

COVID-19 Vaccine Acceptance in Mukalla City, Yemen

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Short Report

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Abstract

Background: In Yemen the epidemiology of COVID19 is uncertain. Yemen received the first batch of AstraZeneca vaccine in April 2021 and the vaccine campaign starts officially on 20 April 2021 with limited utilization. Media play a negative role about AstraZeneca vaccine safety and efficacy.

Objectives: to investigate the acceptance of People and health workers in Mukalla city in Hadharmout (at eastern Yemen) toward the COVID-19 vaccine.

Methodology: This is a cross-sectional study to collect data from a convenience sample of health workers and other people during the first week of April 2021.

Results: A total of 321 persons agree to participate in the study. Only 9% of the participants and 22% of health workers have knowledge about the COVID19 vaccine, only 15% of people and 26% of health workers agree to get the vaccine while 241 participants (75%) hesitated to get the vaccine. The most reasons for vaccine hesitancy were: the vaccine were arrived to Yemen of bad quality (69%), while 48% of hesitated participants said that the vaccine is unsafe, other reasons for unacceptance the vaccine are: regional believes (38%), other countries stop the vaccine (37%) while 16% of refused participants said that the reason is that the virus is subject to mutation so no need to vaccinate.

Conclusions: Lack of knowledge about COVID-19 vaccine and high level of vaccine hesitancy were reported, the most frequent reasons for not accepted the vaccine are: bad quality of the vaccine and doubts about vaccine safety.

Introduction

COVID-19 pandemic is a global health problem; and susceptibility to infection is universal. COVID-19 is a highly infectious respiratory disease caused by a new coronavirus known as SARS-CoV-2 (severe acute respiratory syndrome-coronavirus-2).¹ The clinical characteristics of the disease range from asymptomatic cases or mild symptoms, which include nonspecific symptoms such as fever, cough, sore throat, headache, and nasal congestion to severe cases such as pneumonia, respiratory failure demanding mechanical ventilation to multi-organ failure, sepsis, and death.²

The pandemic affect most of the countries in the world with high global up cumulative incidence (166,860,081 cases and 3,459,996 deaths "case fatality rate "CFR" 2% to 24 May 2020. ³

In the beginning of 2021; several vaccines against SARS-CoV-2, the virus that causes COVID-19, have been developed. The first vaccines available in the US (by Pfizer-BioNTech and Moderna) are messenger RNA (mRNA) vaccines, other vaccines (by Janssen-Johnson & Johnson, Astra-Zeneca, Sputnik-V, and CanSino) are made using human and primate adenovirus vectors. A third type of vaccine is an inactivated whole-virus SARS-CoV-2 vaccine (by Bharat Biotech, Sinopharm and Sinovac).⁴ COVID-19 vaccines serve as rays of hope that may contain the pandemic, but a lot of contains facing this hope in

developing countries, not limited to availability and accessibility. One of the main constraints is the acceptance of the vaccine.

In Yemen where weak surveillance system, limited diagnostic capacity make the epidemiology of COVID19 is uncertain. Up to 24 May 2021, there were 6662 cases and 1310 deaths; giving very low cumulative incidence rate (less than 22/100,000) and high case fatality rate (19.6%).⁵ There were no effective precautionary measures undertaken. Yemen received the first batch of AstraZeneca vaccine in April 2021 through COVAX initiative, and targeted health workers, elder persons (over 60 years of age) and patients with chronic diseases. The vaccine campaign starts officially on 20 April 2021 with limited utilization. Media play a negative role about AstraZeneca vaccine safety and efficacy that made ministry of health and international organizations and academics have concern about acceptance of the vaccine by people especially health workers. In the first week of April 2021, the investigators wish to investigate how rumors in media may affect on the acceptance of people and health workers in Mukalla city in Hadharmout (at eastern Yemen) where the high burden of the COVID-19 in Yemen (20%)⁵ toward the vaccine before the campaign started and up to our knowledge this is the first study conducted in Yemen.

Methodology:

This is a cross-sectional study of exploratory design to collect data from a convenience sample of health workers and other people during the first week of April 2021. Health workers were reviewed in hospitals and other people from different age groups and both males and females from the market. The independent variables were age, sex and category of people (health workers versus other people) while the independent variable were knowledge of the participants about COVID19 vaccine (measured in Yes/No) and the attitude (acceptance of vaccine (measured in agree, not determined/disagree) and in case of disagree ask about the reasons.

The obtained data were fed in to the personal computer of the corresponding author in excel format. Data were analyzed using simple descriptive tools like frequency, percentage and mean.

All participants enrolled in the study after obtain verbal consent from them.

