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Knowledge, Acceptance and Perception on COVID-19 Vaccine among Sudanese People in Khartoum State, 2020-2021

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Aim: This a descriptive cross sectional community based study aimed to find out the extent of information and acceptance of Corona vaccines by Sudanese citizens.
Background: Coronaviruses are enveloped positive sense RNA virus with spike like projection on it is surface. Four coronaviruses namely HKU1, NL63, 229E and OC43 have been in circulation in human and generally cause mild respiratory disease.
Methods: Questionnaires were distributed to 150 participants after obtaining their consent to participate. The participants were divided into three groups: Khartoum, Omdurman and Khartoum North. It was ensured that the questionnaires were filled out correctly, Data had been entered, cleaned, and analyzed using SPSS version 22.0. Descriptive statistics in term of frequency tables with percentages and graphs.
Result: The majority of the participants had information about the disease in the majority of the khartoum north city (88%), Although most of those who were affected were residents of Khartoum (37%). Information about Corona vaccines was similar in the three cities. Opinions differed about the safety of vaccines in the cites khartoum (20%), omdurman 13% and khartoum north 47%.
Conclusion: This study realized that the information of the participants in the study was weak, and the majority of them showed their dissatisfaction with the procedures of the health authorities, as

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well as their lack of confidence in the authority of vaccines. In conclusion, it is necessary to increase the dose of awareness among the citizens, as it is necessary to find research on a larger scale.

Keywords: Pfizer BioNTech; vaccines; SARS.CoV-2; moderna; Johnson and Johnsons.

1. INTRODUCTION

Coronaviruses are enveloped positive sense RNA virus [1] with spike like projection on it is surface. Four coronaviruses namely HKU1, NL63, 229E and OC43 have been in circulation in human and generally cause mild respiratory disease.

1.1. Covid-19

"There is a new public health crises threating the world [1] with emergence and spread of 2019 novel coronavirus (2019-nCOV) or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) the virus originated in bats and was transmitted to human through yet unknown intermediary animals in Wuhan, Hubei province, China in December 2019."

1.1.1 The common clinical features of Covid-19

are fever, cough, sore throat, headache, fatigue and breathless [1]. The subset of patient by end of the first week the disease can progress to pneumonia, respiratory failure and death.

1.2 Covid-19 vaccine

"Vaccine response depend upon their interaction with immune system" [2]. "The goal is to provide immunological bases that should guide vaccine design and vaccination strategies. Early inflammatory events that follow vaccine administration take place at the injection site are essential in determining outcome of vaccination. Acritical aspect of vaccine efficacy is the duration of procreation. In most cases it depends on antibody persistence and quality of memory induced by priming doses. Both T- and B-cell memory are slowly maturing and this allow sufficient delay before boosting. Response to live viral vaccine are more disseminated and exposure to vaccine antigen is often prolonged this may greatly influence the establishment and duration of immunologic memory" [2].

1.2.1 Covid-19 vaccine types

1.2.1.1 Pfizer–BioNTech

Pfizer has aforementioned its Covid-19 vaccine was quite ninety per cent effective in trials, career the event "a nice day for science and humanity". Pfizer and German partner BioNTech are the primary drug manufacturers to unharness triple-crown information from a large-scale clinical test of a corona virus vaccine. The businesses aforementioned they need up to now found no serious safety issues and expect to hunt U.S. authorization this month for emergency use of the vaccine. Roughly forty two per cent of the trial's world participants had racially and ethnically numerous backgrounds, Pfizer and BioNTech aforementioned [3].

1.2.1.2 Moderna

"The Moderna COVID nineteen vaccine, could be a COVID-19 vaccine developed by Yankee company Moderna, the us National Institute of hypersensitivity reaction and Infectious Diseases (NIAID), and also the medical specialty Advanced analysis and Development Authority (BARDA). It's approved to be used in individuals aged twelve years and older in some jurisdictions and for individuals eighteen years and older in different jurisdictions to supply protection against COVID-19 that is caused by infection by the SARS-CoV-2 virus. It's designed to be administered as 2 or 3 zero.5 milliliter doses given by injection at Associate in nursing interval of a minimum of twenty eight days apart" [4].

