

# **Assessment of the Knowledge of the Risk Perceptions Attitude about the Vaccination against Covid-19 and Communication Practices of Vaccinate About Covid-19 among Adult Saudi Population in Makkah Al-Mokarramah, Saudi Arabia 2021**

**Fayza Ramadan Hawsawi<sup>1</sup>, Dina Abdullah Sharbini<sup>2</sup>, Majed Ibrahim Alshamrani<sup>3</sup>, Majed Saeed Alsaedi<sup>4</sup>, Maha Abdullah Alsarif<sup>5</sup>, Fahad Hamadi Alhasani<sup>6</sup>, Hajer Gali Alharbi<sup>6</sup>, Rushdi Hayson Alhakmi<sup>7</sup>, Adnan Abdulqader Qeder<sup>7</sup>, Reham Awedah Alqurashi<sup>4</sup>, Azizah Ahmad Banafi<sup>8</sup>, Hind Musaa Hawsawi<sup>6</sup>, Mohammed Saeed Ahmad Alghamdi<sup>9</sup>, Abdulaziz Hussain MUYIDI<sup>10</sup>.**

<sup>1</sup>Family Medicine Consultant, Makkah Health Cluster, Saudi Arabia.

<sup>2</sup>GP Doctor, Makkah Health Cluster, Saudi Arabia.

<sup>3</sup>Resident Doctor, Moh Makkah, Saudi Arabia.

<sup>4</sup>Dentist, Makkah Health Cluster, Saudi Arabia.

<sup>5</sup>Pharmacist, Makkah Health Cluster, Saudi Arabia.

<sup>6</sup>Nursing technician, Makkah Health Cluster, Saudi Arabia.

<sup>7</sup>X-ray specialist, Makkah Health Cluster, Saudi Arabia.

<sup>8</sup>Public Health Specialist, Makkah Healthcare Cluster, Saudi Arabia.

<sup>9</sup>Pharmacy technician, Makkah Healthcare Cluster, Saudi Arabia.

<sup>10</sup>X-ray technicians, Makkah Healthcare Cluster, Saudi Arabia.

## **Abstract:**

### **Background**

In recent years, several viruses have drawn the medical and scientific community's attention as presenting a significant risk to international public health. Among them are the coronaviruses, with excellent international projection due to the severe respiratory syndromes they cause, like the Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS) being the best known. The COVID-19 pandemic has emerged as a serious public health threat, prompting countries throughout the world to take extraordinary infection prevention and control (IPC) efforts to halt the virus's spread. People's knowledge, attitudes, and behaviours (KAP) concerning COVID-19 are crucial for understanding the disease's

epidemiological dynamics, as well as the efficacy, compliance, and success of IPC measures implemented in a country.

**Aim of the study:** Assessment of the knowledge of The Risk Perceptions Attitude About The Vaccination Against Covid-19 and communication practices of vaccinate about Covid-19 among adult Saudi population in Makkah Al-Mokarramah , Saudi Arabia 2021.

**Method:** Cross sectional study, was conducted among Saudi Arabia adults population in primary health care center in Makkah Al-Mukarramah. The questionnaire collected socio-demographic characteristics, attitude about symptoms of the vaccinate against COVID-19 and practices of vaccinate about COVID-19. A self-administered questionnaire was designed and has been send to the study participants through social media platforms and email. Our total participants were(300).

**Results:** shows that most of the participants (33.0%) were in the age group 40-50 years, the majority of them were female (55.0%) while male(45.0%), also regarding the nationality most of participants Saudi were(72.0%), regarding the marital stats most of participants married were(67.0%)while single were(33.0%).

**Conclusion:** During the pandemic period, a strong demand for and high acceptance of COVID-19 vaccination has been shown among the Saudi Arabia population, many adults are willing to get a COVID-19 vaccine, though acceptability should be monitored as vaccine development continues, while concerns about symptoms of the Vaccinate against COVID-19. To expand vaccination coverage, programs should be designed about symptoms.

**Keywords:** Assessment, knowledge,Risk,Perceptions, Attitude ,Vaccination, Covid-19, practices, adult,Makkah, Saudi Arabia

## **Introduction**

Coronavirus Disease 2019 (COVID-19) is an ongoing global pandemic that was declared a global pandemic by the World Health Organization on the 12 March 2020 [1]. This disease is caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that belongs to the subgenus Sarbecovirus of the genus Beta coronavirus genera, along with SARS-CoV-1 and a number of emerging animals and bats CoVs [2]. Infection with SARS-CoV-2 can cause a wide variety of clinical manifestations that range.

