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## Social Media and COVID-19 Vaccine Hesitancy in Pakistan

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**Abstract:** Social media plays an essential part in connecting and organizing people and making decisions and obtaining information about health issues. This study tends to investigate the role of social media in vaccine hesitancy in Pakistan using survey research. The data revealed that the respondents paid 4 hours daily during COVID-19. It has created panic among the people due to the fake news however, on the other hand, it has made people encouraged for vaccinated which made them positive and committed to fighting against this virus. The findings revealed that 40. being 39.2% agreed that spreading repeated information regarding Covid-19 vaccination convinced them to get vaccinated. 51 (50%) of respondents found news on social media fake most of the time due to which they feel feared vaccination. 34 (33.3%) of the respondents told that the rumours spread through social media lead to vaccine hesitancy.

**Key Words:** COVID-19, Vaccine Hesitancy, Social Media, Fake News

### Introduction

The ongoing respiratory diseases i.e. the coronavirus sickness raised in 2019, created a new risk to people's health across the world (Chhikara et al., 2020). This occurred because of a newly discovered coronavirus, which shares some structural similarities with the virus that is responsible for (SARS) acute respiratory syndrome (Astuti et al., 2020). The Coronavirus 2 (SARS-CoV-2), which caused COVID-19, was given epidemic status on March 11, 2020. This change took place exactly one year earlier. By the 11th of September in the year 2020, the virus had already infected more than 28 million people, spread to 213 countries and territories, and was responsible for the deaths of more than 900,000 people across the globe (Wu et al., 2020).

Even before COVID-19, a major worry was the general public's reluctance to obtain vaccines that are both safe and recommended. According to the statistics, the key reason for vaccination adoption has been a desire for personal protection against COVID-19. This motivation has been the driving force behind vaccination acceptance. Concerns about the potential for unpleasant side effects, on the other hand, are by far the most common reason for reluctance among patients as well as among healthcare professionals.

The growth of smartphones in countries with low and moderate levels of income has made it possible for an increasing number of people to connect to the internet and participate in social media. Because there was no treatment or vaccine, for COVID-19,

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available at the time, governments all over the world had resorted to extreme measures to control the spread of the virus, protect those members of society who are the most vulnerable to the effects of the virus, and maintain a healthy balance between the demand for and supply of health care services. Measures of isolation and separation were put into effect (Phadke et al., 2020). It was impossible to overstate how crucial it was to have vaccines that have been licensed to protect populations from the virus and to prevent economies from continued disruption and suffering. Having vaccines that have been licensed is essential (Rosenthal et al., 2020).

### **Vaccine Hesitancy**

Vaccination is one of the most important and huge public health achievements of all time. Smallpox was eradicated from the world's population thanks to vaccination campaigns in the Americas and elsewhere (Okwo et al., 2011). Infectious disease mortality and morbidity have also decreased as a result of these programs. High acceptance rates are necessary for vaccination programs to reduce the prevalence and incidence of diseases that are preventable by immunization (Otto et al., 2000). High vaccination rates provide a society with a measure of indirect protection from disease, known as herd immunity. In addition to protecting immunised people, high vaccination coverage rates also safeguard the entire community (Dubé et al., 2013). Most affluent countries' high childhood

### **COVID-19 Vaccine Hesitancy**

Before the outbreak of the pandemic, there was already rising concern about the unwillingness of people to get safe vaccines that were readily available. Solis Arce et al. conducted 15 distinct investigations in Africa, Asia, Latin America, Russia, and the US between June 2020 and January 2021 (Adeyanju et al., 2021).

One of the main reasons for reluctance to get vaccinated is a lack of faith in vaccinations, particularly among black respondents (Kricorian et al., 2021). The long-term influence on one's health is also a significant source of worry. As a result of these fears,

some people have spread misinformation, contributing to the widespread mistrust of government and public health institutions among some ethnic minority groups trust has been eroded because of institutionalized prejudice and racism (Bavel et al., 2020).

Disrespect for holidays celebrated by religions other than Christianity has weakened public confidence. Residential isolation is a form of systematic racism that has a negative impact on health. As a result of these impacts, tensions between different social groupings are heightened.

