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Research Article

Awareness of Sudanese Population Regarding Corona virus (COVID19) – Khartoum State- Sudan 2020

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Abstract: ***Background:*** A novel corona virus disease (COVID-19) has spread rapidly around the world since it was first identified in January 2020 in Wuhan in Republic of China. WHO declared that corona virus was public health emergency in 30th of January 2020. In 11th of March WHO declared COVAID-19 as a pandemic disease, Ministry of health in Sudan announced the first case on the 12th of March 2020. ***Objective:*** This study was conducted to assess awareness of the Sudanese population regarding COVID-19. ***Methods:*** It was descriptive cross-sectional community based study. The data was gathered from 385 participants from different locality in Khartoum state, Sudan using electronic questionnaire developed by the researchers at Google form document then analyzed by SPSS version 25 and the results were displaced in frequency and percentage. The level of statistical significance was set at p = 0.001. ***Results:*** The finding regarding basic knowledge of the participants revealed that the majority of the participants (98.2%) were aware that the disease was a viral illness in it is nature, most of the participants reported accurate and correct information about the mode of transmission. (92.7%) believed that contaminated surfaces were modes of transmission, while 86% stated that droplet was a mode of transmission with virus. Regarding signs and symptoms of COVID-19 the majority of the participants showed high percentage of awareness (fever 95.3%, sore throat 89.1%, headache 88.6%, dry cough, 89.1%, and shortness of breath 89.6%). Regarding methods of protection of coV-19 most of participants (85%) said that they were doing hand washing, wearing masks and practicing social isolation, (98.4%) believed that there was no vaccination. Only (16.9%) of the participants believed there was no specific treatment, but 44% said symptoms can treated by anti-malarial drugs. Regarding respiratory etiquette, (89.4%) were using the inner side of the elbow while sneezing, (65.7%) were taking full precautions when going outside their homes. When coming back home, 45.2% of the participants washed their hands, took a shower, changed clothes and exposed dirty clothes and shoes to sunlight. Concerning attitude toward controlling suspected infections, 62.1% said that they will enter self-isolation for two weeks when if they have dealt with an infected person and 43.6% replied that they will inform authorities by telephone if they feel COVI-19 symptoms. 90.6% will not shake hands when meeting a person coming from an infected area and 69.8% of them will inform the official authorities when they see a person with suspected symptoms of COVID-19. ***Conclusions:*** The study concluded that the awareness of Sudanese people still lacking in some areas and need intensive health education.

Keywords: COVID-19, Corona viruses, Sudanese population, awareness, attitude, practice.

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INTRODUCTION

Corona viruses which were discovered in the 1060s, are important cause of common cold, probably second in frequency to rhinoviruses which are known to cause most common cold conditions (Levinson, W. 2012). In 2002 a new an atypical pneumonia called severe acute respiratory syndrome (SARS), caused by a new Corona virus serotype appeared in China, probably originating from bats and quickly spread to different countries. It was a contagious and sometimes fatal illness affecting about 8000 people, killing almost 800 patients. In 2012, the world was alarmed by a new Corona virus, Middle East Respiratory syndrome (MER-C OV), which was suspected to have originated from camels. By the end of the year 2019, it has affected 2494 people, with 858 fatalities (34.4%) (www.who.int 2020 a).

Pneumonia of unknown etiology was detected in Wuhan, China and was first reported to the WHO country office on the 31st. of December 2019. The outbreak was declared as a public health emergency of international concern on the 30th. Of January 2020, disease then named COVID-19. This condition is an infectious highly contagious disease caused by a newly discovered corona virus. The transmission of the disease is via direct contact through respiratory droplets or shaking hands. It can also be transmitted indirectly by touching contaminated objects. Most cases of COVID-19 are mild to moderate respiratory disease, which recover without treatment. Serious illness occurs in people with underlying diseases such cardiovascular disease, diabetes or chronic respiratory disease.

There is as yet, no specific treatment, but only treating adverse symptoms like high fever, ground glass pneumonia and bacterial super-infections.

Prevention can be achieved by quick testing, quarantine, informing the population about the disease, right procedure for washing hands, right sneezing technique and best of all "stay at home." On the 22nd of April worldwide statistics is as follows (Cases 2,653808, death 184,643 recovered 721,349 (www.who.int 2020 b).