Results

A total of 321 persons agree to participate in the study. Mean age 40 years (SD \pm 10) with a range of age from 25-75 years. Males were 208 (65%) while female were 113 (35%). A total of 50 health workers agree to participate (16%) while other people were 271 persons (84%).

Only 9% of the participants have knowledge about the COVID19 vaccine while 22% of health workers have knowledge about the vaccine but only 6% of other people know about the vaccine. (Figure 1). In another approach the investigators asked participants about their acceptance to get the vaccine; only 15% of people and 26% of health workers agree to get the vaccine while 241 participants (75%) hesitated to get the vaccine. (Figure 2). The most reasons for vaccine hesitancy were: the vaccine were arrived to

Yemen of bad quality (69%), while 48% of hesitated participants said that the vaccine is unsafe, other reasons for unacceptance the vaccine are: regional believes (38%), other countries stop the vaccine (37%) while 16% of refused participants said that the reason is that the virus is subject to mutation so no need to vaccinate. (Figure 3). Based on gender analysis there are no difference between males and females regarding their knowledge about the vaccine or their attitudes (Table 1). Regarding health workers although their knowledge about the vaccine is low in both males (20%) or females (25%) but males have good attitudes (33%) than females (15%). (Table 2).

Table 1. Knowledge & Acceptance of COVID-19 by Gender, Mukalla, April 2021

Questions		Males (n=208)		Female (n=113)	
		No	%	No	%
Knowledge about COVID19 vaccine	Have Information about the vaccine	19	9%	9	8%
	Have no information	189	91%	104	92%
Acceptance toward COVID-19 Vaccine	Agree	47	23%	43	38%
	disagree	161	77%	70	62%

Table 2. Knowledge & Acceptance of COVID-19 among health workers by Gender, Mukalla, April 2021

Questions		Males (n=30)		Female (n=20)	
		No	%	No	%
Knowledge about COVID19 vaccine	Have Information about the vaccine	6	20%	5	25%
	Have no information	24	80%	15	75%
Acceptance toward COVID-19 Vaccine	Agree	10	33%	3	15%
	disagree	20	67%	17	85%

Discussion

COVID-19 has caused a pandemic that has compelled the global health and economy, a vaccine remains the best option for restoring normal life and global economies,⁶ vaccinations could be an effective strategy for slowing the spread of the current coronavirus disease 2019 (COVID-19) pandemic. Up to 13

may 2021 here are now several vaccines that are in use and at least 13 different vaccines (across 4 platforms) have been administered.⁷ one of these vaccines is AstraZeneca vaccine. Covishield (ChAdOx1_nCoV-19) is the vaccine used in Yemen through COVAX initiative since 35 April 2021. the COVISHIELD™ Vaccine has been shown to prevent COVID-19 disease following 2 doses given between 4 and 12 weeks apart. The duration of protection against COVID-19 disease is currently unknown.⁸

The Serum Institute of India Pvt Ltd is the manufacturer of COVISHIELD™ vaccine, they recommended that The COVISHIELD vaccination course consists of two separate doses of 0.5 ml each. and should be given as an intramuscular (IM) injection only, preferably in the deltoid muscle. The fact sheet about the vaccine issued by the serum institute of India explained the mild side effects but it reported that serious and unexpected side effects may occur.⁸

In Yemen where the epidemiology of COVID-19 is uncertain due to weak health system, war and lack of governance over all governmental activities make people untrusted on any governmental recommendations. Social media play a negative role on COVID19 vaccination uptake through their news about side effects of the vaccine which are very rare complications. This situation makes people and health workers more hesitated toward the vaccine and some of them decide not to take the vaccine. Vaccine acceptance among the general public and healthcare workers appears to have a decisive role in the successful control of the pandemic.⁹ Vaccine hesitancy could pose a serious problem for COVID-19 prevention, due to the spread of misinformation surrounding the ongoing pandemic.¹⁰ Sallam M (2021) in his systematic review about global acceptance of COVID19 reported that the highest vaccine acceptance rates (>90%) among the general public were found in four studies from Ecuador (97.0%), Malaysia (94.3%), Indonesia (93.3%) and China (91.3%). On the contrary, the lowest vaccine acceptance rates (<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%), Poland (56.3%), US (56.9%), and France (58.9%).⁹ This could represent a major problem in the global efforts to control the current COVID-19 pandemic. More studies are recommended to address the scope of COVID-19 vaccine hesitancy.⁹

Previous studies have shown that vaccine hesitancy is a common phenomenon globally, with variability in the cited reasons behind refusal of vaccine acceptance.^{11,12,13} The most common reasons included: perceived risks vs. benefits, certain religious beliefs and lack of knowledge and awareness.^{14,15,16}