### **COVID Vaccine Hesitancy in Pakistan**

In Pakistan, where there are a lot of people who believe conspiracy theories, there is still a significant problem with vaccine scepticism. It is primarily due to the existence of such theories that the country has not been able to rid itself of the polio virus. Unfortunately, many in Pakistan are currently spreading the idea that the COVID-19 vaccine is a sinister plot or it is part of a plan to install a nano-chip in bodies to gain control of the 5G internet (Khan et al., 2020). Conspiracy theories involving vaccines, such as those involving birth control, women's fertility, monitoring, and microchipping mankind, have fueled a fresh wave of vaccination scepticism, on the other side (Zakar et al., 2022).

These hypotheses are being vigorously debated within the Pakistani community across various social media platforms in the year 2020. These types of conspiracy narratives have the potential to sow the seeds of opposition to impending COVID-19 vaccination initiatives in a country where vaccine hesitancy is a primary obstacle to reducing the incidence of vaccine-preventable diseases (Chandir et al., 2020).

### **Literature Review**

This part of the study provides a summary of previous research that has been conducted on the relationship between social media and vaccine hesitancy in the world in general and in Pakistan in particular.

Individuals use social media to receive information about vaccines and communicate with one another. Social media

plays an essential part in the process of making decisions and obtaining information about health issues. Social media is a tool that medical practitioners utilize to disseminate health information to their patients as well as the general public (Christenson, 2021). The public's uncertainty can be because of, the level of knowledge and the amount of experience they have had in the past.

Thomas (2020) and his team analyzed 60 billion tweets from before the pandemic in order to assess the landscape of vaccine information on Twitter and understand the amount of vaccine hesitancy on social media thus found that the spread of incorrect information on social media contributes to an atmosphere of mistrust and paints an inaccurate picture of the advantages and disadvantages of vaccines.

A total of 27,910 students participated in the study. Even though there was an increase in those who reported confidence in the vaccine among 17-year-olds (77.8 per cent). Researchers found that students who are sceptical of vaccines were more likely to spend time on social media than those who were not concerned.

Vaccines are one of the most effective strategies to improve health outcomes and save lives all around the world. Vaccines are also one of the most widely used medical interventions. Nevertheless, in order for vaccines to be effective, individuals first need to acknowledge the significance of preventative medicine and consent to get vaccinations. Mass vaccination in Pakistan continues to be a difficulty, despite the fact that COVID-19 vaccines now on the market are both safe and efficacious. Hesitancy to get vaccinated is ranked among the top 10 most serious dangers to public health by the WHO. According to WHO research, there are primarily three reasons why people choose not to get vaccinated: the inconvenience of obtaining vaccines, complacency, and a lack of trust in medical institutions (WHO, 2021).

According to Malik et al., (2021), of medical professionals, 3,679 respondents (70.2 per cent) agreed to receive the COVID-19 vaccination, whereas 1,284 respondents (24.5 per cent) wanted to delay vaccination until more information was available. Only 5.2% of healthcare workers were opposed to

vaccination. Younger adults (76 per cent) and women (63.3 per cent) and those who worked in tertiary care hospitals (51.2 per cent) were more likely to acquire the flu vaccine (61.3%). Females were refused because they lacked faith in the vaccine's efficacy (31.48%), whereas males were rejected because they had previously been exposed to COVID-19 (42.19%) and were concerned about the vaccine's negative effects (33.17 per cent).

As of April 2020, it was predicted that 63% of nurses working in Hong Kong expected to get the COVID-19 vaccination (Malik et al., 2021). Late in the year 2020, just 36% of healthcare workers in the United States reported that they were willing to get the vaccination as soon as it was made accessible (Tagoe et al., 2021). On the other hand, a poll that was carried out in the United States between March and May 2021 found that 85% of HCWs responded that they had been or would be vaccinated against the disease (Porat et al., 2021). This was after vaccinations were introduced into the country. (Solis et al., 2021) recognized the development of a vaccination that is both safe and effective is an essential component in the fight against the COVID-19 pandemic.

People's willingness to get vaccinated against certain diseases differs significantly by gender and age. Only 77.94% of women were willing to get vaccinated, while the percentage of men was substantially higher (Chaudhary et al., 2021) Understanding how many people are willing to get vaccinated When it comes to medical innovation, vaccination is undoubtedly one of the most significant breakthroughs ever made in the field. There are millions of people spared from the misery of a dreadful sickness as well as the inability to go to school or work each year because of it.