The 1st case was reported in the Sudan on the 13th of March 2020 and a partial curfew was declared on the 31st. of March from 6:00 pm to 6:00am next day. Up to25th of April there are 174 positive cases with 14 recoveries and 16 deaths. On the same day worldwide there are 2,832,454 positives, 808,024 recoveries and 197,421 deaths. Now on 14th of April there are 32 cases with three recoveries and 5 deaths (www.worldmeter.info.statiatics).

The compliance with the preventive measures is highly important to avoid tragic spread of the disease. Sudanese people are still crowding in supermarkets, transport busses, bakeries, funerals, weddings and bus stops. This does not seem to be due to ignorance but due to social habits.

In this research we mean to assess the knowledge, attitude and practice of people concerning the preventive measures against COVID-19.

MATERIALS AND METHODS:

This is a descriptive cross sectional community based study conducted in different Sudanese localities selected randomly, the study included male and female Sudanese populations, age 20 years and more, who can have access to the electronic questionnaire, selected from study area and were consented voluntary to participate in the study. Proportional quota sampling was used to ensure that respondents were demographically representative of the general population with quotas based on (age, gender, and level of education). Study conducted in April 2020 among respondents, who were willing to participate in the study, their number was 385 calculated by the formula: S: total population/1_total population (D) [2]

An interview electronic questionnaire was designed by the researchers. It was prepared in a Google form document and distributed through mass media like face book, watts app, and telegram; the questionnaire can be filled by participants themselves or by data collector in cases which participants could not use the media nor had not internet access or smart phone.

The questionnaire consisted of two parts:

- Part one: composed of socio-demographic variables of population such as (age, gender, and level of education).
- Part two: awareness of participants regarding COVID_19 such as knowledge about signs and symptoms, mode of transmission, protective measures and their Practice and attitude towards prevention**.**
- Data analysis: The collected data was coded, entered and analyzed using SPSS version 25. Frequencies and percentages were being calculated for socio-demographic characteristics of participants and awareness regarding COVID_19.

RESULTS

Socio-demographic characteristics

The baseline characteristics of the participants are presented in table 1. A total of 385 participants interviews were (34% males and 66% females). Most of the participants were in the age groups of 20 to 25 years (31.7%), 26-30 (13.3%), 31-35 (16.6%), 36-40 (12.7%), and >40 (25.7%). The majority of participants were at university level 58% 43.5% Post University, 5.2% secondary and only 2.3% primary.

Table (1) Distribution of participants regarding Socio-demographic Characteristics (n=385)

characteristics	Frequency	Percentage	P.value
Gender			
male	131	34.0%	
Female	254	66.0%	
Age groups			
20-25	122	31.7%	
26-30	51	13.3%	
31-35	64	16.6%	
36- 40	49	12.7%	
>40	99	25.7%	
Level of education			
Primary	9	2.3%	
Primary	20	5.2%	0.001
University	223	58.0%	
Post university	133	34.5%	

Knowledge related to Corona virus COVID-19

The overall knowledge related to Corona virus COVID-19 reported in Table 2 revealed that the majority of the participants (98.2%) were aware that the disease was a viral illness in nature; however, a small number also mistakenly believed that it was gas (1.8%). Most of the participants reported accurate and correct information about the mode of transmission. (92.7%) believed that contaminated surfaces were modes of transmission, while 86% stated that droplet was a mode of transmission with virus. Only 9.1% thought that stools could be a mode of transmission.

Regarding signs and symptoms of COVID-19 the majority of the participants showed high percentage of awareness (fever 95.3%, sore throat 89.1%, headache 88.6%, dry cough, 89.1%, and shortness of breath 89.6%).