1.2.1.3 Johnson and Johnsons

The Janssen COVID-19 vaccine, or Johnson & Johnson COVID-19 vaccine, could be a COVID-19 vaccine that was developed by Janssen Vaccines Company, Kingdom of The Netherlands, [5] a subsidiary of Yankee Company Johnson & Johnson.

"It's an infective agent vector vaccine supported an individual's animal virus that has been changed to contain the cis-tron for creating the spike macromolecule of the SARS-CoV-2 virus that causes COVID-19. The body's system responds to the present spike macromolecule to provide antibodies." [6] The vaccine needs only 1 dose and doesn't have to be hold on frozen.

1.3 Aspect effects of Covid-19 Vaccine

COVID-19 vaccination helps shield individuals from obtaining COVID-19. Some individuals have

aspect effects from the vaccine that are traditional signs that their body is building protection. “These aspect effects could have an effect on their ability to try and do daily activities, however they ought to depart in a very few days. Some individuals haven't any aspect effects, and aversions are rare. Adverse effects that might cause a long-run unhealthiness are extraordinarily uncommon following any vaccination, together with COVID-19 vaccination. If adverse effects occur, they typically happen inside six weeks of receiving a vaccine dose. For this reason, throughout clinical trials, the U.S. Food and Drug Administration (FDA) collected information on every of the approved COVID-19 vaccines for a minimum of 2 months (eight weeks) when the ultimate dose. CDC, FDA, and different federal agencies still monitor the protection of COVID-19 vaccines even currently that the vaccines are in use” [7].

1.3.1 Common side effects

1.3.1.1 On the arm where you got the shot

- Pain
- Redness
- Swelling

1.3.1.2 Throughout the rest of your body

- Tiredness
- Headache
- Muscle pain
- Chills
- Fever
- Nausea

2. MATERIALS AND METHODS

Khartoum State is one in all the eighteen states of Sudan. Though it's the tiniest state by space, it's the foremost inhabited. It contains the country's second largest town by population, Omdurman, and also the town of national capital, that is that the capital of the state furthermore because the city of Sudan. The capital town contains offices of the state, governmental and non-governmental organizations, cultural establishments, and also the main landing field.

2.1 Data Collection

Questionnaires were distributed to 150 participants after obtaining their consent to participate. The participants were divided into three groups: Khartoum, Omdurman and Khartoum North. It was ensured that the questionnaires were filled out correctly, Pre testing was done to ensure quality survey instruments and fieldwork procedures were conducted.

2.2 Data Management

Data had been entered, cleaned, and analyzed using SPSS version 22.0. Descriptive statistics in term of frequency tables with percentages and graphs. Chi square test and t- test statistical tests applied to calculate P value.

3. RESULTS AND DISCUSSION

This study was conducted in the Khartoum state , and study targeted both sexes (Fig.2) in the age groups over 20 years (Fig.1), with different jobs (Fig.4), different level of education (Fig.5) Taking into account the presence of chronic diseases (gig.3), in order to find out information about the Corona virus.

Refer to information about the Corona virus and its vaccines we find that. The majority of the participants had information about the disease in the majority of the khartoum north city (88%), Although most of those who were affected were residents of Khartoum (37%). Information about Corona vaccines was similar in the three cities. Opinions differed about the safety of vaccines in the cites khartoum (20%), omdurman 13% and khartoum north 47%. When the participants were asked if they were satisfied with the health authorities’ roles, the majority answered with dissatisfaction (Table1).

“Study created by Tahir and their colleague in Asian nation represent that a majority (70.8%) of respondents can settle for the COVID-19vaccine if accessible, and 66.8% showed a positive perspective towards vaccination. Monthly family financial gain, education level, self-diagnosis of COVID-19 or an addict, friend, or colleague area unit important factors influencing the acceptance of COVID-19 vaccination. The dogma of being naturally resistant to COVID-19 was a key reason for the refusal of the immunizing agent. but 0.5 (48%) of these UN agency refuse can shoot themselves if establishment have created it obligatory. a 3rd (33.9%) of participants were willing to ante up to (7 USD) a thousand Pkr (Pakistani Rupees) for the immunizing agent” [8].

