Type of article: Original Research Article

Title: Covid-19 Vaccine Uptake and Associated FactorsAmong Healthcare Workers In Lower Juba RegionOf Jubaland StateIn Somalia.

Abstract

Background: Somalia's health systems were weakened by decades of conflicts, and this was made worse by the coronavirus pandemic that hit the nation like the rest of the world. Despite the existence of different types of COVID-19 vaccines, there has been a reluctance to take the vaccine by the general population and ironically by healthcare workers.

Objective: The purpose of this study was to evaluate the uptake of the COVID-19 vaccine in the Lower Juba Region of the Jubaland State in Somalia among healthcare providers

Method: The research study used a quantitative descriptive design to describe the levels of COVID-19 vaccine uptake among healthcare workers. The study recruited 191 study respondents. Stratified and simple random sampling methods were used. All the significance tests were conducted with two tails, and the threshold for statistical significance was set at P less than 0.05

Results: From this study, 46.6% of the study respondents had been vaccinated with the Covid-19 vaccine.Being male(OR = 1.4, 95% CI = 0.7878 to 2.473). Being a healthcare worker aged between 21 and 50 (OR = 2.6, 95% CI = 0.8027 to 8.5649) and having a postgraduate degree(OR = 3.7, 95% CI= 0.9228 to 15.3868),increased the odds of Covid-19 uptake.

Conclusion:From this research, close to half of the study respondents had been vaccinated with COVID-19 vaccines. In addition,Beingmale healthcare workers, healthcare workers aged between 21 and 50 having healthcare professionals with postgraduate degrees increased the odds of COVID-19 uptake.

Keywords:*Covid-19, Vaccine, Vaccine Uptake, Vaccination, Somalia, HCWs*

1.0 INTRODUCTION

In late winter 2019-2020, unidentified pneumonia cases emerged in Hubei, China. COVID-19 was later described as the causal culprit[1]. In the weeks and months that followed, the virus became a global pandemic. It was initially considered as pneumonia of unknown cause. It spread faster, within China and the rest of the world. On the 30th of January 2020, the WHO proclaimed an international concern in the public health emergency, and then on the 11th of March 2020, they declared it a pandemic[2]. As of 10th March 2022, there were more than 451 million cases in the world with more than 6 million deaths worldwide. The Somali government's first case was announced on March 16th, 2020 in Mogadishu and the first death was reported on April 8 same year. As of 10 March 2022, the country had recorded 26,400 cases and 1,348 deaths. There is a weak infrastructure in Somalia's healthcare; The Health Security Global Index puts Somalia at 194th out of 195 countries[3].

The effects of the virus were enormous ranging from loss of lives to restriction of movements. As the virus mutated, even the young were not spared the severe disease requiring hospitalization and ICU care. No cure was found but several supportive treatments were tried with some success[4]. The development of the vaccine was also hastened by COVAX leading to several different vaccine types being approved for use globally(Ibrahim et al., 2021). Vaccines provide the best public health protection, but only if they are widely used. In the present COVID-19 pandemic, significant vaccination coverage is required to provide indirect public protection, restore society to normalcy, and reopen the world's economy(Al Mutair et al., 2020).The first coronavirus vaccinations arrived in Somalia from China on April 11, 2021. Healthcare workers were given priority in the mass vaccination exercise. If health professionals are not safeguarded, healthcare systems will likely be overburdened, and the most vulnerable children and women in the states will continue to be denied access to essential services, jeopardizing decades of growth and causing the children from poor to fall farther behind[5].As of 11th March 2022, almost a year later, 1.84 million doses were administered with 938,000 being fully vaccinated. This meant that 5.9% of the targeted people were vaccinated, far lower than the global average of 56.16%[6]. The vaccination exercise targeted at-risk groups and other frontline staff like healthcare workers, the elderly (above 65), those with chronic illnesses, teachers, and the security forces[7].

