

## COVID -19 VACCINE AWARENESS AMONG THE PUBLIC IN THE SOUTHERN PALESTINIAN GOVERNATES: ACCEPTANCE AND HESITANCY

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### ABSTRACT

**Objective:** The continuation of coronavirus disease (COVID-19) vaccination helps to reach targeted universal vaccination that will contribute to global pandemic control so the individuals who are unwilling to receive the vaccination or refuse COVID-19 vaccination can delay the advancement of vaccination coverage and may generate difficulties in global efforts to control the pandemic. Therefore, the ultimate aim of this research is to clarify the awareness about Covid-19 vaccination between acceptance and hesitancy among the public at Southern Palestinian Governess

**Methodology:** The researcher followed the descriptive analytical approach to accomplish this study. The online survey was adopted to collect required data via a random sample from Southern Palestinian Governess. The researcher received 125 valid questionnaires after the distribution of 150 one. SPSS was used to analyze the required data.

**Finding and result:** The main outcomes revealed that only 44.4% of the respondents believe that herd immunity maybe protects people while 42.1% refused this belief and 13.5 % approved that herd immunity will protect people. Moreover, 83.3% of respondents confirmed that they could be attacked with the virus after vaccination but 16.7% said that they maybe take the infection after vaccination. Also, 59.5% of respondents have a doubt of vaccine in general without specific causes while 40.5% of them have no doubt

**Recommendations:** the study suggested that awareness about the vaccine, in general, should be increased among the public at Southern Palestinian Governess illustrating the value of vaccination and side effects, also advised people to wear masks and keep social distance permanently until the termination of a pandemic to save ourselves.

**Keywords:** Covid -19, Hesitancy, Acceptance, Awareness

### 1.0 INTRODUCTION

Recently, The COVID-19 pandemic novel that appeared on the thirty-one of December 2019 in Wuhan city, Hubei province, attacked many cases of severe pneumonia and quickly spread to other countries to become one of the largest disasters for the last ten years in the world. Subsequently, its start in Wuhan, different names have been created for this deadly disease which was first called Corona, Wuhan virus, Chinese virus, and then officially named COVID-19 by World Health Organization (WHO) on February 11, 2020 (Donthu & Gustafsson,2020).

Potter, (2001) stated that the fair of influenza pandemics is a periodic biological phenomenon and cannot credibly be prevented. Pandemics seem to occur at 10–50- year recesses as a result of the development of new virus subtypes from a variety of viruses so not only the fear of new outbreak continuation but how it is spared and when will happen. Furthermore, coronavirus reconfiguration happens faster than the world expected and it is difficult to estimate its long-term effects. Woods, (2020) stated that forty mutations of the coronavirus have been identified by scientists in Iceland. Therefore, immediately to support a crucial need to control the panic of the widespread virus, in different countries the governments take several procedures and strategies to prevent the outbreak of the virus aiming to contain the virus beginning with the quarantine period, lockdown procedure. closing places where person to- person spread was expected, and requiring the use of masks and physical distancing measures when social contact could not be avoided (Prentice et al., 2020; Martínez et al.2020).

While the chief concern was to reduce the pandemic impact and to avoid some serious situations in hospitals due to over-accumulation with infected patients, virus spread has been reduced but the outbreak of pandemic happened and has forced many businesses to close, leading to an extraordinary disruption of commerce in most industry sectors, the pandemic has an in-depth influence on e-commerce, technology, business, and the whole economy(Hesham et al.,2021; Bennet et al,2020; Spana et al.2021). This global crisis has had consequences at all economic and social levels causing destruction of the world's economies and healthcare systems implementing considerable fear, panic, and uncertainty in people of all countries (Orîndaru et al.,2021).

Nevertheless, the defensive activities against the Covid pandemic have totally converted social life and upset national and household economies alongside with the health crisis continuation to decelerate and a sense of pandemic fatigue so political leaders, health officials, and the general public are seeking solutions (Spana et al.,2021). The growth of herd immunity by mass vaccination has been a very successful and powerful strategy for halting the spread of many communicable diseases. Therefore, vaccination seems to be one of the most promising measures to control the spread of COVID-19 if successfully developed and deployed, (Dara et al,2021; Detoc et al.,2021; Lurie et al.,2020).

