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Barriers Influencing COVID-19 Vaccination Uptake among the Public in Saudi Arabia

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Authors' contributions

This work was carried out in collaboration among all authors. Author NJA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors ASA and FZA managed the analyses of the study. Author NJA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: The aim of this study is to explore barriers that influence COVID-19 vaccination uptake among the public in Saudi Arabia.
Methods: This study included an online questionnaire that was prepared using questionnaire of previous study. After that, it was converted using Google® forms to an online form and was disseminated by social media platforms to be completed by the public.
Results: Only 13.37% of the respondents believe that COVID-19 is not serious enough to warrant vaccination, about 14.71% agreed that the vaccine does not provide benefit, about 17.64% agreed that the chance of getting COVID-19 disease is low. About 31.37% of them said that they don't have the time to get vaccinated. About 60.78% of the respondents said that they concerned about the vaccine side effects.

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Conclusion: The main barrier of COVID-19 vaccination uptake was the vaccine side effects concerns. Health care provider should provide open and transparent information about vaccine safety and the potential vaccine side effects. Health education programs could change people's thoughts and feelings towards vaccination.

Keywords: Barriers; COVID-19; vaccine; vaccination.

1. INTRODUCTION

Viral infections continue to emerge and represent a serious public health issue as reported by the World Health Organization (WHO) [1]. Recently, a new coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), causing coronavirus disease 2019 (COVID-19), emerged in the end of 2019 [2,3]. Coronaviruses belong to the family Coronaviridae, the members of which infect a broad range of hosts, producing symptoms and infections that range from mild diseases such as common cold to severe illnesses, such as COVID-19 [4]. Newly evolved Coronaviruses pose a high threat to public health worldwide. The current emergence of COVID-19 is considered the third Coronaviruses outbreak in humans over the past two decades [5]. The presence of COVID-19 can cause numerous symptoms, ranging from asymptomatic or mild symptoms to severe or fatal illness [6]. SARS-CoV-2 that cause COVID-19 is different from usual coronaviruses responsible for mild illness such as common cold among human beings [7]. Severe cases of COVID-19 were more likely to have more comorbidities, diabetes, hypertension, and thyroid disorders were most common compared with non-severe cases [8].

Vaccines save millions of lives annually. They work by training and preparing the body's immune system to recognize and fight off microorganisms including viruses. If the body is exposed to those microbes later, the body is immediately ready to destroy them and to prevent the occurrence of the infections [9]. Currently in the United States, only two vaccines are authorized and recommended to prevent COVID-19 which are Pfizer-BioNTech COVID-19 vaccine and Moderna's COVID-19 vaccine [10]. Moreover, CDC reported that as of December 28, 2020, large-scale (Phase 3) clinical trials are in progress or being planned for three COVID-19 vaccines which are Janssen's COVID-19 vaccine, AstraZeneca's COVID-19 vaccine and Novavax's COVID-19 vaccine [11]. The Saudi Ministry of Health has approved two additional COVID-19 vaccines, developed by AstraZeneca and Moderna, for use in the Kingdom. In addition to The Pfizer/BioNTech vaccine is already being used to immunize people in the country [12].

Different types of vaccines work in different ways to protect the body, but with the use of all types of vaccines, the body is left with a supply of "memory" T-lymphocytes in addition to B-lymphocytes that will remember how to fight that virus in the future [13]. It should be noted also that it typically takes a few weeks for the body to produce B-lymphocytes and T-lymphocytes after vaccination [13]. Therefore, it is possible that a person could be infected with the virus that causes COVID-19 just before or just after vaccination and then get sick because the vaccine did not have enough time to provide protection [13]. Vaccines to prevent the coronavirus disease 2019 (COVID-19) are perhaps the best hope for ending the pandemic. A COVID-19 vaccine might prevent you from getting COVID-19. Or, if you get COVID-19, the vaccine might keep you far from becoming seriously ill or from developing serious complications [13].

It is important to know the barriers of COVID-19 vaccination uptake to overcome these barriers and to increase COVID-19 vaccination uptake. Therefore, the aim of this study is to explore barriers that influence COVID-19 vaccination uptake among the public in Saudi Arabia.

2. METHODOLOGY

This study included an online questionnaire that was conducted to explore the barriers influencing COVID-19 vaccination uptake among the public in Saudi Arabia. The questionnaire was prepared using a validated questionnaire of previous study conducted by Barry et al about seasonal influenza vaccination [14]. After that, it was converted using Google® forms to an online form and was disseminated by social media platforms (mainly Instagram) to be completed by the public.

The survey included 2 main parts, the first part about the sociodemographic characteristics of the respondents(including gender, age groups, education level, employment, health iInsurance

and Financial situation) and the second part included questions about the barriers influencing COVID-19 vaccination uptake.

The data was collected and analyzed using excel sheet and the descriptive data represented as a percentages and as a numbers.

3. RESULTS AND DISCUSSION

The survey was filled by 102 respondents. Most of the respondents were females (67.65%), aged less than 25 years old (53.92%) and most of them have a university degree (63.72). Only 27.45% of the respondents don't have health insurance and only 18.63% of them said that their financial situation is difficult. Table 1 shows the personal data of the respondents.

Table 2 shows the barriers that influence the uptake of COVID-19 vaccine. Only 13.37 % of the respondents believe that COVID-19 is not serious enough to warrant vaccination, about 14.71% agreed that the vaccine does not provide benefit, about 17.64% agreed that the chance of getting COVID-19 disease is low and only about 31.37 % of them said that they don't have the time to get vaccinated. About 60.78 % of the respondents said that they concerned about the vaccine side effects.