The reluctance to uptake ismuchmore widespreadinthe Africancontinent,which alreadysuffersfrominadequatehealthcare infrastructure anda shortageofmedical professionals.TheWorldHealthOrganization (WHO)announcedinNovember 2021 that only27% of health workers in Africahad received the full COVID-19 vaccination[8].Thismeansthatthe majorityof the workforce thatisworkingonthe frontlinesof thepandemic isnotprotected.Basedonananalysisof the data thatwas submittedby25nations,thefindingsindicatethatonly1.3millionhealthworkersas ofMarch 2021canbeclassified asfully vaccinated [9]. Countriesthathavereached90% ormorewereonlysix,whilethosewithlessthan40%oftheirhealthworkersfully vaccinatedwere nine countries.Instarkcontrast,theWorldHealthOrganization (WHO)conducteda globalassessmentof 22nations,the majorityof whichhave high incomes,andfoundthatmore than80percentoftheirhealthcare staffarefully vaccinated [10].

Hospitalshave triedseveralmethodstoraiseworkervaccinationrates. Some hospitalsemploycirculatingcartstodeliverimmunizationstostaffbriefingor nursing stations[11].Vaccine decliners may be requiredtosignwaiversadmittingthe danger they aretakingfortheirpatientsandthemselvesortowearprotectivesuitsduringthis season.Allofthesemethodsareintendedtomakevaccinationaseasyasfeasible, andavoidance asdifficult[11].Unfortunately,eventhoughthese measurestoattain voluntary compliance have been shown to enhance vaccine uptake slightly, vaccinationratesremain below 50%(Adedeji-Adenola et al., 2022). Despite the demonstration by research that vaccines are safe, there is growing skepticism about immunization. Vaccine hesitancy has led to a decrease in vaccine uptake as well as an increased prevalence of diseases preventable by vaccines, both of which are concerning. Hesitancy in vaccination is a significant impediment to the development of herd immunity. Given all of this, the study's purpose was to examine the COVID-19 Vaccine among healthcare workers in the lower Juba region of Jubaland state in Somalia.

2. METHODOLOGY

2.1 Research Design

A descriptive design research approach was selected for this study's investigation methodology.

2.2 Study Area

The Lower Juba region of the Jubaland state located in the Somalia region served as the location of this study's data collection. In southern Somalia, the administrative region is known as Lower Juba. Lower Juba is bordered to the north by Middle Juba and Gedo, to the west by Kenya, to the northeast by Middle Juba, and to the east by the Indian Ocean. There are four districts in this region, and their names are Badhaadhe, Afmadow, Jamaame, and Kismaayo.

2.3 Study Population

The population targeted was 359 healthcare workers. There are 21 health facilities in the lower Juba region of Jubaland state in Somalia with a total of 359 healthcare workers.

2.4 Sample Size Determination

The number of sample respondents was calculated using Slovin's formula for the known population. As a result, 189 study respondents were recruited for this study.

2.5 Sampling Technique

Stratified and proportionate sampling procedures were used to allocate the respective quota for each district out of the 191 sample sizes. This depended on the proportion of healthcare workers in the 21 health facilities. This sample will only consist of doctors, nurses, midwives, laboratory technicians, pharmacy technicians, and their assistants.

2.6 Data Collection Method and Instruments

For this study, primary data was utilized, and it was gathered utilizing an online close-ended and structured questionnaire. The WHO BeSD model for HCWs' vaccination uptake was modified for the survey guide. The researcher developed a poll that was completed anonymously online. An invitation to participate in the survey along with the questionnaire web link was distributed by utilizing Google Forms and sending it to the selected participants through email or WhatsApp.

2.7 Data Processing and Analysis

The majority of the data from the study was descriptive data. After coding the data, the researcher then checked for any potential errors, incompleteness, or inappropriate data. The cleaned data was loaded and imported onto an SPSS version 21 software where the analyzed data was retrieved. To determine the determinants of vaccine hesitancy among the HCWs, a multivariable logistic regression analysis was additionally carried out. Based on the data analysis completed, the conclusion was postulated.