Furthermore, the outbreak of unknown viruses has activated a worldwide effort to develop a vaccine for COVID-19. The traditional vaccine development, which takes an average of 10 years from conception to licensing, is impractical for this urgent situation. Therefore, a new strategy for the faster development of vaccines, following pre-clinical and clinical trials, and rapid upscaling of manufacture are necessary to ensure there is no decline in the delivery of potential vaccine candidates. By late November 2020, several international pharmaceutical companies have stated the efficacy and effectiveness of vaccines from large clinical trials. Owing to the earnestness of the pandemic condition, these vaccines received early regulatory approvals by national drug and pharmaceutical agencies in December 2020 and vaccination programs have been rolled out all over the world soon after (McAteer et al.2020)

Although the development of a COVID-19 vaccine to fight the disease's spread and destructive effects is still constant, more effective vaccines are likely to be developed. Vaccine delivery is ongoing and the public acceptance of the COVID-19 vaccine is critical. Given the urgency of mass vaccination against SARS-CoV-2 strategies, vaccine uncertainty

is becoming progressively recognized as a serious public health problem that requires extensive research among different population groups to fully understand its triggers and prevalence (Chaudhary et al., 2021; Mesesle, 2021). Moreover, high rates of acceptance and coverage of vaccination by its grantees result in the success of an immunization program, the vaccination seems one of the most promising measures to control the spread of COVID-19 (Dara et al., 2021). That is why the research is an attempt to highlight the acceptance and reluctance to the COVID-19 vaccine in southern Palestinian Governates by illustrating the awareness about vaccines.

### 1.1 Covid-19 Vaccine Background

Knowing that vaccination can create long-lasting immunity by revealing the individuals to antigens, to motivate the development of immunological memory before facing the live pathogen. In addition, the structure of SARS-CoV-2-S is related to that of SARS-CoV-1 S, targeting which vaccines developed for SARS have mainly been developed. The relations of protection against SARS-CoV-2 are vague and mysterious. Therefore, vaccination is likely to have a lasting humoral and cellular immunogenicity that increases the likelihood of protection. In SARS-CoV-2 infection, antibodies are commonly produced against the S protein and the internal nucleoprotein. In addition, the potential for a SARS-CoV-2 vaccine would result in a long-lasting humoral immunity and defensive antibody titers that could prevent antibody-dependent enhancement (ADE) upon re-infection. At the time of the 2002-2003 outbreak, ADE was detrimental to SARS-CoV pathogenesis, and preclinical studies demonstrated infection of macrophages and lethal pneumonia in mice. An ADE could improve the immunity and duration of protection from SARS-CoV-2 by stimulating the innate immune system. (Yang et al., 2004; LEUNG et al., 2006; Jaimes et al., 2020; Watanabe et al., 2020; Haynes et al., 2020;).

According to the recent literature, at least seven isolated vaccines have been tested in three countries since February 18, 2021. Additionally, more than 200 vaccine candidates have been developed simultaneously, with more than 60 of them in clinical trials. A number of studies have shown that public health education programs have a positive impact on raising awareness of MERS-Cov disease (Detoc et al., 2020; Ita, 2021; Tetro, 2020).

However, outcomes of the natural infection are risky and a large number of Humans must be infected with the virus. The improvement of herd immunity by mass vaccination has been a very effective procedure and vigorous strategy for controlling the spread of many communicable diseases (Mesesle, 2021).

### 1.2 Acceptance of a COVID-19 vaccine and hesitancy background

Nowadays, vaccination has the chief contribution to global human health whereas. In terms of epidemic control, herd immunity is considered the best option. By vaccinating the population or infecting it naturally with the constant use of masks, washing of hands, and social isolation COVID-19 infections can be controlled (Elgendy & Abdelrahim, 2021). Globally, the unwillingness to immunize against COVID-19 also appears to be a major problem. Moreover, a lack of clinical trials, concerns about side effects, and rumours regarding the existence of active viruses in vaccines are approximately the leading obstacles that prevent COVID-19

from reaching its full potential. Furthermore, the uncertainty regarding vaccination against COVID-19 presents a major dilemma to vaccine programs (Chaudhary et al,2021).

While vaccine science has made notable advancements, vaccine hesitancy has transformed into a public health obstacle with the possibility of unfortunate complications, so medical teams should act advocacy, and the community should be realized the necessity to report it as a public health emergency. Poor knowledge among populations about kinds of vaccines, their dosing reference, and the poor involvement in hygiene training, have forced the national and international health organizations to organize campaigns to raise the public awareness level towards the COVID-19 vaccines (Hungerford& Cunliffe,2020).

Health Ministries around the world should increase their role in raising awareness by providing the media, health centers, schools with information about their services, also the medical research centers must cooperate with non-governmental organizations and governmental organizations that provide information on disease structures and prevention methods (Nooh et al,2021; McAteer et al.,2020).