The Spread of Coronavirus Disease 2019 (COVID-19) has prompted the lamentable loss of numerous human living, also as the burden of enormous financial and social disturbance across the world [3,4]. Alongside defensive measures, for example, social separating and

isolate, a viable immunization will be the best system for moderating the spread of COVID-19 and advancing positive clinical and financial results [5]

Before the WHO's pronouncement of COVID-19 as a global public health challenge and pandemic, many Ghanaians regarded the disease as a distant infirmity of the white man who could never inch close to them.[6] Health officials identified the first two cases of COVID-19 in Ghana on March 12, 2020 (2020)[7]. By April 19, 2020, more than 1,000 confirmed cases of COVID-19 and nine deaths had been reported. To reduce person-to-person transmission, the Government of KSA adopted and promoted the WHO's recommendations (WHO, 2020).[8]

According to the Saudi Center for Disease Prevention and Control (SCDC), the total number of confirmed cases in Saudi Arabia has reached 157,612, and the total number of deaths has reached 1267, as of 22 Jun 2020 [9]; in Egypt, the total number of confirmed cases was 55,233, and the total number of deaths was 2193; and in Jordan, 1033 confirmed cases and 9 total deaths were reported, for the same time point [10]. In the absence of available pharmaceutical protocols to treat affected persons or existing vaccines to control infections, most countries have implemented containment and mitigation strategies, requiring people to dramatically alter their life styles and limiting their personal freedom. The extent to which these measures are practical, suitable, and applicable for the population depends upon other factors, including individuals' perceptions of the threat of suffering negative and dangerous health consequences associated with the infection [11].

Several factors can affect the public acceptance of pandemic vaccines including, risk perception of the disease, trust in health care systems, past vaccination and general populations' knowledge about vaccine safety and efficacy, perception of vaccine safety and efficacy, and recommendations from healthcare personnel [12–13] Therefore, assessing factors which may mediate hesitancy toward COVID-19 vaccination is essential to reach the required vaccine coverage which will lessen the ongoing pandemic.[10]

Additionally the signs and symptoms after your subsequent dose might be more extraordinary than the ones you encountered after your first dose. These results are typical signs that your body is building assurance and should disappear inside a couple of days.[11]

### **Literature review:**

WHO and MOH have proposed a few practices that can help tallness the mindfulness about practices of manifestations of the Vaccinate about COVID-19 at an individual level and grown-up Saudi Population, For instance direct instructive classes on the significance of the

COVID-19 vaccine constructive information and guidance around building a COVID-19 vaccination plan and its benefits this online course gives productive data and direction around building a COVID-19 immunization plan, clinical outline of immunization, including dosages, adequacy, and need hazard gatherings, legitimate contemplations, the clarification an symptoms of the Vaccinate about COVID-19 an individual level and adult and communication plan, also the availability of a COVID-19 vaccine has raised many important questions must be clarification.[14]

On Feb 2021 in request to end the progressing pandemic, the COVID-19 immunization has been outlined as the ideal arrangement. Substantial numbers of vaccine candidates are being developed are being created and a few clinical preliminaries have as of late been delivered with positive outcomes, prompting various nations supporting explicit immunizations for execution in inoculation programs. In Bangladesh, the public authority has effectively begun the COVID-19 inoculation carry out [15] The information with respect to signs and symptoms COVID-19 immunizations was low among the greater part of the populace. In this examination, information was essentially connected with training, family type, month to month pay of a family, and past antibody take-up experience. Nonetheless, perspectives were significantly associated with only sex and earlier vaccine administration experience organization experience. Critically, most of members (78%) showed attitude and practices about signs and symptoms of the Vaccinate against COVID-19 was not huge regarding participants' sex. This finding is comparable with different examinations in Bangladesh showing no critical sex contrasts in information in regards to COVID-19 [16]

On July 2020 a Cross-Sectional Study in Indonesia was directed to survey perceptions attitude about symptoms of the Vaccinate against COVID-19 and practices of Vaccinate about COVID-19 among adult awareness about acceptance of a COVID-19 attitude about symptoms and practices of Vaccinate about COVID-19 in Southeast Asia. They found that among 1,359 respondents, 93.3% of respondents (1,268/1,359) might want to be vaccinated for a 95% successful vaccine, but this acceptance diminished to 67.0% (911/1,359) for a vaccine with half viability. For a 95% compelling vaccine, being a healthcare worker and having a higher seen danger of COVID-19 disease were related with higher acceptance, changed chances proportion (aOR): 2.01; 95%CI: 1.01, 4.00 and an OR: 2.21; 95%CI: 1.07, 4.59, separately; compared to civil servants, being resigned was related with less acceptance, (aOR: 0.15; 95%CI: 0.04, 0.63). For a 50% compelling vaccine, being a medical care specialist was likewise connected with more noteworthy acceptance, aOR: 1.57; 95%CI: 1.12, 2.20. They inferred that acceptance of a COVID-19 immunization was profoundly

affected by the pattern viability of the vaccine. Preparing the general population to accept a vaccine with relatively low effectiveness may be difficult.[17]

Wibawa (2021) Vaccines are the main public health measure and best methodology to shield the populace from COVID-19, since SARS-CoV-2 is profoundly infectious infection and influences populaces broadly and universally. The opposition for COVID-19 antibody creation and advancement against the spread and cataclysmic impacts of the sickness is continuous [18].