Several studies in developing countries reported low acceptance toward COVID-19 vaccine; in one study in Uganda revealed low levels of acceptance towards the COVID-19 vaccine among medical students as the majority of the participants (62.7%) were not willing to be vaccinated against COVID-19, low self-perceived risks of COVID-19, and many had relied on social media that provided them with negative information.¹⁷ In Jordan, 37.4% of the public were acceptable, 36.3% were not acceptable and 26.3% were neutral to receive COVID-19 vaccines.¹⁸

even in developed countries concern raising about vaccine hesitancy; in Italy Overall, 31.1% of the sample reported hesitancy. significant predictors of hesitancy were: ages between 35 and 54 years, female

gender, low educational level, low income, and absence of comorbidities. The most common concerns about the COVID-19 vaccine involved safety (54%) and efficacy (27%).¹⁹

It is clear from the previous studies that COVID hesitancy is a global problem and not limited to least developed countries like Yemen; but in Yemen there is a high non-acceptance rates (75%) especially among health workers. Lack of information and or prevalence of misinformation from media is a crucial role in this hesitancy. Even gender analysis did not show difference. In this study the main reasons of non-acceptance the vaccine is: the vaccine was arrived to Yemen of bad quality (69%), while 48% of hesitated participants said that the vaccine is unsafe, other reasons for unacceptance the vaccine is: regional believes (38%), other countries stop the vaccine (37%) while 16% of refused participants said that the reason is that the virus is subject to mutation so no need to vaccinate. All the above mentioned reasons are subject to misinformation fed to the mind of people and health workers. A lack of effective communication from ministry of health before start the vaccination campaign lead this this high hesitancy rates. Ministry of health in Yemen reported during the first week of COVID-19 vaccination campaign (25 -30 April 2021) very low coverage (19% among health workers and 4% among elder person over 60 years of age).²⁰ In Late May 2021 Saudi Arabia decided that every traveler form Yemen to Saudi Arabia must be vaccinated against COVID-19 to permit them to travel to Saudi, many Yemeni people travel every day to Saudi, this decision make a lot of people run to vaccinate but this is not due their acceptance but due to travel regulations. Could the law and regulation give positive impact than health education?

Studying the main determinants of vaccine hesitancy can help with targeting vaccination strategies, in order to gain widespread acceptance—a key path to ensure a rapid way out of the current pandemic emergency. In the Covid-19 pandemic context, it is important to mitigate the impact of misinformation on the decision of not getting vaccinated.²¹ but still the governmental health regulation is very important to increase vaccine uptake.

Conclusions

Lack of knowledge about COVID-19 vaccine, most of people and health workers either hesitated or not accepted the vaccine. The most frequent reasons for not accepted the vaccine are: bad quality of the vaccine and doubts about vaccine safety. This negative attitude may affect negatively on the COVID-19 vaccination activities. Interventional educational campaigns targeted populations at risk of vaccine hesitancy are therefore urgently needed to combat misinformation and avoid low uptake rates. Governmental health regulation toward COVID-19 vaccine is important in case of Yemen.

Declarations

Data availability

Readers can access the data of the study and clearly by communicating the corresponding author through email.

Conflicts of interest

Authors declare that there is no conflict of interest.

Funding statement

Authors declared that they did not receive any fund from any agency, the field work and analysis and writing the final report done by themselves and they pay from their pocket as the cost is not high.