However, approval and acceptance of the COVID-19 vaccine have a low rate among the Middle East, Russia, Africa, and many European countries. This may be a red flag to the activities against COVID-19. Both hesitancy or acceptance of vaccines has been one of the most critical global health fears and fluctuate according to the time and place, dependent on several factors as self-satisfaction, accessibility, and confidence. In the United States, 20% of the public is hesitant to receive the COVID-19 vaccine, and 31% do not know what it is. Also, reports of side effects and distrust in China's immunization program have delayed the confidence of the American public in Chinese vaccines. In Pakistan, for example, vaccine indecision remains a big challenge, also the newest report in the Greek population stated that a great ratio of the population cannot experience COVID-19 vaccination, confirming the necessity for public health authorities to raise public awareness (Dhama et al.,2021; Gray et al.,2021)

Due to the growing uncertainty surrounding vaccines, this has serious consequences for the inhibition and control of vaccine-avoidable diseases and will delay efforts to alleviate Coronavirus disease. Therefore, each country should create its own vaccination strategy based on the characteristics of its population and the prevalence of rats by considering all factors that influence vaccination decisions holistically. Consequently, governments should play a chief role in the acceptance of the public health measures appropriate to the cultures, perceptions, and demographics of their populations. Furthermore, International applications should be considered when developing vaccination campaigns revolving around information, education, and awareness about social benefits. (Garca& Cerda,2020; Gadoth et al.,2020).

Rather than the lockdown, vaccination may be the most efficient technique to control the pandemic outbreak when the lockdown affects economies in some countries. In light of the different vaccine candidates being offered to the public, vaccine acceptance has become a concern, along with vaccine unwillingness and attitudes towards it.: If the world could attain a universal vaccination target? Moreover, people divide into five major groups: acceptance, refusal, uncertainty, and unwillingness (ELLA& MOHAN, 2020). The researchers concluded that an effective vaccine is the best way to prevent the rapid spread of this infection

(Chaudhary et al,2021). consequently, this study aims to demonstrate and evaluate the awareness of the Covid vaccine among the public in southern Palestinian governments.

## 2.0 METHODOLOGY OF RESEARCH

To accomplish this research, the researcher followed the descriptive-analytical approach, which is considered to be one of the most appropriate methodologies in social science and business research.

An approach that describes the phenomena the subject has studied, analyzes its data, and describes the relationship between variables, and the possible effects of its findings.

### 2.1 Data Collection Method

The required data were collected through two sources.

- **Secondary data:** Using this approach, the researcher has established the theoretical literature on the topic, and used enough secondary data resources to clarify the problem and compile a lot of resources A resource like this can be used to illustrate research and what has already been accomplished. The secondary resource used in this research concluded: Scientific papers, articles, academic magazines, medical journals, and Internet articles and websites.
- **Primary data:** In case secondary resources could not provide the required data, the study adopted an online questionnaire to collect the necessary information in the southern Palestinian Governates

**Sample Technique:** in social science research, the process of sampling is interesting with the size of the sample population. Considering the limitations of the research, the sample size should be ideal and appropriate. Participants in the study, who are over 18 years old and live in the southern Palestinian governates, were selected via random sampling. To accomplish this research, 150 questionnaires were distributed, and 126 valid questionnaires were received for analysis. A respondent rate of 84% was achieved for the online survey.

**Tool of collecting data:** the study addressed a questionnaire to collect the required data. The researcher created the questionnaire in Arabic, translated it into English, and had it reviewed by an expert editor, and consists of three parts:

**Section one:** The questionnaire began with some general information about demographic data and the history of coronavirus experience. The demographic section consists of three points and the part of coronavirus experience consists of seven items.

**Section 2:** this section conveys the health beliefs and awareness about the coronavirus vaccine and consists of 12 points.

**Section 3:** this section conveys general knowledge, attitudes, and practices towards the corona vaccine

## 3.0 DATA ANALYSES

The study used the frequencies and percentages to evaluate approval of the paragraph the degree about the experience of coronavirus infection in the following table

In the table below, you will find the demographic data of the target sample as the majorit The respondents were female with a ratio of 57.1% and males from 42.9% of the target sample. The majority of respondents were aged 18-45.