### **Rationale**

Increasing the vaccination against COVID-19 rates continues to be a challenge for Saudi Arabia. Despite the high infected by COVID-19 rate, there are still many people who opt not to get vaccinated and be protected, there are still several factors and reasons have come into play for people who do not get the vaccinate about COVID-19. During the COVID-19 pandemic, communications designed to promote the adoption of preventive behaviors should focus on increasing the perception of seriousness, the risk perception, self-efficacy to cope with the COVID-19 pandemic, and the effectiveness of the adopted behavioral measures for reducing risk. Health education programs that are tailored to various socio demographic categories, to improve public awareness, perceptions, and attitudes, are vital for increasing the adoption of outbreak preventive measures.

### **Aim of the Study**

To assessment of the knowledge of The Risk Perceptions Attitude About The Vaccination Against Covid-19and communication practices of vaccinate about Covid-19 among adult Saudi population in Makkah Al-Mokarramah , Saudi Arabia2021

### **Objectives:**

Assessment of the knowledge of The Risk Perceptions Attitude About The Vaccination Against Covid-19and communication practices of vaccinate about Covid-19 among adult Saudi population in Makkah Al-Mokarramah , Saudi Arabia2021

## **SUBJECTS AND METHODS**

### **Study design:**

This cross-sectional survey has been conducted among people in the city of Makkah Al-Mukarramah. The study carried for 25 days, from the 1st till the 25 the of February 2021, among Adult Saudi Population attend to the PHC centers in Makkah, participants aged between 18 and 65 years old, the study investigators will share the survey link in social media (Twitter, Whats App, Telegram channel) and through emails to their primary contacts

**Study setting / study area:**

A study participant has been recruited on Makkah Al-mukarramh including PHC centers under supervision of Directorate of Health Affairs of Makkah Al-Mukarramah in Saudi Arabia. The study has been carried out in the city of Makkah Al-Mokarramah, Makkah is the holiest spot on Earth. It is the birthplace of the Prophet Mohammad and the principal place of the pilgrims to perform Umrah and Hajj. The most important cities in Saudi Arabiam. It is the holy city for all Muslims, and is located in the western region. It is located in the western area in Kingdom of Saudi Arabia .Contains a population around 1.978 million.

**Study population:**

The study has been conducted among Patients in the PHC centers in the Makkah Al-Mokarramah at Saudi Arabia. Including Al-Ka'akya, Al-Adl, Al-Zahir primary healthcare centers.

**Selection criteria:**

**Inclusion Criteria :**

- All Saudi people who are more than 18 years of age. A study participant has been recruited from Makkah Al-Mukarramah and they got vaccinated.

**Exclusion criteria:**

- Saudi younger than 18 years
- Participants who did not consent to participate in the study, and/or did not answer the questions of the study.
- Patients with language barriers .
- Saudi younger than 18 years

**Study Sample:**

The sample size has been calculated by applying Raosoft sample size calculator based on (The margin of error: 5%, Confidence level: 95%, and the response distribution was considered to be 20%) accordingly the Sample size is 300 of adult Saudi Population attending in PHC and adding 10 more to decrease margin of error. After adding 5% oversampling, the

minimum calculated sample has been **300**. Computer generated simple random sampling technique was used to select the study participants.

### **Sampling technique:**

Systematic random sampling technique is adopted. By using systematic sampling random as dividing the total population by the required sample size; (**300** )

### **Data collection methods:**

The self-administered questionnaire is designed based on previous studies and frameworks to assess the awareness of attitude and practices about symptoms of the Vaccinate against COVID-19 among Adult Saudi Population .

The questionnaire was developed in English and was then translated into Arabic. The questions were first pre-tested and were revised and finalized after it was pilot tested. Before completing the survey, participants were required to indicate their consent using a forced response question followed by the survey questionnaires. The survey is estimated to take 5 min to complete .

To collect the information, a set of questions were constructed and developed .

The questionnaire consisted of two main sections; the first section focuses on Socio demographic and background information such as age, education level, outcome and gender of the participants .

Attitude about signs and Symptoms of the Vaccinate Against COVID-19 .

Practices of Vaccinate about COVID-19 among Adult Saudi Population.

### **A Pilot study**

Was carried out at the questions were first pre-tested and were revised and finalized after it was pilot tested. Before completing the survey, participants were required to indicate their consent using a forced response question followed by the survey questionnaires. This study has been conducted and all suggestions taken into consideration.

### **Data analysis**

The Statistical Package for Social Sciences (SPSS) software version 24.0 has been used for data entry and analysis. Descriptive statistics (e.g., number, percentage) and analytic statistics using test for the association and the difference between two categorical variables were applied. A p-value  $\leq 0.05$  has been considered statistically significant.

### **Ethical consideration :**

- Permission from family medicine program was obtained .

- Permission from the regional Research and Ethical Committee was be given to conduct our study.
- All the subjects has been participate voluntarily in the study .
- Privacy of information and confidentiality has been maintained .
- Full explanation about the study and its purpose was carried out to obtain their participation.