Vaccine information has been studied in a variety of ways, including on social media platforms and the internet as a whole. Vaccine-related content can be found on every social media site. According to Blankenship et al., anti-vaccine tweets were 4.13 times more likely to be re-tweeted than neutral tweets between 2010 and 2016, based on an analysis of tweets containing the "vaccine" hashtag (#vaccine). According to (Ortiz et al., 2019) who conducted a similar

study, anti-vaccine posts on Instagram received more likes on average than pro-vaccine posts.

### Problem Statement

Before the COVID-19 pandemic, there was already rising concern about the reluctance of people to get vaccinated. The public's uncertainty about vaccination can be attributed to a number of things, including their level of knowledge and the amount of experience they have had in the past. The current research looks into this issue and tries to determine why are people hesitant to get vaccinated against COVID-19. It also investigates the role of social media sites in educating and informing the public about vaccine hesitancy.

### Significance Of The Study

Vaccine hesitancy had been a major problem for the people of Pakistan throughout the years in the form of the Polio vaccine and other major diseases. Researchers times and again have found a lot of rumours and other old religious beliefs behind each vaccine hesitancy. This research is important because COVID-19 has been a new phenomenon and disease and people do have similar feelings and rumours about the new vaccine. It is important because this study enlightens the issue of COVID-19 vaccine hesitancy and discloses the factors responsible for it. The study is also significant because it is a new area to work on, which will help all people to understand the reasons behind COVID-19 vaccine hesitancy deeply and clearly

### Objectives

- i. To explore the frequency of social media, use among the faculty of Hazara University.

### Data Analysis

**Table 1.** How much Time did you Normally Spend daily Online on the Internet During COVID-19?

		Freq	%	Valid %	Cumulative %
Valid	1 to less than 2 hours	17	16.7	16.7	Valid
	2 to less than 4 hours	29	28.4	28.4	
	More than 4 hours	54	52.9	52.9	
	Total	102	100.0	100.0	

- ii. To investigate how frequently social media has been used for information regarding the COVID-19 vaccine.
- iii. To understand if social media encourage people to vaccinate against COVID-19.
- iv. To determine the factors responsible for vaccine hesitancy in Pakistan.

### Hypothesis

1. The rumours spread through social media lead to vaccine hesitancy.
2. Social media encourage people against the COVID-19 vaccination.

### Research Methodology

This study aims to understand the role of social media in vaccine hesitancy among the faculty members of Hazara University Mansehra Pakistan. This project strictly follows the quantitative research technique for the survey where a total of 102 respondents were chosen from 20 departments of arts & humanities, Biological sciences, and social sciences using the proportionate sampling technique. The questionnaire includes demographic information, the frequency of social media uses and questions about Vaccine hesitancy.

The information that was gathered was then coded and entered into an SPSS data sheet. As a result of the fact that the questionnaire was structured on a Likert scale with five points, all of the responses were given numerical numbers. These numbers were as follows: 5,4,3,2, and 1, respectively, for highly agreed, agreed, Neutral, Disagree, and Strongly Disagree.

The table above shows the time spent by participants on social media during Covid-19. The data revealed that 54 (52.9%) of the total respondents spent more than 4 hours per day

on the internet during the COVID-19 also 29 (28.4%) spend between 2-4 hours and 17 (16.7%) spend less than 2 hours online on the internet.

**Table 2.** Which among the following Social Sites do you often use?

		Freq	%	Valid %	Cumulative %
Valid	Facebook	27	26.5	26.5	26.5
	Twitter	7	6.9	6.9	33.3
	YouTube	35	34.3	34.3	67.6
	WhatsApp	32	31.4	31.4	99.0
	All of them	1	1.0	1.0	100.0
	Total	102	100.0	100.0	

The statistics of the table shows data about social site that the participants most often used. The data demonstrate that 35 beings (34.3%) used YouTube, 32 (31.4%) used

WhatsApp and 27 (26.5%) participants used Facebook while 7 (6.9%) used Twitter most often.