**Table No (1)**

Personal data		Number	%
Sex	Male	54	42.9
	Female	72	57.1
Age	18-35	72	57.1
	35-45	26	20.6
	45-55	18	14.3
	>55	10	7.9
Educational level	Secondary	9	7.1
	Diploma	27	21.4
	Batcher degree	55	43.7
	Postgraduate	31	24.6
	Others	4	3.2

**Analyses section one of the questionnaires: experience of coronavirus infection**

The table mentioned below discusses the personal experience of the coronavirus infection. 40.5% have experience of coronavirus infection while 45.2 % stated that they have no coronavirus infection in contrast 14.3% answered they didn't know if they have infected or not. Most of the respondents. 81.7% of the target sample have no chronic disease (Hypertension-diabetes Mellitus-Asthma-Heart Problem) and 11.1% only have chronic diseases. Also, the study revealed that 70.6 %take the safety procedure against the infection but 29.4% are not a commitment to protective procedures from corona infection. 15.1% of the study sample approved that their relatives or a family member were hospitalized after the corona attack and 84.9% answered none were admitted to the hospital.

**Table No. (2)**

Paragraph	Yes		No		I don't know	
	N	%	N	%	N	%
I have been infected with coronavirus	51	40.5	57	45.2	18	14.3
I have a chronic disease (Hypertension-Diabetes Milllets-Asthma-Heart problems)	14	11.1	112	88.9	-	-
There is an infected person of corona in my relatives or family	103	81.7	23	18.3	-	-
Still taking protective procedures and precautions against the virus	89	70.6	37	29.4	-	-
Someone of relatives or family has been hospitalized after a corona infection attack.	19	15.1	107	84.9	-	-

The period of a hospitalized person with corona from your relatives or family						
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More than half of the respondents answered that the time of recovery to a member of their family or relatives from corona infection ranged from 3-4 weeks, with the percentage of 50.8% while 38.1% answered it takes more than 4 weeks, and 11.1% answered that the time ranged from 1-2 weeks only. It is obvious that the symptoms vary and the time of full recovery is different.

**Table No. (3)**

period of recovery after corona infection	N	%
1-2 weeks	1	1
	4	1.1
3-4 weeks	6	5
	4	0.8
>4 weeks	4	3
	8	8.1

Analyzing section 2 of the questionnaire: the health beliefs about coronavirus vaccine: discovery how will the paragraphs of the "Health Beliefs about Coronavirus and Vaccine" fields were established, a frequency and percentage analysis were shown. The following table illustrates this. In the table mentioned below, the majority of respondents were suspected in the belief that the herd immunity will protect them from the infection with coronavirus with a percentage 44.4%, while 42.1% refused this belief and 13.5% assumed that the herd immunity will protective the world. According to the study, 83.3% believed they will be infected with the virus again after taking the vaccine, while 16.7% had no idea, saying it might happen. On the other side, the study illustrated that 33.3% of the targeted sample approved that immunity is better after being infected with the virus than immunized with the Coronavirus vaccine. 38.1% assumed that it is maybe better to gain immunity after the infection than receive the vaccine but 28.6% assumed that it is not better to gain immunity after the infection than to take the vaccine. Also, 66.7% of the target sample showed that after being infected with the Coronavirus, the vaccine should be taken while 15.1% answered no need to receive the vaccine after being infected and about 18.3% were uncertain about the necessity to receive the vaccine after getting an infection. Moreover, 59.5% of the respondents have general doubts about vaccines without specifying the reasons and 40.5% have no doubts about vaccines. And 5.95% of the respondents have concerns about the effectiveness of the Coronavirus vaccine while 40.5% have no concerns. The results of the study found 12.7% of the respondents assumed the belief that the whole family is infected so no need to receive the vaccine while 12.7% answered it is maybe acceptable to take the vaccine after the whole family is infected but the majority of the targeted sample refuse this thought. 29.4% implicit that they dislike vaccines in general while 70.6% haven't this sense towards a vaccine. The majority of respondents were worried about the side effects of the Coronavirus vaccine with a percentage of 70.6% and approximately 29.4% having no concern about the side effects of the corona vaccine.

Furthermore, 65.1% of the target sample have concerns about the insufficiency of clinical data about coronavirus vaccine, and 27% have no concerns about this insufficiency of data in contrast 21.4% are not sure of these concerns. Additionally, 62.7% said that the vaccine is the best way to the protection from Coronavirus and its complications but 37.3% think it's not the best way to protect from the infection with coronavirus.

