7	5
I'm concern that the vaccine might not prevent COVID-19	3.4	8.2	16.3	37.5	32.2	4
My family members are not vaccinated	3.4	15.4	30.8	31.3	17.8	4
I know the purpose of COVID-19 vaccine	5.3	12.5	26.9	40.4	13.5	4

Vaccine/Vaccination – Specific Issues

Determinants of VH	SD %	D %	N %	A %	SA %	Mode
I believe that C-19 Vaccine is Safe	25.0	30.29	23.1	11.5	8.2	2
I'm willing to take Covid-19 vaccine	56.3	13.94	9.1	11.5	7.7	1
I have confidence in our health system and the way they are handling Covid-19 vaccine program	14.9	29.33	29.3	17.3	7.7	3
I trust the companies who are making Covid-19 vaccines	33.7	20.19	27.9	9.1	5.8	1
Delayed myself from taking C-19 Vaccine because it was recently introduced	10.1	10.1	18.8	28.4	30.8	5
Health care workers provided us with sufficient information to make decision on vaccine	12.5	15.38	30.3	29.8	9.6	3
Some health care workers do not trust COVID-19 vaccine	6.3	3.4	44.7	25.0	17.3	3

Cont.

- We analysed the values of the items that occurred often (Mode). Hence, the following determinants seem to cause VH;
 - Fear of side effects including sicknesses or death due to vaccine uptake. (SA= 45.7%)
 - Believe in home and natural therapy considered important than vaccine. (SA= 42.3%)
 - Believe in healthy diet and steam therapy (SA=46.6%)
 - Feel that vaccine was developed and introduced too quickly. (SA=30.8%)
 - There is concern that the vaccine might not prevent COVID-19. (A=37.5)
 - Lack of trust and confidence in the health system. (N=29.3%)
 - Not enough information is provided to us by health workers. (N=30.3%)
 - Believing or trusting false information circulated through social media. (A=36.6%)
- Previous studies conducted by Pogo et al. (2021), Hoy, Wood and Mosco (2021) and Odhuno, Ngui & Muniu, (2022) also reveals some or similar determinants causing unwillingness to get vaccinated. This could mean that the government is not doing enough to improve vaccine uptake.

Conclusion and Way Forward

- COVID-19 is here to stay and continue to endanger peoples lives. However, the public health threat is not just COVID-19 but the unwillingness of the people to uptake the vaccine.
- Therefore, it is important for the relevant institutions to focus on strategies that would restore confidence, build trust and eradicate fear.
- Interventions such as nationwide health awareness, behavior change communication trainings for influential leaders (Pastors, teachers, councilors, journalist etc..) are necessary to increase vaccine uptake.

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