**Budget:** Self-funded

**Results :**

**Table 1 distributionof demographic characteristics of the research. (n=300)**

	N	%
<b>Age</b>		
<30	36	12
30-40	84	28
40-50	99	33
50-60	39	13
Above 60	42	14
<b>Gender</b>		
Male	135	45
Female	165	55
<b>Nationality</b>		
Saudi	216	72
Non-Saudi	84	28
<b>Marital Status</b>		
Single.	99	33
Married.	201	67
<b>level of education</b>		
Primary/ Intermediate	57	19



Secondary school	84	28
University	99	33
Postgraduate Studies	60	20

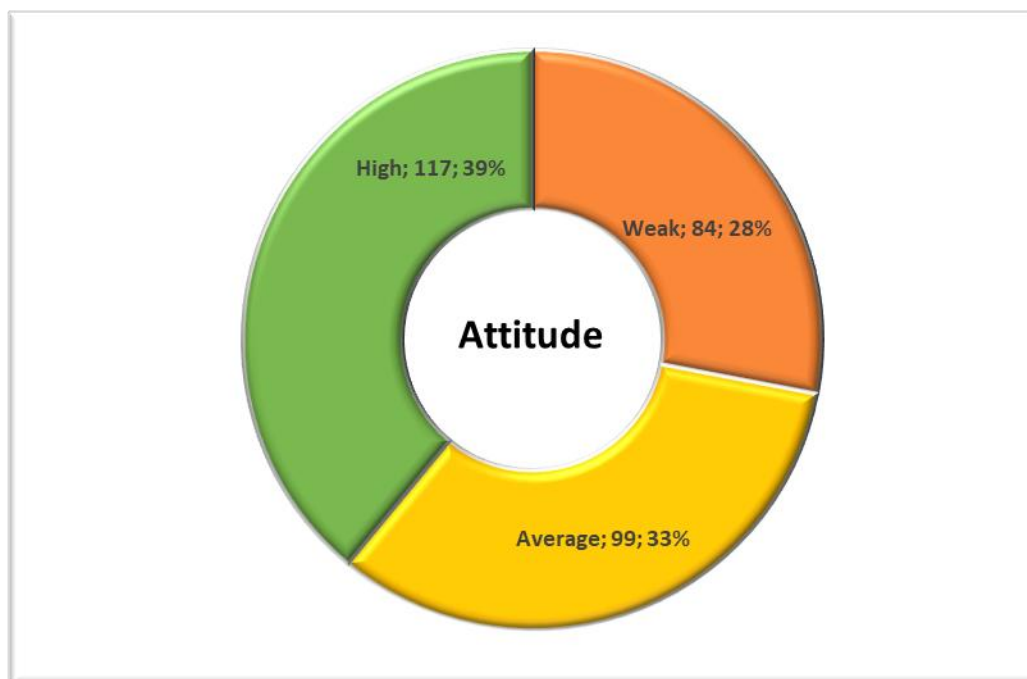
**Table 1** shows that most of the participants (33.0%) were in the age group 40-50 years, the majority of them were female (55.0%) while male(45.0%), also regarding the nationality most of participants Saudi were(72.0%), regarding the marital stats most of participants married were(67.0%)while single were(33.0%), regarding level of education the majority of participant are University education were(33.0%) .

**Table 2 Distribution of the perceptions attitude about symptoms of the Vaccinate against COVID-19 among adult Saudi Population**

		N	%
<b>Attitude</b>	<b>Weak</b>	84	28
	<b>Average</b>	99	33
	<b>High</b>	117	39
<b>Total</b>		300	100
<b>Score</b>	<b>Range</b>	7-29.	
	<b>Mean±SD</b>	19.445±7.1525	
<b>Chi-square</b>	<b>X<sup>2</sup></b>	5.460	
	<b>P-value</b>	0.06	

Table 2 and figure(1) Regarding Attitude of the participant toward symptoms of the Vaccinate against COVID-19 the majority of participant in high attitude were(39.0%) followed by average were(33.0%) the data ranged from(7-29) by mean ±SD(19.445±7.1525). Show that is no significant correlation in attitude were p-value =0.001 and X<sup>2</sup> 5.460.

**Figure 1 Distribution of the perceptions attitude about symptoms of the Vaccinate against COVID-19 among adult Saudi Population**