**Table No. (4)**

Paragraph	Yes		No		I don't know	
	N	%	N	%	N	%
Coronavirus can be controlled by herd immunity.	17	13.5	53	42.1	56	44.4
When I receive a vaccination is it possible to get Coronavirus	105	83.3			21	16.7
Immunity is better when infected with Corona Virus than when immunized with Corona Virus	42	33.3	36	28.6	48	38.1
After being infected with Coronavirus, vaccination is necessary.	84	66.7	19	15.1	23	18.3
Without specifying the reasons for my doubts, I have general doubts about vaccines	75	59.5	51	40.5		
My whole family is infected, so there is no need to take the vaccine	16	12.7	94	74.6	16	12.7
Generally, I dislike vaccinations	37	29.4	89	70.6		
I am concerned about the effectiveness of the Coronavirus vaccine	75	5.95	51	40.5		
I'm have concerned about the side effects of the vaccine	89	70.6	37	29.4		
Vaccines are the most effective way to prevent Coronavirus and its complications	79	62.7	47	37.3		
I am concerned that clinical data is insufficient	82	65.1	17	13.5	27	21.4

In the table mentioned below 14.3% of the target, sample considered the effectiveness of the Coronavirus vaccines is high and the majority of the targeted sample considered the effectiveness of the coronavirus vaccines is moderate with the percentage of 68.3% and 17.5% of the targeted sample considered the effectiveness of the Coronavirus vaccines are low.

**Table NO. (5)**

Effectiveness of coronavirus	Number	%
High	18	14.3
Moderate	86	68.3
Low	86	68.3
Total	126	100.0



### Analyzing section 3 of the questionnaire "general knowledge, attitudes and practices towards the corona vaccine.

Discovery how will the paragraphs of the " general knowledge, attitudes practices towards the corona vaccine " fields were established, a frequency and percentage analysis was shown. The table mentioned below shows that 11.9% of the respondents suffer from allergies so no need for receiving the vaccine and 73.8% it's doesn't matter if they took the vaccine. In contrast, 14.3% are not sure if the allergy is forbidden from the vaccination. Moreover 70.6% were obligated to take the coronavirus vaccine in their workplace and 29.4% answered that no pressure from the work to receive the vaccine. The results found 61.9% of the target sample thought the vaccine should be mandated while 23.8% said it no need to be mandated but 3.5% assumed that it maybe could be mandated. with the same percentage which was 50%, the respondents assumed that the chronic disease could prevent taking a vaccine. 48.4% clarified that the suspect that influence of the vaccination starts after two weeks receiving the second dose while 34.1% proved that the influence certainly starts after two weeks but 17.5% said that it doesn't start after starts after two weeks. 58.1% said that it is necessary to wear the masks but 11.9% don't confirm this. 56.3% assumed that people under 18 should not take the vaccine while 43.7 were % sure that they could take the vaccine

**Table No. (6)**

Paragraph	Yes		No		Maybe	
I suffer from allergies, so it is better not to receive the vaccine	5	1.9	3	3.8	8	4.3
work place obligated you to take the coronavirus vaccine	9	70.6	7	9.4		
vaccination should be mandatory for everyone	8	1.9	0	3.8	8	5
All chronic diseases do not prevent the vaccine	3	0.0	3	0.0		3
The effect of the vaccination starts two weeks after receiving the second dose	43	4.1	2	7.5	1	.4
It's necessary to wear masks after taking the coronavirus vaccine						
The vaccine is given for people under the age of 18	5	3.7	1	6.3		

The given table below shows from which source the target sample get information about the coronavirus vaccine. It seems the main source is the ministry of health with the percentage of 53.2% and 42.1% from the social media Table No. (7)

N o.	Source	Number	%
1	Friends and relatives	6	4.8
2	Ministry of health	67	53.2
3	Social media	53	42.1

#### 4.0 DISCUSSION

All over the world, the accessibility of vaccines and acceptance differs from one country to another. Studies showed low acceptance rates and more than 60% of them were categorized as low acceptance in the Middle East, Eastern Europe, and Russia. Whereas High rates of acceptance in East and South East Asia would help to achieve suitably control of the pandemic (Sallam,2021). The results of the different studies included in this review which examined the COVID-19 vaccine acceptance rates and the highest acceptance rates for the vaccine (>90%) among the general public were found in four studies from Ecuador (97.0%), Malaysia (94.3%), Indonesia (93.3%) and China (91.3%). Contrary to expectations, the lowest vaccine acceptance rates were found in (<60%) among the general public were found in seven studies to be from Kuwait (23.6%), Jordan (28.4%), Italy (53.7), Russia (54.9%), Pol (56.3%), US (56.9%), and France (58.9%). our study reveals that about 66% are uncertain to receive the vaccine after the Corvid attack consistent with Kelekar, et al (2021) as they stated that 23% of the target sample was uncertain about receiving the COVID-19 vaccine, and their willingness to get the vaccine is no longer predictive. In our study 13.5% only believe that herd immunity will protect them from the infection while 42.1% said that the herd immunity can't protect while 44.4% are uncertain of this belief, also the study proved that 33% of the targeted sample believes that the immunity after corona infection is better than receiving the vaccine whereas, In Elgendy et al. 's (2021) study, they estimated that 62% of their sample believed that herd immunity was sufficient to protect everyone from coronavirus, and 79% believed that infection with the virus provided better immunity than vaccination.