Table (2) Knowledge about the Disease Caused by Corona virus COVID-19 (n=385)

Statement	Yes %	No%
What is the Nature of COVID-19:		
Virus	378 (98.2%)	7 (1.8%)
Gas	7 (1.8%)	378 (98.2%)
-Modes of transmission of the disease:		
Droplet	331 (86%)	54 (14%)
Direct contact with infected person	328 (85.2%)	57 (14.8%)
Stool	35(9.1%)	350(90.9%)
Contaminated surfaces with virus	357 (92.7%)	28 (7.3%)
What are the signs and symptoms of the disease:		
High grade fever	367(95.3%)	18(4.7%)
Sore throat	343 (89.1%)	42(10.9%)
Headache	341 (88.6%)	44(11.4%)
Dry cough	343(89.1%)	42(10.9%)
Shortness of breath	372 (96.6%)	13(3.4%)

Concern related to Precautionary measures and treatment:

Regarding methods of protection of coV-19 (table 3) most of participants (85%) said that they were doing hand washing, wearing masks and practicing social isolation, (98.4%) believed that there was no

vaccination. Only (16.9%) of the participants believed there was no specific treatment, but 44% said symptoms can be treated by anti-malarial drugs.

Regarding respiratory etiquette, (89.4%) were using the inner side of the elbow while sneezing. 65.7 were taking full precautions when going outside their homes. When coming back home, 45.2% of the participants washed their hands, took a shower, changed clothes and exposed dirty clothes and shoes to sunlight .

Concerning attitude toward controlling suspected infections, 62.1% said that they will enter self-isolation for two weeks when if they have dealt with an infected person and 43.6% replied that they will inform authorities by telephone if they feel COVI-19 symptoms. 90.6% will not shake hands when meeting a person coming from an infected area and 69.8% of them will inform the official authorities when they see a person with suspected symptoms of COVID-19.

Table (3) Responses (%) of Participants to Concern Statements and Self-Reported Precautionary Measures and treatment against Corona virus COVID-19

Statements	Frequency	Percentage
Methods of protection:		
-Hand washing, wearing mask and social isolation	327	85.0%
-Hand washing and wearing mask	19	4.9%
-Hand washing and social isolation	39	10.1%
Is there a vaccination to prevent disease:=		
Yes	6	1.6%
No	379	98.4%
Is there treatment for corona virus COVID- 19		
Yes	65	16.9%
No	320	83.1%
If yes, specify type of treatment?		
Malaria treatment	44	67.7%
Special vaccine	13	20.0%
Herbal	8	12.3%

Attitudes and practice toward Corona virus COVID-19:

In table 4, regarding respiratory etiquette, (89.4%) were using the inner side of the elbow while sneezing if they had no handkerchiefs.65.7 %of the participants were taking full precautions when going outside their homes. When returned home, 45.2% of the participants washed their hands, took a shower, changed clothes and exposed dirty clothes and shoes to sunlight

Concerning attitude toward controlling suspected infections, 62.1% said that they will enter self-isolation for two weeks when if they have dealt with an infected person and 43.6% replied that they will inform authorities by telephone if they feel COVI-19 symptoms. 90.6% will not shake hands when meeting a person coming from an infected area and 69.8% of them will inform the official authorities when they see a person with suspected symptoms of COVID-19.

Furthermore, (93.5%) thought that smoking; tobacco could increase the severity of the symptoms, while (92.2%) appreciated the precautions approved by WHO. Regarding rumors (48.3%) don't believe in rumors and suggested that the information about corona virus is still limited. Sudanese thought that infection rate in Sudan is still low and 51.2% of them said that this was due to lack of travel to countries with high endemicity.

Table (4) participants Attitudes and practice toward Corona virus COVID-19 (n=385)

Statements	Frequency	Percentage
Respiratory etiquette:		
Use your hands to sneeze inside	32	8.3%
use the soles of the elbow	344	89.4%
Sneeze in the air	0	0.0%
Precautions when leaving the house for any necessary purpose :		
Use hand sensitizer or similar	30	7.8%
use a mask	9	2.3%
Sensitizer and mask	46	11.9%
use gloves	0	0.0%
Use mask and gloves	22	5.7%
Sensitizer and gloves	8	2.1%
Full precautions	253	65.7%
Use nothing	9	2.3%
other	8	2.1%
Your behavior, when you come home from abroad:		
Wash your hands with soap and water first	64	16.6%
Wash hands firstly and expose clothes and shoes to sunlight	55	14.3%
Hand washing, put clothes on water and soap	56	14.5%
Hand washing firstly, showering and clothes change	36	9.4%
Hand washing firstly, showering, dressing, exposed clothes and shoes on sunlight	174	45.2%
Your reaction, if it turns out that someone with whom you have dealt with in the last two weeks has been infected with the novel corona :		
Look for health care	100	25.9%
enter self- isolation	239	62.1%
take all necessary precautions	43	11.2%
it doesn't make sense because it is not specific	3	0.8%
Your reaction, if you met a person coming from one of the many infested countries :		
Will not shake hands	349	90.6%
he doesn't have to be infected	20	5.2%
Other	16	4.2%