**Table 3.** How much Time did you Spend on these Social Sites daily during Covid-19?

		Freq	%	Valid %	Cumulative %
Valid	Less than one hour	10	9.8	9.8	9.8
	More than one---- two hours	15	14.7	14.7	24.5
	More than two---- three hours	21	20.6	20.6	45.1
	More than three----four hours	19	18.6	18.6	63.7
	More than four hours	37	36.3	36.3	100.0
	Total	102	100.0	100.0	

The above table indicates the average time participants spent on social media (YouTube, WhatsApp, Facebook, Twitter) during covid-19. The table shows that the majority of the participants i.e. 37 being used (36.3%) used social media more than four hours daily

during COVID-19, 21 beings (20.6%) used more than two to three hours, 19 beings (18.6%) used more than three----four hours, while 15 being 14.7 and 10 being 9.8% used these social sites More than one---- two hours and Less than one hour respectively.

**Table 4.** How Frequently did you use these Social Sites for Information Regarding Covid-19?

		Freq	%	Valid %	Cumulative %
Valid	Very frequently	9	8.8	8.8	8.8
	Frequently	33	32.4	32.4	41.2
	Normal	39	38.2	38.2	79.4
	Rarely	14	13.7	13.7	93.1
	Very rarely	7	6.9	6.9	100.0
	Total	102	100.0	100.0	

This table reveals the Frequency of social site that is used for information regarding covid-19. The statistics revealed that 39 beings (38.2%) used the social site for information

regarding covid-19 to a normal extent however, 33 beings (32.4%) were using it frequently.

**Table 5.** Which among the following did you Spend more Time on, during Covid-19?

		Freq	%	Valid %	Cumulative %
Valid	Facebook	26	25.5	25.5	25.5
	Twitter	9	8.7	8.7	33.3
	YouTube	30	29.4	29.4	62.7
	WhatsApp	37	36.3	36.3	99.0
	Total	102	100.0	100.0	

The table illustrates data about the social site which the respondents used more during covid-19. The Statistics led the researchers to conclude that the majority of participants i.e., 37 beings (36.3%) used WhatsApp more than

any other social site, 30 (29.4%) spend more time on YouTube, 26 (25.5%) spent more time on Facebook while 9 (8.7%) used Twitter than any other site.

**Table 6.** What is the Status of your Vaccination against Covid-19?

		Freq	%	Valid %	Cumulative %
Valid	Vaccinated	90	88.2	88.2	88.2
	To be vaccinated soon	5	4.9	4.9	92.2
	Still thinking about it	3	2.9	2.9	95.1
	I am not interested	4	3.9	3.9	99.0
	Total	102	100.0	100.0	

The table above shows the status of vaccination of respondents against covid-19. The data shows that the majority of the respondents, 90 (88.2%) were vaccinated

against covid-19, 5 (4.9%) of the respondents wanted to be vaccinated soon however, 3 of the respondents were still thinking about vaccination and 4 were not interested yet.

**Table 7.** How Far did you Feel Hesitant to Covid-19 Vaccine?

		Freq	%	Valid %	Cumulative %
Valid	Strongly hesitant	3	2.9	2.9	2.9
	Hesitant	22	21.6	21.6	24.5
	Neutral	37	36.3	36.3	60.8
	Motivated	25	24.5	24.5	85.3
	Strongly motivated	15	14.7	14.7	100.0
	Total	102	100.0	100.0	

The table above shows the intensity of hesitancy among the respondents for the covid-19 vaccine. The data revealed that the majority of the respondents i.e., 37 beings (36.3%) feel neutral about the covid-19 vaccine and thus were not feeling any kind of

hesitancy nor they were motivated, 25 beings (24.5%) were found motivated to be vaccinated against covid-19 however 22 beings (21.6%) of the respondents were found hesitant to the covid-19 vaccine.

**Table 8.** How Hesitant did you find People at your Workplace to get Vaccinated against Covid-19?

		Freq	%	Valid %	Cumulative %
Valid	Strongly Hesitant	2	2.0	2.0	2.0
	Hesitant	45	44.1	44.1	46.1
	Neutral	28	27.5	27.5	73.5



	Freq	%	Valid %	Cumulative %
Motivated	26	25.5	25.5	99.0
St. Motivated	1	1.0	1.0	100.0
Total	102	100.0	100.0	

The table above shows that hesitancy exists among people in the workplace against covid-19. The statistics above show that the majority of the people i.e. 45 beings (44.1%)

feel Hesitant at the workplace to get vaccinated against covid-19 i.e. 28 (27.5%) felt neutral while 26 beings (25.5%) felt motivated to get vaccinated.