Despite this, the study found that many people had some suspicions about the vaccine without specifying why. consistent with Singh et al, (2020). Furthermore, the majority of the target sample is concerned about the side effects of the vaccine and doesn't trust the immunity after vaccination consistent with Saqlain et al, (2020) as they assumed that there is a concern about the Covid vaccine and its complications among the health worker. Nooh et al, (2021) addressed that there is no specific measure that could be found to protect from corona infection while in contrast, our study illustrated that wearing a mask could protect from infection, and Alahdal et al (2020) illustrated that social distance and lockdown could protect from infection. Also, Nooh addresses that most of the target sample gets information about Coronavirus from social media, whereas our study found that most respondents received their information about Coronavirus from the Ministry of Health agreed with Alahdal et al who clarified that the main source of information about coronavirus is the ministry of health and World Health Organization (WHO). while Ahamed et al., (2021) stated that people only trust government websites and trusted news channels, and people are more likely to receive vaccinations when they are recommended by their physicians, endorsed by government health authorities, and endorsed by trustworthy health authorities. Chaudhary et al. (2021) clarified that 23% of respondents receive their information about vaccines from the health care provider while 53% from social media.

Furthermore, Singh et al. (2020) emphasized the importance of respecting government instructions regarding social distance. Additionally, the study revealed that vaccines aren't necessary for children under 18 years old. 58.1% of the target sample agreed to wear the mask after vaccination. While the majority of respondents have a university and college degree, 70% take the vaccine according to workplace obligations. 70% of respondents assumed that people with allergies should take the vaccine. The majority of respondents believe that

vaccination is the best way to be protected from infection. Last but not least, the study states that the majority of respondents believe vaccinations are moderate to lowly effective.

## 5.0 CONCLUSION AND RECOMMENDATION

COVID-19 disease was declared as a pandemic on the 12th of March 2020. Considering the highly transmissible nature of this disease, raising awareness is key to restricting its transmission. Using the outcomes of this study, educational programs can be tailored to reach specific groups with misconceptions regarding the COVID-19 vaccination. Survey respondents were less knowledgeable about a number of aspects, including how to be infected, the precaution of ways to get an infection, the herd immunity, and if the immunity is better after a vaccine or infected with the coronavirus. The level of awareness is differing from one person to another while beliefs also is different about the infection and herd immunity. People trust social media and web site for information that talks about the corona vaccine whereas in general people have no trust in the vaccine or its side effects. Worries and anxiety among the public regarding COVID-19 disease can be checked and quickly reduce by counselling, their level is to be measured in some research. There is a need to intensify the awareness program during this COVID-19 pandemic, raised by other researchers (Ray et al., 2020). Furthermore, the respondents in the study had acceptable knowledge regarding coronavirus and its vaccine, people believe that, in general, there is a lack of data about the vaccine and they have a suspicion about the side effect of the vaccine. The majority of the respondents receive the vaccine according to their work instructions. Adaptation of the protected COVID-19 vaccine program internationally would have important health and performance results. Nevertheless, for the benefit of preservation and sustaining global health the barrier of vaccine hesitancy needs to be broken totally aiming to the current crises due to the ongoing pandemic. COVID-19 vaccination is necessary and preferably has to be required for all, regardless of the community. Highly collaborative and cooperative efforts with supportive relationships at international levels to tackle the COVID-19 pandemic would efficiently assemble global vaccination operations in the right direction

## REFERENCES

- Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and a. research.
- Prentice, C.; Chen, J.; Stantic, B. Timed intervention in COVID-19 and panic a.buying. J. Retail. Consum. Serv. 2020, 57, 102203.
- Detoc M, Bruel S, Frappe P, Botelho-Nevers E, Gagneux-Brunon A: Intention to participate in a COVID-19 vaccine clinical trial and to get vaccinated against COVID-19 in France during the pandemic. 2021,38:7002-6.
- Lurie N, Saville M, Hatchett R, Halton J: Developing Covid-19 vaccines at pandemic speed. N Engl J Med.2020, 382:1969-73. 10.1056/NEJMp2005630
- Dara, S., Sharma, S. K., Kumar, A., Goel, A. D., Jain, V., Sharma, M. C., & Misra, S. (2021). Awareness, Attitude, and Acceptability of Healthcare Workers About COVID-19 Vaccination in Western India. Cureus, 13(9).
- Woods, A. (2020, March 24, 2020). Iceland scientists found 40 mutations of the coronavirus, report says.