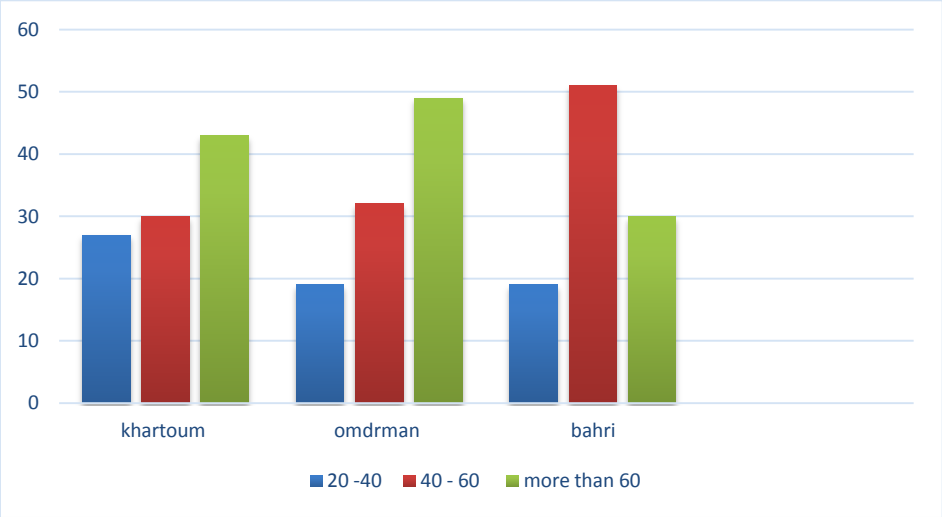

Fig. 1. Distribution of the participant among age

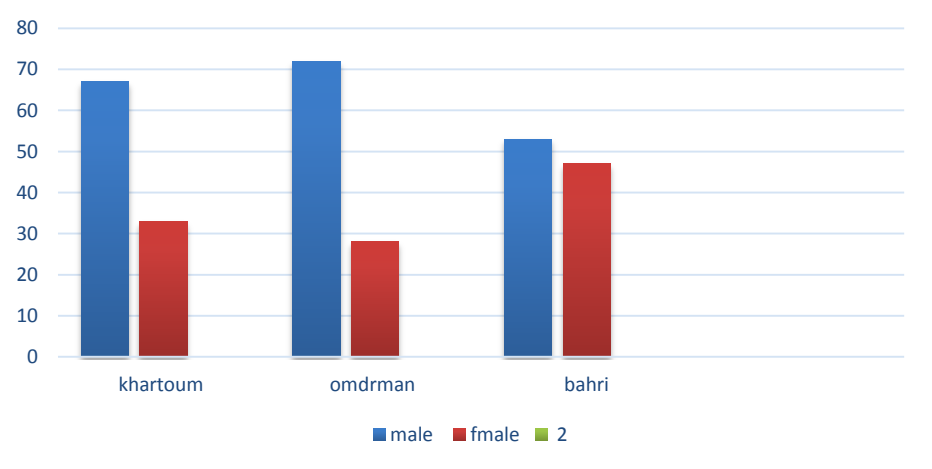

Fig. 2. Distribution of the participant among gender

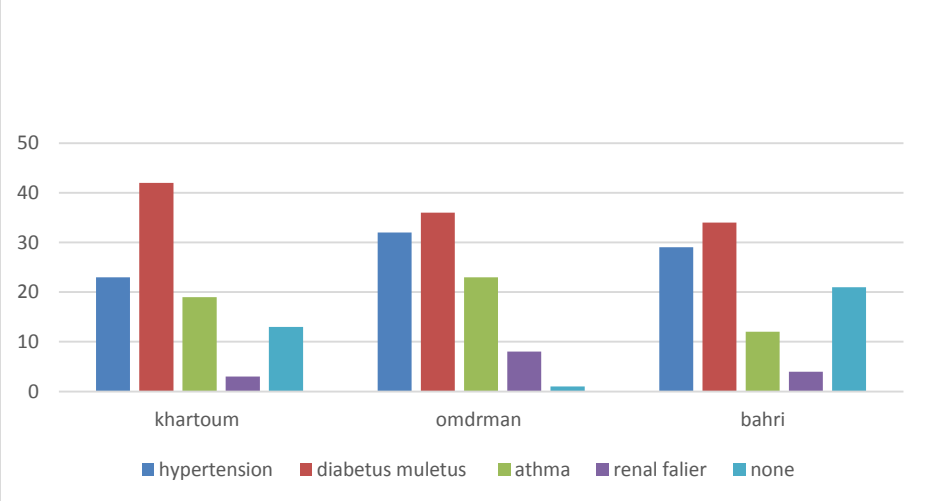

Fig. 3. Distribution of the participant among present of chronic illnesses

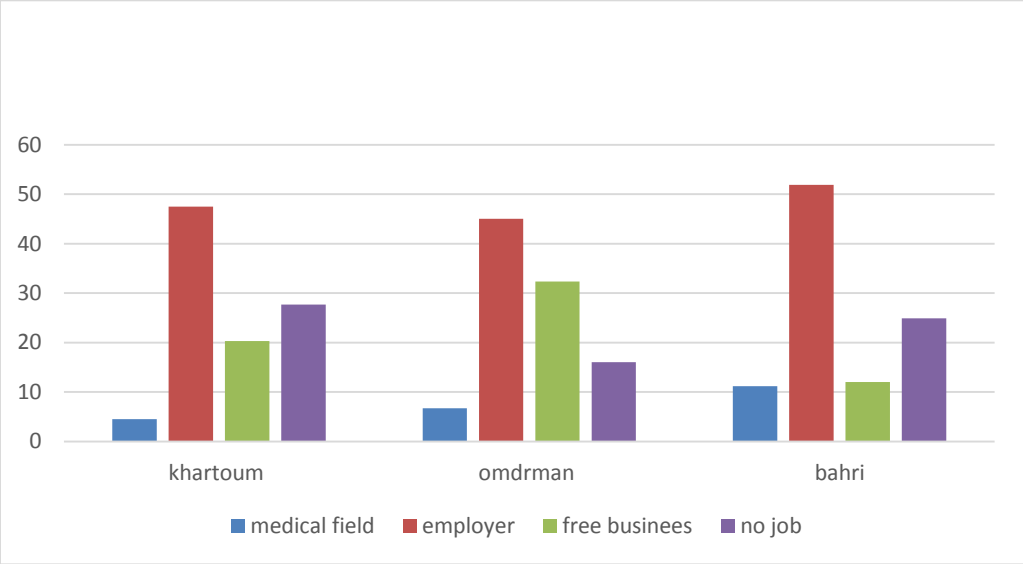

Fig. 4. Distribution of the participant among job

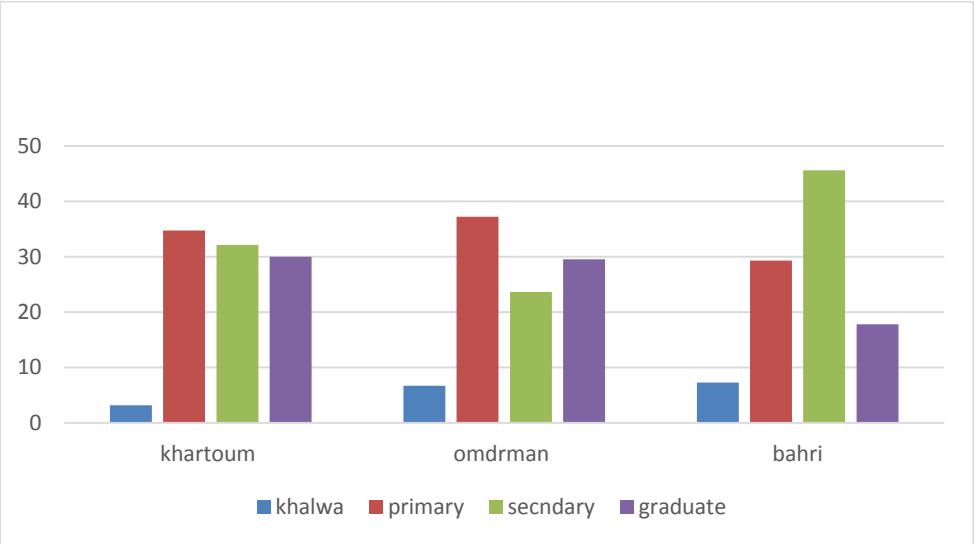

Fig. 5. Distribution of the participant among education level

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"Other study created by Mohamed and their colleague among Malaysians represent that a total of 1406 respondents participated, with the mean age of 37.07 years (SD = 16.05) years, and among them 926 (65.9%) were female. Sixty-two percent of respondents had poor concerning COVID-19 vaccine (mean data score 4.65; SD = 2.32) and 64.5% were willing to urge a COVID-19 vaccine. High knowledge scores related to education background, higher-income class and living with who is at higher risk of getting severe COVID-19. They were more likely to be willing to get vaccinated if they were in a lower age group, have higher education levels and were female" [9]. "Alqudeimat et al represent that in total, 53.1% (1,257/2,368) of the participants were willing to simply accept a COVID-19 vaccine once obtainable. Male subjects were a lot