**Table 9.** How Frequently did you use Social Sites for Information Regarding the Covid-19 Vaccine?

	Freq	%	Valid %	Cumulative %
Valid Very frequently	7	6.9	6.9	6.9
Frequently	32	31.4	31.4	38.2
Normal	38	37.3	37.3	75.5
Rarely	22	21.6	21.6	97.1
Very rarely	3	2.9	2.9	100.0
Total	102	100.0	100.0	

The table above shows how frequently the respondents used social sites for information about the covid-19 vaccine. The facts above illustrate that the participants i.e., 38 being used (37.3%) used social sites normally for

information regarding the covid-19 vaccine, 32 beings (31.4%) used it frequently for information, 22 beings (21.6%) rarely practised using the social site for information regarding covid-19 vaccines.

**Table 10.** How Far do you Agree that Social Media Messages are one of the Main Reasons for Covid-19 Vaccine Hesitancy in Pakistan?

	Freq	%	Valid %	Cumulative %
Valid SA	15	14.7	14.7	14.7
A	48	47.1	47.1	61.8
N	19	18.6	18.6	80.4
DA	18	17.6	17.6	98.0
SDA	2	2.0	2.0	100.0
Total	102	100.0	100.0	

The table above shows that 48 participants (being 47.1%) agreed that social media messages are reasons for covid-19 vaccine hesitancy in Pakistan, 19 participants (18.6%) remained neutral in this regard while 18

beings (17.6%) respondents disagreed with the statement that social media message are the reasons for covid-19 vaccine hesitancy in Pakistan.

**Table 11.** Which among the following Social Media Sites do you Feel have caused more Hesitancy against the Covid-19 Vaccine?

	Freq	%	Valid %	Cumulative %
Valid Facebook	53	52.0	52.0	52.0
Twitter	3	2.9	2.9	54.9
YouTube	17	16.7	16.7	71.6
WhatsApp	29	28.4	28.4	100.0
Total	102	100.0	100.0	

The data above confirms that 53 (52.0%) of the respondents feel Facebook has caused more hesitancy against the covid-19 vaccine, 29 (28.4%) declared that WhatsApp is the app

which has caused more hesitancy while 17 participants (16.7%) told that YouTube is the platform responsible for more hesitancy against the covid-19 vaccine.

**Table 12.** I mostly Found Enough Information Regarding the Covid-19 Vaccine on Social Media Sites

		Freq	%	Valid %	Cumulative %
Valid	SA	9	8.8	8.8	8.8
	A	63	61.8	61.8	70.6
	N	19	18.6	18.6	89.2
	DA	7	6.9	6.9	96.1
	SA	4	3.9	3.9	100.0
	Total	102	100.0	100.0	

The table above shows that participants mostly found enough information regarding the Covid-19 vaccine on social media in this regard majority of participants i.e. 63 being

61.8% agreed that they found enough information while 19 being 18.6% were neutral.

**Table 13.** I Mostly Found Positivity in Social Media News Regarding the Covid-19 Vaccine?

		Freq	%	Valid %	Cumulative %
Valid	SA	4	3.9	3.9	3.9
	A	43	42.2	42.2	46.1
	N	34	33.3	33.3	79.4
	DA	21	20.6	20.6	100.0
	Total	102	100.0	100.0	

The table above shows that if participants found positivity in social media news regarding the Covid-19 vaccine? The data tells the majority of the participants i.e. 43 being 42.2% agreed that they found positivity in

social media news regarding the Covid-19 vaccine, and 34 being 33.3% were found neutral. 21 being 20.6% disagreed that they didn't find any kind of positive news on social media regarding the covid-19 vaccine.

**Table 14.** I Mostly Found Public Messages on Social Media Regarding the Covid-19 Vaccine, very Encouraging?

		Freq	%	Valid %	Cumulative %
Valid	SA	6	5.9	5.9	5.9
	A	48	47.1	47.1	52.9
	N	31	30.4	30.4	83.3
	DA	17	16.7	16.7	100.0
	Total	102	100.0	100.0	

The table above shows statistics on how the participants found public messages on social media regarding the Covid-19 vaccine. The data explains that the majority of the participants i.e. 48 being 47.1% agreed to the statement that the public messages on social

media regarding the Covid-19 vaccine were very encouraging, while 31 being 30.4% remained neutral to the statement, however, 6 being 5.9% were strongly agreed while 17 being 16.7% disagreed.