- Schoch-Spana, M., Brunson, E. K., Long, R., Ruth, A., Ravi, S. J., Trotochaud, M., ... & White, A. (2021). The public's role in COVID-19 vaccination: Human-centered recommendations to enhance pandemic vaccine awareness, access, and acceptance in the United States. *Vaccine*, 39(40), 6004-6012.
- Orîndaru, A., Popescu, M. F., Căescu, Ș. C., Botezatu, F., Florescu, M. S., & Runceanu-Albu, C. C. (2021). Leveraging COVID-19 Outbreak for Shaping a More Sustainable Consumer Behavior. *Sustainability*, 13(11), 5762.
- Vázquez-Martínez, U. J., Morales-Mediano, J., & Leal-Rodríguez, A. L. (2021). The impact of the COVID-19 crisis on consumer purchasing motivation and behavior. *European research on management and business economics*, 27(3), 100166.
- Hesham, F., Riadh, H., & Sihem, N. K. (2021). What have we learned about the effects of the COVID-19 pandemic on consumer behavior?. *Sustainability*, 13(8), 4304.
- McAteer, J., Yildirim, I., & Chahroudi, A. (2020). The VACCINES Act: deciphering vaccine hesitancy in the time of COVID-19. *Clinical Infectious Diseases*, 71(15), 703-705.
- Chaudhary, F. A., Ahmad, B., Khalid, M. D., Fazal, A., Javaid, M. M., & Butt, D. Q. (2021). Factors influencing COVID-19 vaccine hesitancy and acceptance among the Pakistani population. *Human vaccines & immunotherapeutic*, 17(10), 3365-3370.
- Mesesle, M. (2021). Awareness and Attitude Towards COVID-19 Vaccination and Associated Factors in Ethiopia: Cross-Sectional Study. *Infection and Drug Resistance*, 14, 2193.
- Bennet, B. M., Wolf, J., Laureano, R., & Sellers, R. S. (2020). Review of current vaccine development strategies to prevent coronavirus disease 2019 (COVID-19). *Toxicologic pathology*, 48(7), 800-809.
- Yang, Z. Y., Kong, W. P., Huang, Y., Roberts, A., Murphy, B. R., Subbarao, K., & Nabel, G. J. (2004). A DNA vaccine induces SARS coronavirus neutralization and protective immunity in mice. *Nature*, 428(6982), 561-564.
- Jaimes, J. A., André, N. M., Chappie, J. S., Millet, J. K., & Whittaker, G. R. (2020). Phylogenetic analysis and structural modeling of SARS-CoV-2 spike protein reveal an evolutionary distinct and proteolytically sensitive activation loop. *Journal of molecular biology*, 432(10), 3309-3325.
- Watanabe, Y., Allen, J. D., Wrapp, D., McLellan, J. S., & Crispin, M. (2020). Site-specific glycan analysis of the SARS-CoV-2 spike. *Science*, 369(6501), 330-333.
- Tetro, J. A. (2020). Is COVID-19 receiving ADE from other coronaviruses? *Microbes and infection*, 22(2), 72-73.
- Leung, G. M., Lim, W. W., Ho, L. M., Lam, T. H., Ghani, A. C., Donnelly, C. A., ... & Hedley, A. J. (2006). Seroprevalence of IgG antibodies to SARS-coronavirus in asymptomatic or subclinical population groups. *Epidemiology & Infection*, 134(2), 211-221.