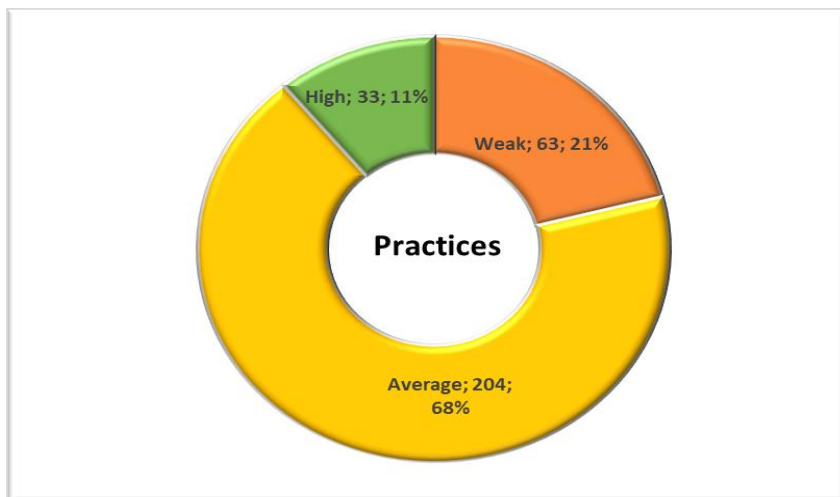


**Table 3 Distribution of the perceptions practices about the Vaccinate against COVID-19 among adult Saudi Population**

		N	%
<b>Practices</b>	<b>Weak</b>	63	21
	<b>Average</b>	204	68
	<b>High</b>	33	11
<b>Total</b>		300	100
<b>Score</b>	<b>Range</b>	2-9.	
	<b>Mean±SD</b>	5.122+1.888	
<b>Chi-square</b>	<b>X<sup>2</sup></b>	136.855	
	<b>P-value</b>	<0.001*	

Table 3 and figure (2) Regarding the **practices** of the participant toward the Vaccinate against COVID-19 the majority of participant in Practices in average were(68.0%) followed by weak were(21.0%) the data ranged from(2-9) by mean  $\pm$ SD(5.122+1.888). Show that is a significant correlation in Practices were p-value =0.001 and  $X^2$  136.855.

**Figure (2)Distribution of the perceptions practices about the Vaccinate against COVID-19 among adult Saudi Population**

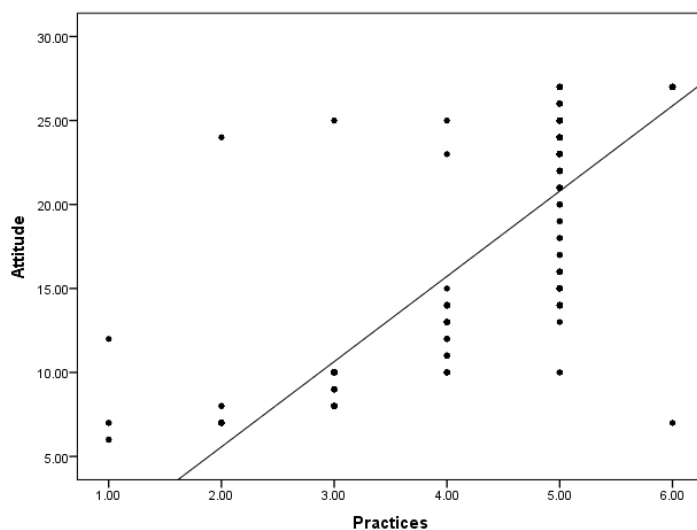


Correlations		
	Attitude	
	r	P-value
<b>Practices</b>	0.811	<0.001*

**Table 4 Correlation between attitude and practices**

Table 4 and figure (3) show that there is a significant positive correlation between attitude and practices with  $r = 0.811$  and  $p\text{-value} = 0.001$ .

**Figure (3) Correlation between attitude and practices**



**Table 5 Distribution the relation of socio-demographic data (Age, gender, nationality, marital status, level of education and region) and Attitude about the Vaccinate against COVID-19 among adult Saudi Population**

Demographic data		N	Attitude		F or T	ANOVA or T-test	
			Mean	± SD		Test value	P-value
Age	<30	36	12.791	± 1.331	F	35.121	<0.001*
	30-40	84	14.811	± 3.448			
	40-50	99	20.779	± 6.474			
	50-60	39	24.139	± 6.116			
	Above 60	42	24.324	± 7.260			
Gender	Male	135	18.516	± 6.212	T	0.414	0.6794
	Female	165	18.826	± 6.652			
Nationality	Saudi	216	17.372	± 6.030	T	2.901	0.004*
	Non-Saudi	84	19.689	± 6.661			
Marital Status	Single.	99	17.010	± 6.152	T	3.877	<0.001*
	Married.	201	20.040	± 6.468			
level of education	Primary/ Intermediate	57	15.137	± 7.423	F	24.122	<0.001*
	Secondary school	84	16.427	± 5.831			
	University	99	21.554	± 4.890			
	Postgraduate Studies	60	25.674	± 0.530			

Table 5 and figure(3) Regarding age, results show a significant relation between the attitude and age were  $F=35.121$  and  $P\text{-value}=0.001$ , increase(above 60 years followed the mean +SD respectively were  $(24.324\pm 7.260)$ , regarding gender show no significant relation between the attitude and gender were  $T=0.414$  and  $P\text{-value}=0.694$ , increase(female), the mean +SD were  $(18.826 \pm 6.652)$ , regarding nationality show a significant relation between the attitude and nationality were  $T=2.901$  and  $P\text{-value}=0.004$ , increase(non-Saudi) the mean +SD were  $(19.689\pm 6.661)$ . Regarding marital status show a significant relation between the

attitude and marital status were  $T=3.877$  and  $P\text{-value}=0.001$ , increase(Married), the mean +SD were  $(20.040\pm6.468)$ , regarding level of education show a significant relation between the attitude and level of education were  $F=24.122$  and  $P\text{-value}=0.001$ , increase(Postgraduate Studies), the mean +SD were  $(25.674 \pm 0.530)$ ,