In case of symptoms appear on someone you know such as shortness of breath, high grade fever, coughing or sneezing, what is your reaction:-		
Inform the competent authorities	269	69.8%
advice him to see a doctor	58	15.1%
Advice him with self-isolation	58	15.1%
If you have a fever or one of the symptoms of an emerging corona, how will you react		
I will panic	30	7.8%
seek medical attention right away	137	35.6%
inform the authorities by phone	168	43.6%
go to the hospital or health center	50	13.0%
smoking, tobacco and hookah increase the possibility of infection of the novel corona virus:		
Yes	360	93.5%
No	25	6.5%
Your stance on rumors about corona prevention, such as bitter tea, nuts, and sesame oil		
I believe it so much	11	2.9%
corona is a novel virus and actual information on it is limited	186	48.3%
I don't believe it at all	128	33.2%
some of them are believed	60	15.6%
The percentage of cases in Sudan is very little because		
Weak population density	9	2.3%
little crowding	10	2.6%
air temperature	152	39.5%
Use some foods	7	1.8%
lack of travel to other countries where the disease appeared frequently	197	51.2%
Missing data	10	2.6%

DISCUSSION:

The present study demonstrated that the occurrence of Corona virus COVID-19 infection had an emotional impact and also increased people's attention to preventive measures and their knowledge about the necessity of early access to health care. Many studies have examined the various levels of knowledge, attitudes, and practices about infectious disease outbreaks, such as severe acute respiratory syndrome, avian influenza, and the influenza strain (Balkhy, H. H. et al 2010). But a literature search has not found any public reports on knowledge regarding corona virus COVID-19 among the population in Sudan until now. Therefore, this population-based survey could help in providing baseline data to government for preventive measures in case of future outbreaks.

In our study, majority of participants were aware of the nature of corona virus COVID-19 and its signs and symptoms. Unless people have basic knowledge about the modes of transmission and non-availability of vaccines, they will not respond appropriately during an (Chen, N. et al 2020). Our study showed a higher level of proper hygienic practices among participants. Only 65% of the participants reported washing hands regularly and practice full precautions; and 89.4% reported using respiratory etiquette measures. These implied that precautionary activities in avoiding infection by corona virus COVID-19 need to be encouraged and strengthened.

An important finding from this study is that high concern was prevalent in many participants although it took different forms. The majority of participants had positive attitude and a good practice when they had dealt with someone infected with the novel corona COVID-19 in the last two weeks. 65% reported that they would enter self- isolation and more than ninety percent would not shake hands when they met a person coming from countries infested with COVID-19.

The present study results is similar to the Study done in China by Julia Liu *et al*, to assess public's health awareness and behavior during the epidemic that affected China, the public had a clear

understanding of the basic knowledge of the disease and had adopted more comprehensive and control (Liu, J. et al 2020).

Limitations

Firstly, most of the participants are highly educated and not reprehensive for Sudanese population so generalization can be an issue.

Secondly, not all Sudanese people have smart phone so electronic questionnaire met some difficulty in distribution.

CONCLUSION

The current study concluded that awareness of the Sudanese population regarding COVID-19 is not optimal in some areas. The data collected in this study could be used as baseline data to monitor public perception and behavior in the event of a future outbreak of infectious diseases in Sudan. Perhaps increased communication between health care provider and the public would help dispel myths about the disease and help in disseminating accurate information about the role that the public can play in limiting the spread of the disease. The study findings highlighted the necessity for health education programs for the community to optimize their knowledge and awareness of this infectious disease.

Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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