**Table 15.** Information Received via Social Media Sites help me Encounter Covid-19 Vaccine Hesitancy?

		Freq	%	Valid %	Cumulative %
Valid	SA	5	4.9	4.9	4.9
	A	48	47.1	47.1	52.0
	N	18	17.6	17.6	69.6
	DA	27	26.5	26.5	96.1
	SDA	4	3.9	3.9	100.0
	Total	102	100.0	100.0	

This table shows the data regarding the "Information received via social media sites help me encounter Covid-19 vaccine hesitancy?" 48 being 47.1% of the respondents agreed that the information received online via social media helped them to encounter Covid-19 vaccine hesitancy while 18 being 17.6% showed no opinion and remained neutral. 27 of the respondents being 26.5% disagreed with the statement.

### Discussion & Conclusion

People frequently rely on social media in this digital world for rapid updates and information. Natural catastrophes have been seen to increase people's dependence on social media.

The present study is a micro-level quantitative inquiry that identified the role of social media in vaccine hesitancy, the frequency of social media uses for information and encouragement regarding the COVID-19 vaccine & the factors responsible for vaccine hesitancy in Pakistan keeping the faculty members of Hazara University Mansehra into account. According to the findings received from the data, faculty members of Hazara University during the COVID-19 relied on social media for news and it was during this period that 54 (52.9%) spend more than 4 hours per day on the internet during the COVID-19 crisis.

During stressful circumstances, especially times of mass trauma, many people benefit from the social connection (Garfin et al., 2020). Majority of them 35 being (34.3%) preferred to use YouTube during this time Digital communication has been shown in preceding studies to reduce distress, and despair and boost emotional support. (Tsai, Tsai, Wang, Chang, & Chu, 2010), while 37 being (36.3%) used different social media sites

for more than four hours during COVID-19. The use of these social sites for information regarding covid-19 was made to a normal extent 39 being (38.2%) however, the second majority 33 being (32.4%) were frequently surfing these sites for information regarding the covid-19 vaccine. The respondents were asked, "Which among the following did you spend more time on, during Covid-19"? where 37 being used (36.3%) responded that they used WhatsApp more than any other social site during Covid-19.

The researchers regarding the information on vaccination found that 90 being (88.2%) of the respondents were found vaccinated against covid-19 where the majority 37 being (36.3%) feel neutral about the covid-19 vaccine and didn't show any hesitancy however the second majority 25 being (24.5%) were found motivated to being vaccinated against covid-19 while 22 being (21.6%) feel hesitant against the covid-19 vaccine. Regarding "How hesitant did you find people at your workplace to get vaccinated against Covid-19? The researcher found that 45 being (44.1%) the respondents who were of the view that they found people at the workplace hesitant to get vaccinated against covid-19. However, 48 being (47.1%) of the respondent regarding the responsible factor for COVID-19 vaccine hesitancy in Pakistan viewed social media has been the major factor responsible for COVID-19 vaccine hesitancy where 53 being (52.0%) of the respondents said that Facebook is the platform which has caused more hesitancy against the covid-19 vaccine.

The data analysis of this study revealed that social media have played both positive and negative roles during the peak days of COVID-19 in Pakistan. 63 being 61.8% agreed that they mostly found enough information

regarding the Covid-19 vaccine on social media sites. 43 being 42.2% found positivity in social media news/posts also 48 being 47.1% agreed that public messages on social media regarding the Covid-19 vaccine, were very encouraging. Compared to the vaccine-hesitant group, which sourced its knowledge from the social network, the vaccine acceptance group leaned on the health board, which is a more reliable source of information (Earnshaw et al., 2020). Therefore, leading the charge in promoting

the COVID-19 vaccination should be medical professionals. Social media during this whole period has been found to play a positive role as 40 being 39.2% agreed to spread information regarding Covid-19 vaccination repeatedly via social media sites convincing the respondents to get vaccinated. The majority of the respondents 48 being 47.1% agreed that Information received via social media sites help them encounter COVID-19 vaccine hesitancy.

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