- Haynes, B. F., Corey, L., Fernandes, P., Gilbert, P. B., Hotez, P. J., Rao, S., ... & Arvin, A. (2020). Prospects for a safe COVID-19 vaccine. *Science translational medicine*, 12(568).
- Ita, K. (2021). Coronavirus disease (COVID-19): Current status and prospects for drug and vaccine development. *Archives of medical research*, 52(1), 15-24.
- Nooh, H. Z., Alshammary, R. H., Alenezy, J. M., Alrowaili, N. H., Alsharari, A. J., Alenzi, N. M., & Sabaa, H. E. (2021). Public awareness of coronavirus in Al-Jouf region, Saudi Arabia. *Journal of Public Health*, 29(5), 1107-1114.
- Ella, K. M., & Mohan, V. K. (2020). Coronavirus vaccine: light at the end of the tunnel. *Indian pediatrics*, 57, 407-410.
- Detoc, M., Bruel, S., Frappe, P., Tardy, B., Botelho-Nevers, E., & Gagneux-Brunon, A. (2020). Intention to participate in a COVID-19 vaccine clinical trial and to get vaccinated against COVID-19 in France during the pandemic. *Vaccine*, 38(45), 7002-7006.
- Elgendy, M. O., & Abdelrahim, M. E. (2021). Public awareness about coronavirus vaccine, vaccine acceptance, and hesitancy. *Journal of Medical Virology*, 93(12), 6535-6543.
- Hungerford, D., & Cunliffe, N. A. (2020). Coronavirus disease (COVID-19)—impact on vaccine preventable diseases. *Eurosurveillance*, 25(18), 2000756.
- Dhama, K., Sharun, K., Tiwari, R., Dhawan, M., Emran, T. B., Rabaan, A. A., & Alhumaid, S. (2021). COVID-19 vaccine hesitancy—reasons and solutions to achieve a successful global vaccination campaign to tackle the ongoing pandemic. *Human Vaccines & Immunotherapeutics*, 17(10), 3495-3499.
- Gray, K. J., Bordt, E. A., Atyeo, C., Deriso, E., Akinwunmi, B., Young, N., ... & Edlow, A. G. (2021). Coronavirus disease 2019 vaccine response in pregnant and lactating women: a cohort study. *American Journal of Obstetrics and Gynecology*.
- García, L. Y., & Cerda, A. A. (2020). Acceptance of a COVID-19 vaccine: a multifactorial consideration. *Vaccine*, 38(48), 7587.
- Gadoth, A., Halbrook, M., Martin-Blais, R., Gray, A. N., Tobin, N. H., Ferbas, K. G., ... & Rimoin, A. W. (2020). Assessment of COVID-19 vaccine acceptance among healthcare workers in Los Angeles. *Medrxiv*.
- Kelekar, A. K., Lucia, V. C., Afonso, N. M., & Mascarenhas, A. K. (2021). COVID-19 vaccine acceptance and hesitancy among dental and medical students. *The Journal of the American Dental Association*.
- Singh, A. K., Agrawal, B., Sharma, A., & Sharma, P. (2020). COVID-19: Assessment of knowledge and awareness in Indian society. *Journal of Public Affairs*, 20(4), e2354.
- Saqlain, M., Munir, M. M., Rehman, S. U., Gulzar, A., Naz, S., Ahmed, Z., ... & Mashhood, M. (2020). Knowledge, attitude, practice and perceived barriers among healthcare

- workers regarding COVID-19: a cross-sectional survey from Pakistan. *Journal of Hospital Infection*,
- Kelekar, A. K., Lucia, V. C., Afonso, N. M., & Mascarenhas, A. K. (2021). COVID-19 vaccine acceptance and hesitancy among dental and medical students. *The Journal of the American Dental Association*.
- Alahdal, H., Basingab, F., & Alotaibi, R. (2020). An analytical study on the awareness, attitude and practice during the COVID-19 pandemic in Riyadh, Saudi Arabia. *Journal of infection and public health*, 13(10), 1446-1452.
- Roy, D., Tripathi, S., Kar Kumar, S., Sharma, N., Verma, S. K., & Kaushal, V.(2020). Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian Journal of Psychiatry*, 51, 102083. <http://dx.doi.org/10.1016/j.ajp.2020.102083>.
- Sallam, M. (2021). COVID-19 vaccine hesitancy worldwide: a concise systematic review of vaccine acceptance rates. *Vaccines*, 9(2), 160.
- Chaudhary, F. A., Ahmad, B., Khalid, M. D., Fazal, A., Javaid, M. M., & Butt, D. Q. (2021). Factors influencing COVID-19 vaccine hesitancy and acceptance among the Pakistani population. *Human vaccines & immunotherapeutics*, 17(10), 3365-3370.
- Ahamed, F., Ganesan, S., James, A., & Zaher, W. A. (2021). Understanding perception and acceptance of Sinopharm vaccine and vaccination against COVID-19 in the UAE. *BMC public health*, 21(1), 1-11.