The majority of the respondents said that the chance of getting COVID-19 disease is high, the majority of them agreed that vaccine provide benefit and most of them agreed that COVID-19 is serious and warrant vaccination. Most of the respondents show a good attitude toward vaccination. The main barriers were that most of the respondents concerned about the vaccine side effects (60.78%), some of the respondents said that did not know that COVID-19 vaccine is useful (35.29) and that they don't have the time to get vaccinated (31.37%).

Barry et al conducted a study about seasonal influenza vaccines and reported that regarding barriers, 295 participants (58.6%) wanted to avoid seasonal influenza vaccines and 252 (50.1%) were concerned about the vaccine's adverse effects [14]. Wang et al reported that around half of respondents (47.8%) with vaccination intention would delay vaccination until the safety of the COVID-19 vaccine is confirmed, and concerns or uncertainty about vaccine safety led to their vaccine hesitation [15]. Paul et al stated that negative attitudes towards vaccines are a major public health concern in the UK. General mistrust in vaccines and concerns about future side effects in particular will be barriers to achieving population immunity to COVID-19 through vaccination [16].

Lin et al reported that most of the respondents have concerns about the COVID-19 vaccine being faulty/fake (82.0%) and concerns about affordability were reported by 75.1%. they also reported that the possible side-effects of COVID-19 vaccination would interfere with their usual activities (68.5%) and most of the respondents have a concern about COVID-19 vaccination'

Table 1. Respondents sociodemographic characteristics

Variable	Category	Number	Percentage
Gender	Male	33	32.35
	Female	69	67.65
Age groups	<25 years	55	53.92
	25–39 years	34	33.33
	More than 39	13	12.75
Education level	High school or less	17	16.67
	University degree	65	63.72
	Postgraduate	20	19.61
Employment	Yes	37	36.27
	No	65	63.73
Health Insurance	None	28	27.45
	Governmental	49	48.04
	Private	25	24.51
Financial situation	Comfortable	31	30.39
	Manageable	52	50.98
	Difficult	19	18.63

Table 2. Barriers influencing COVID-19 vaccination uptake

Variable	Category	Number	Percentage
I want to avoid medications	Agree	49	48.04
	Neither agree nor disagree	31	30.39
	Disagree	22	21.57
I believe COVID-19 is not serious enough to warrant vaccination	Agree	14	13.73
	Neither agree nor disagree	10	9.80
	Disagree	78	76.47
I am concerned about the vaccine side effects	Agree	62	60.78
	Neither agree nor disagree	6	5.88
	Disagree	34	33.33
I think the vaccine does not provide benefit	Agree	15	14.71
	Neither agree nor disagree	10	9.80
	Disagree	77	75.49
I think the vaccine is unsafe	Agree	18	17.64
	Neither agree nor disagree	15	14.71
	Disagree	69	67.65
I think the chance of getting COVID-19 disease is low	Agree	18	17.64
	Neither agree nor disagree	17	16.67
	Disagree	67	65.69
I do not think I'm one of the primary high-risk populations that needs vaccination	Agree	29	28.43
	Neither agree nor disagree	11	10.78
	Disagree	62	60.78
I did not know that COVID-19 vaccine is useful	Agree	36	35.29
	Neither agree nor disagree	12	11.76
	Disagree	54	52.94
I don't have the time to get vaccinated	Agree	32	31.37
	Neither agree nor disagree	5	4.90
	Disagree	65	63.73

safety (72.6%) [17]. The perceived barriers against COVID-19 immunizations found in this study, mainly worries about side effects of the vaccine, have likewise been reported in other studies related to the introduction of a new vaccine [18]. Warren et al reported that systemic barriers to vaccination include access, acceptability, awareness of services, cost, and other practical considerations [19].

Magadmi and Kamel reported that the study found that concerns about side effects were the key barrier for vaccine acceptance [20]. Lorenz et al conducted a study about influenza vaccination decisions among patients with mental illness and stated that negative beliefs about safety and misconceptions that the vaccine itself can cause the illness may be held by people with serious mental illness [21]. They reported also that education by a health care professional about the role and importance of vaccination increased uptake by 4-fold [21].

There are several strategies to change vaccine acceptance. Cialdini et al reported that it is important to noted that barriers to vaccine acceptance and uptake could be the product of unfavorable social influences and/or insufficiently favorable ones [22]. WHO stated that communicating transparently, consistently, empathetically and proactively about uncertainty, risks and vaccine availability will contribute to building trust [23]. Betsch et al reported that communicating the social benefits of vaccination has been found to increase vaccination intention, mainly when the risk associated with vaccination is low and getting vaccinated involves little effort [24]. Brown et al reported that anticipated regret has been shown to be a strong predictor of vaccination, and there is potential promise in evoking it to encourage vaccination [25]. Gallant et al stated that health care provider should provide open and transparent information about the safety of vaccine and the prevalence of potential side effects of it, from less severe symptoms, to the more complex and rare side effects which could be experienced [26].

Centers for Disease Control and Prevention (CDC) reported that getting recommended vaccines can give people some peace of mind and that individuals will have the best possible

protection available against a number of serious diseases and that vaccines can help them stay healthy so they don't miss work [27]. If people can avoid getting sick, they will have more time for family, friends and hobbies [27].

4. CONCLUSION

The main barrier of COVID-19 vaccination uptake was that most of the respondents concerned about the vaccine side effects. Health care provider should provide open and transparent information about vaccine safety and the prevalence of potential vaccine side effects. Barriers most commonly chosen by participants are solvable with health education programs that are oriented towards delivering facts about the vaccine. These programs also could change people's thoughts and feelings towards vaccination.

5. LIMITATIONS

Only 102 respondents filled the survey. The main limitation of the study is the small sample size.

CONSENT

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

ETHICAL APPROVAL

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

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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