of willing to simply accept a COVID-19 vaccine than females (58.3 vs. 50.9%, $p < 0.001$). Subjects who viewed vaccines in general to have health-related risks were less willing to accept vaccination (aPR = 0.39, 95% CI: 0.35-0.44). Moreover, participants who previously received an influenza vaccine were more likely to accept a COVID-19 vaccine (aPR = 1.44, 95% CI: 1.31-1.58). Willingness to get vaccinated against COVID-19 increased as the self-perceived chances of contracting the infection increased ($p < 0.001$)" [10].

Table 1. knowledge about corona virus 2 and their vaccines

	Khartoum			Omdurman			Khartoum north			P value
	Yes %	No %	Don't know %	Yes %	No %	Don't know%	Yes %	No %	Don't know %	
Hearing about corona virus	71	19	10	75	13	12	88	10	2	.189
Affected by corona virus	37	40	23	26	70	4	12	80	8	.044
Contact with affected persons	13	27	60	24	60	16	41	12	47	.078
Death a relative person with covid19	7	80	13	16	24	60	18	70	12	.224
information about Covid-19 Vaccines	40	12	48	56	27	17	54	27	19	.407
Do you think vaccines are safety	20	40	40	13	77	10	47	45	28	.458
Satisfaction with the role of the authorities in the vaccination process	3	85	12	16	57	27	31	43	26	.026

P value significant at (.05,.01, .001)

Khan *etal* He even vaccine resistance in Islamic Republic of Pakistan by speech communication "Recently, 2 well-known political figures raised conspiracy theories against COVID-19 vaccines in Islamic Republic of Pakistan, stating that COVID-19 may be a grand illusion and a conspiracy against Muslim countries. This theory is far mentioned within the local people, supporting COVID-19 vaccine hesitancy" [11].

"In certain European countries where by willingness to take the vaccine was found to be 62% in France, 80% in Denmark, and the UK [12]. A study from the USA showed 57.6% intended to take the vaccine" [13]. "An Indonesian study showed 93.3% and 67 of participants would want to get vaccinated provided the effectiveness was 95 and 50%, respectively" [14]. "Financial constraints are one of the identified reasons for reduced vaccination uptake" [8]. "Pakistan is a developing country with a poverty rate of 75.4%, as reported in 2015" [4]. Thus, the understand why family income plays a crucial role in vaccine acceptance.

4. CONCLUSION

This study realized that the information of the participants in the study was weak, and the majority of them showed their dissatisfaction with the procedures of the health authorities, as well as their lack of confidence in the authority of vaccines. In conclusion, it is necessary to increase the dose of awareness among the citizens, as it is necessary to find research on a larger scale.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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