**Table 6 Distribution the relation of socio-demographic data (Age, gender, nationality, marital status, level of education and region) and practices about the Vaccinate against COVID-19 among adult Saudi Population**

		N	Practices	F or T	ANOVA or T-test	
			Mean $\pm$ SD		Test value	P-value
Age	<30	36	4.625 $\pm$ 0.413	F	12.841	<0.001*
	30-40	84	5.168 $\pm$ 0.662			
	40-50	99	5.286 $\pm$ 0.784			
	50-60	39	5.680 $\pm$ 0.418			
	Above 60	42	6.266 $\pm$ 0.971			
Gender	Male	135	5.278 $\pm$ 0.635	T	0.158	0.874
	Female	165	5.291 $\pm$ 0.761			
Nationality	Saudi	216	5.101 $\pm$ 0.702	T	3.535	0.005*
	Non-Saudi	84	5.421 $\pm$ 0.709			
Marital Status	Single.	99	5.154 $\pm$ 0.731	T	2.704	0.0072*
	Married.	201	5.389 $\pm$ 0.696			
level of education	Primary/ Intermediate	57	4.571 $\pm$ 0.744	F	29.115	<0.001*
	Secondary school	84	4.975 $\pm$ 0.642			
	University	99	5.857 $\pm$ 0.438			
	Postgraduate Studies	60	5.808 $\pm$ 0.326			

Table 6 show regarding age, results show a significant relation between the practices and age were  $F=12.841$  and  $P\text{-value}=0.001$ , increase(above 60 years the mean +SD respectively were  $(6.266\pm0.971)$ , regarding gender show no significant relation between the practices and

gender were  $T=-0.158$  and  $P\text{-value}=0.874$ , increase(female), the mean  $\pm$ SD were  $(5.291\pm0.761)$ , regarding nationality show a significant relation between the practices and nationality were  $T=3.535$  and  $P\text{-value}=0.005$ , increase(non-Saudi) the mean  $\pm$ SD  $(5.421\pm0.709)$ .

Regarding marital status show a significant relation between the practices and marital status were  $T=-2.704$  and  $P\text{-value}=0.072$ , increase(Married), the mean  $\pm$ SD were  $(5.389\pm0.696)$ , regarding level of education show a significant relation between the practices and level of education were  $F=29.115$  and  $P\text{-value}=0.001$ , increase(Postgraduate Studies), the mean  $\pm$ SD were  $(5.808 \pm 0.326)$ .

## Discussion

The purpose of this study was to assess the awareness of risk the perceptions attitude about signs and Symptoms of the Vaccinate against COVID-19 and communication practices of Vaccinate about COVID-19 among Adult Saudi Population. Socioeconomic characteristics of the population to obtain information that could be used awareness campaign and to determine whether people's knowledge differed based on particular characteristics of the target population.

the most of the participants shows that most of the participants (33.0%) were in the age group 40-50 years, the majority of them were female (55.0%) while male(45.0%), also regarding the nationality most of participants Saudi were(72.0%), regarding the marital stats most of participants married were(67.0%)while single were(33.0%), regarding level of education the majority of participant are University education were(33.0%) . (See Table 1)

Since the initial outbreak of COVID-19 disease in China, it has spread widely to various countries. According to the MOH update on the 20th of April 2020, the number of COVID-19 cases raised to 10,484 in Saudi Arabia. Many studies have reported the importance of awareness, perceptions of attitude and practice about symptoms of the Vaccinate against COVID-19 society to reduce the spreading rate during epidemics and pandemics [19]. Similarly, lack of awareness contributes to undesirable perceptions of attitudes and practice, about symptoms of the Vaccinate against COVID-19 which leads to negative impacts on infection-control [20].

Therefore, in this study, the awareness about the risk perceptions attitude about symptoms of the Vaccinate against COVID-19 among Adult Saudi Population. In this study, we found a significant relation between awareness and attitude, indicating that the better the level of awareness was reflected in their attitude. The same was also true for the correlation between

attitude and practice. Data from this study indicated a moderate general awareness level of COVID-19)

During the COVID-19 outbreak, a similar the awareness about the risk perceptions attitude about symptoms of the Vaccinate against COVID-19 among Adult Saudi Population . Was detected in Riyadh and Al-Jouf [21]. A similar level of awareness was detected among health care providers in UAE , Vietnam and Uganda [22], also my study is similar to another study the vaccine, and COVID-19 vaccines can cause side effects, most of which are mild or moderate and go away within a few days on their own. As shown in the results of clinical trials, more serious or long-lasting side effects are possible. Vaccines are continually monitored to detect adverse events.[23] Reported side effects of COVID-19 vaccines have mostly been mild to moderate and have lasted no longer than few days. Typical side effects include pain at the injection site, fever, fatigue, headache, muscle pain, chills and diarrhea. The chances of any of these side effects occurring after vaccination differ according to the specific vaccine. COVID-19 vaccines protect against the SARS-CoV-2 virus only, so it's still important to keep yourself healthy and well [24]

awareness attitude participants had good awareness about Vaccinate against COVID-19 , like other studies [7,20]. On the other hand, other studies showed <80% had poor awareness about symptoms of Vaccinate against COVID-19 [25].