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Figures

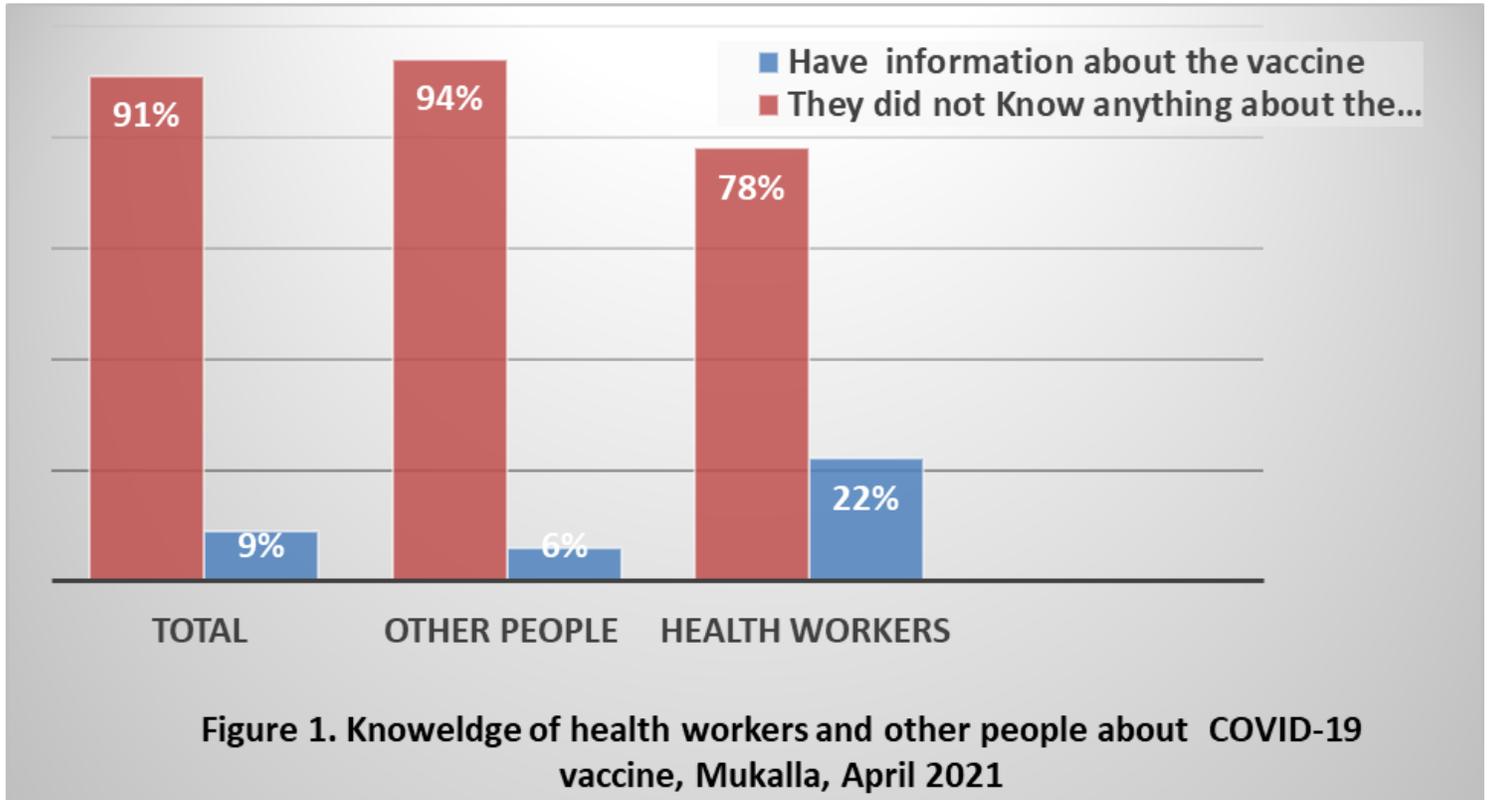


Figure 1

Knowledge of health workers and other people about COVID-19 vaccine, Mukalla, April 2021