A study in China found that 48% of respondents postponed vaccination before confirmation of the safety of the vaccine, which shows their doubt regarding vaccine safety. Worryingly, the exceptionally rapid pace of vaccine development, the skepticism of certain groups of science and health experts might elevate doubt about COVID-19 vaccine [26].

The participants' the socio-demographic data (Age, gender, nationality, marital status, level of education and region) and attitude and practices about symptoms of the Vaccinate against COVID-19 among adult Saudi Population are significantly associated with participants' awareness, as evidenced by this study .

Participants' age, results show a significant relation between the attitude and age were P-value=0.001. Also nationality show a significant relation between the attitude and practices and nationality were P-value=0.002 and P-value=0.005. Participants in Saudi Arabia [13]In agreement with this study, other studies found similar findings, as awareness of the perceptions and attitude towards symptoms of the Vaccinate against COVID-19 was significantly among level of education people with higher levels of education were more knowledgeable compared with other categories. Also, marital status was positively correlated with better awareness. [22], China, USA and Nepal [27]. Participants from business and

governmental sectors have significantly shown the highest COVID-19. This finding is similar to other studies with higher KAP among married individuals [27]. It was thought that married individuals had a higher level of positive attitudes towards COVID-19 as they cared for close family members, including young children [28].

## 6. Conclusion

COVID-19 disease was announced as a pandemic on the 12th of March 2020. The causative of this disease is highly contagious, therefore, raising awareness is a major of perceptions attitude about signs and symptoms of the Vaccinate against COVID-19 and practices of Vaccinate about COVID-19 among Adult Saudi Population is very importen aspect to curb the transmission of the COVID-19. The results of this study identified areas of misconceptions symptoms of the Vaccinate against and specific groups to be targeted for educational programs regarding Vaccinate against COVID-19. Several aspects were less knowledgeable among respondents, including the symptoms of the Vaccinate againstvirus mode of transmission, symptoms, incubation period and re-infection and the vulnerable people. It is therefore suggested that a well-planned and structured educational program should be undertaken to improve the level of awareness and contribute to better attitude and practice. In this current pandemic, people should follow the ministry of health instructions and avoid close contact with others, especially immune compromised individuals.

## References

1. Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., ... & Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The lancet*, 395(10223), 497-506.
2. Lazarus, J. V., Ratzan, S., Palayew, A., Gostin, L. O., Larson, H. J., Rabin, K., ... & El-Mohandes, A. (2020). Hesitant or not? A global survey of potential acceptance of a COVID-19 vaccine. *medRxiv*.
3. Ghebreyesus, T. A. (2020). WHO Director-General's opening remarks at the media briefing on COVID-19-11 March 2020. *World Health Organization*, 11.
4. Baig, M., Jameel, T., Alzahrani, S. H., Mirza, A. A., Gazzaz, Z. J., Ahmad, T., ... & Almurashi, S. H. (2020). Predictors of misconceptions, knowledge, attitudes, and practices of COVID-19 pandemic among a sample of Saudi population and its impact: a cross-sectional study. *medRxiv*.



5. Badawi, A., & Ryoo, S. G. (2016). Prevalence of comorbidities in the Middle East respiratory syndrome coronavirus (MERS-CoV): a systematic review and meta-analysis. *International Journal of Infectious Diseases*, 49, 129-133.
6. Calina, D., Sarkar, C., Arsene, A. L., Salehi, B., Docea, A. O., Mondal, M., ... & Sharifi-Rad, J. (2020). Recent advances, approaches and challenges in targeting pathways for potential COVID-19 vaccines development. *Immunologic research*, 1-10.
7. Knight, G. M., Glover, R. E., McQuaid, C. F., Oлару, I. D., Gallandat, K., Leclerc, Q. J., ... & Chandler, C. I. (2021). Antimicrobial resistance and COVID-19: Intersections and implications. *ELife*, 10, e64139.
8. Isiko, A. P. (2020). Religious construction of disease: An exploratory appraisal of religious responses to the COVID-19 pandemic in Uganda. *Journal of African Studies and Development*, 12(3), 77-96.
9. COVID, C. (19). Global Cases by Centre for Systems Science and Engineering, Johns Hopkins University; 2020
10. Stawicki, S. P., Jeanmonod, R., Miller, A. C., Paladino, L., Gaieski, D. F., Yaffee, A. Q., ... & Garg, M. (2020). The 2019–2020 novel coronavirus (severe acute respiratory syndrome coronavirus 2) pandemic: A joint american college of academic international medicine-world academic council of emergency medicine multidisciplinary COVID-19 working group consensus paper. *Journal of global infectious diseases*, 12(2), 47.
11. Robson, B. (2020). COVID-19 Coronavirus spike protein analysis for synthetic vaccines, a peptidomimetic antagonist, and therapeutic drugs, and analysis of a proposed achilles' heel conserved region to minimize probability of escape mutations and drug resistance. *Computers in Biology and Medicine*, 121, 103749.
12. Costell, M. H., Ancellin, N., Bernard, R. E., Zhao, S., Upson, J. J., Morgan, L. A., ... & Behm, D. J. (2012). Comparison of soluble guanylate cyclase stimulators and activators in models of cardiovascular disease associated with oxidative stress. *Frontiers in pharmacology*, 3, 128
13. 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.
14. Assiri, A., Abedi, G. R., Al Masri, M., Bin Saeed, A., Gerber, S. I., & Watson, J. T. (2016). Middle East respiratory syndrome coronavirus infection during pregnancy: a report of 5 cases from Saudi Arabia. *Clinical Infectious Diseases*, 63(7), 951-953.

15. Monrad, J. T., Sandbrink, J. B., & Cherian, N. G. (2021). Promoting versatile vaccine development for emerging pandemics. *npj Vaccines*, 6(1), 1-7.
16. Ferdous, M. Z., Islam, M. S., Sikder, M. T., Mosaddek, A. S. M., Zegarra-Valdivia, J. A., & Gozal, D. (2020). Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladesh: An online-based cross-sectional study. *PloS one*, 15(10), e0239254.
17. Stawicki, S. P., Jeanmonod, R., Miller, A. C., Paladino, L., Gaieski, D. F., Yaffee, A. Q., ... & Garg, M. (2020). The 2019–2020 novel coronavirus (severe acute respiratory syndrome coronavirus 2) pandemic: A joint american college of academic international medicine-world academic council of emergency medicine multidisciplinary COVID-19 working group consensus paper. *Journal of global infectious diseases*, 12(2), 47.
18. Wibawa, T. (2021). COVID-19 vaccine research and development: ethical issues. *Tropical Medicine & International Health*, 26(1), 14-19.
19. Islam, M. S., Siddique, A. B., Akter, R., Tasnim, R., Sujana, M. S. H., Ward, P. R., & Sikder, M. T. (2021). Knowledge, attitudes and perceptions towards COVID-19 vaccinations: a cross-sectional community survey in Bangladesh. *medRxiv*.
20. Alboaneen, D., Pranggono, B., Alshammari, D., Alqahtani, N., & Alyaffer, R. (2020). Predicting the Epidemiological Outbreak of the Coronavirus Disease 2019 (COVID-19) in Saudi Arabia. *International Journal of Environmental Research and Public Health*, 17(12), 4568.
21. Maleki, S., Najafi, F., Farhadi, K., Fakhri, M., Hosseini, F., & Naderi, M. (2020). Knowledge, attitude and behavior of health care workers in the prevention of COVID-19.
22. Wahed, W. Y. A., Hefzy, E. M., Ahmed, M. I., & Hamed, N. S. (2020). Assessment of knowledge, attitudes, and perception of health care workers regarding COVID-19, a cross-sectional study from Egypt. *Journal of community health*, 45(6), 1242-1251.
23. Setiawan, A. S., & Zubaedah, C. (2020). Covid-19 Pandemic and Challenges of Dentistry: Application of Health Belief Model on Child's Dental Visit Postponement during the COVID-19 Pandemic. *European Journal of Dentistry*, 14(Suppl 1), S7.
24. Akalu, Y., Ayelign, B., & Molla, M. D. (2020). Knowledge, attitude and practice towards COVID-19 among chronic disease patients at Addis Zemen Hospital, Northwest Ethiopia. *Infection and drug resistance*, 13, 1949.
25. Wang, J., Lu, X., Lai, X., Lyu, Y., Zhang, H., Fenghuang, Y., ... & Fang, H. (2021). The changing acceptance of COVID-19 vaccination in different epidemic phases in China: A longitudinal study. *Vaccines*, 9(3), 191.

26. Singh, D. R., Sunuwar, D. R., Karki, K., Ghimire, S., & Shrestha, N. (2020). Knowledge and perception towards universal safety precautions during early phase of the COVID-19 outbreak in Nepal. *Journal of community health, 45*, 1116-1122.
27. Erfani, A., Shahriarirad, R., Ranjbar, K., Mirahmadizadeh, A., & Moghadami, M. (2020). Knowledge, attitude and practice toward the novel coronavirus (COVID-19) outbreak: a population-based survey in Iran. *Bull World Health Organ, 30*(10.2471).
28. Sun, N., Wei, L., Shi, S., Jiao, D., Song, R., Ma, L., ... & Wang, H. (2020). A qualitative study on the psychological experience of caregivers of COVID-19 patients. *American journal of infection control, 48*(6), 592-598.