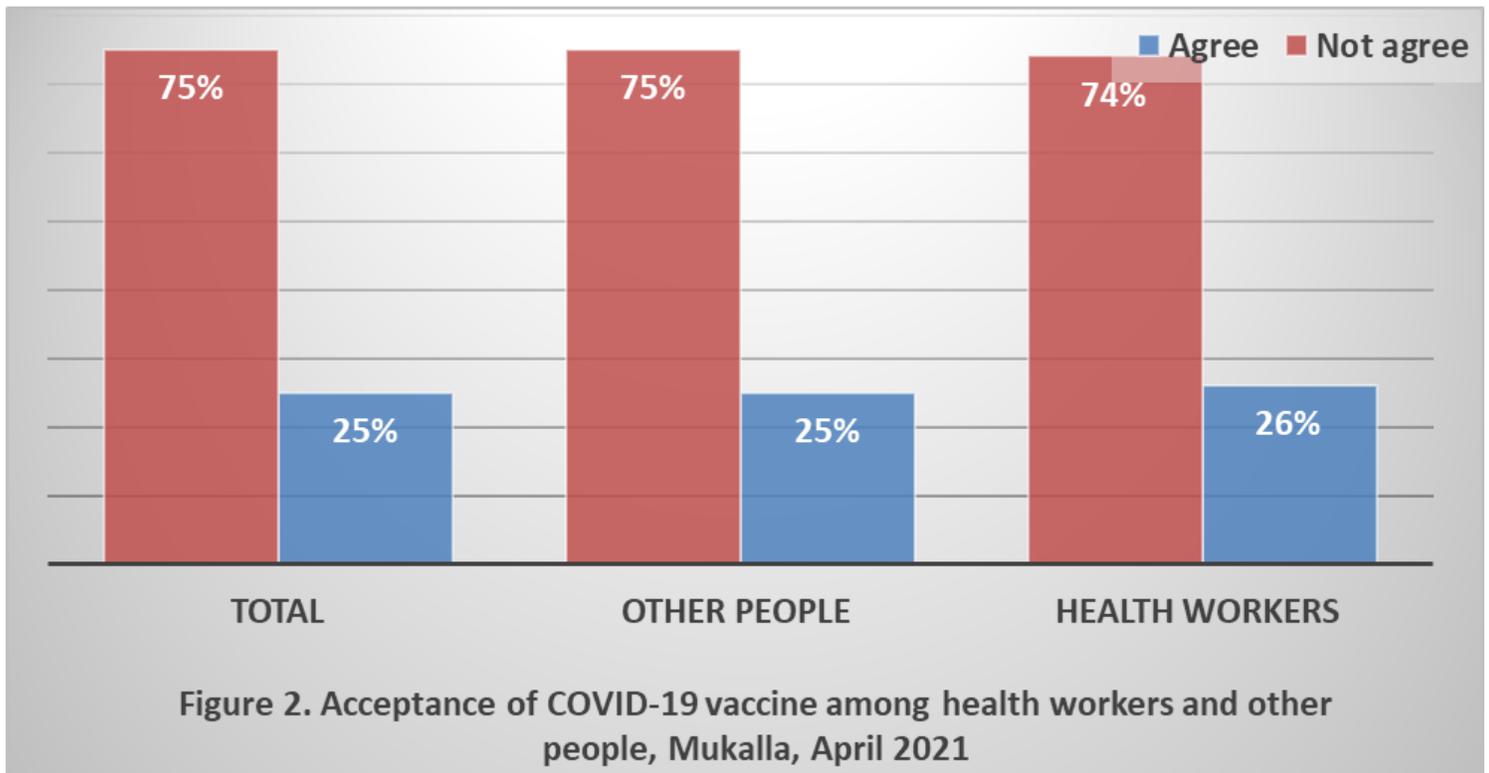


Figure 2

Acceptance of COVID-19 vaccine among health workers and other people, Mukalla, April 2021

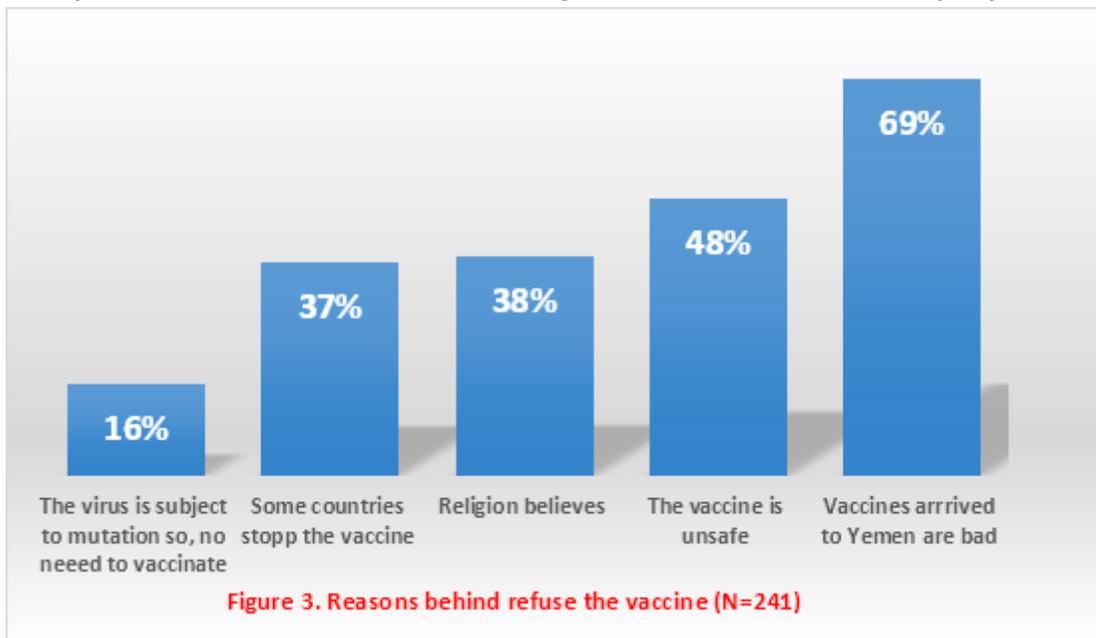


Figure 3

Reasons behind refuse the vaccine (N=241)