3.0 Results

3.1: Rates of uptake by healthcare workers of the 1st and 2nd doses of COVID-19 vaccine.

According to Figure 1 below, 89 of the respondents representing 46.6% of the interviewees have been vaccinated against COVID-19 while the remaining 102 (53.4%) respondents haven't.

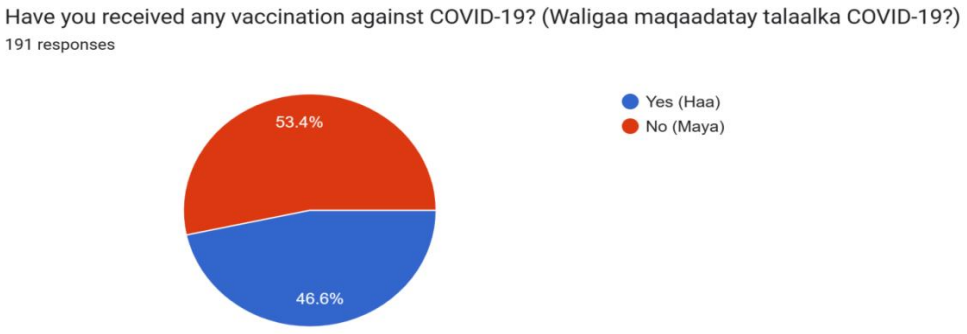

Figure 1: Covid-19 vaccine uptake.

3.2 Types of Covid-19 vaccines taken

As indicated in Figure 2 below, According to the findings, only AstraZeneca and Jansen vaccines were taken by the respondents. Respondents who took the AstraZeneca vaccine were 49 representing 55.1% while the Jansen vaccine was taken by 40 respondents representing 44.9%.

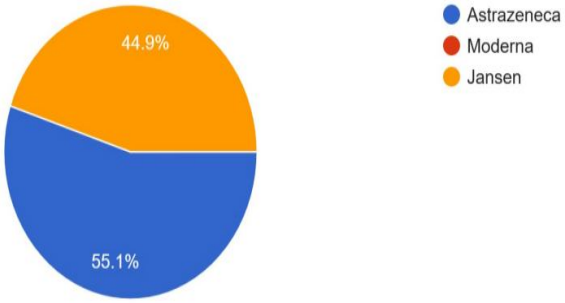

Figure 2: Type of Covid-19 vaccines taken

3.3 Number of Covid-19 doses taken.

As indicated in Figure 3 below, Most of the respondents (47) representing 52.8% had received two doses while the remaining 42 respondents representing 47.2% had taken one dose only.

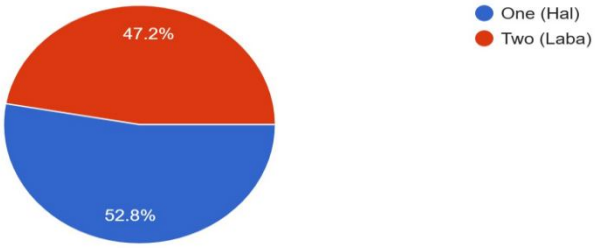

Figure 3: Number of doses of COVID-19 vaccine taken by the respondents.

3.4 Social Demographic Characteristics of the Study Respondents

It was required of the respondents that they identify their gender. According to the examination of the collected data, 101 out of the 191 people who responded to the question were male. This accounted for 52.9 % of responses, with 90 female respondents accounting for the remaining 47.1%. The respondents were asked to state their working station. The data collected indicated that the majority of the respondents representing 107 (56%) worked in Kismayo, 68 respondents representing 35.6% worked in Afmadhow and the remainder 16 respondents (8.48%) worked in Badhadhe. To understand the respondent's baseline demographic, the respondents were asked to state their experience in health-related jobs. Data analysis indicated that among the 191 respondents, the majority, 130 respondents representing 68.1% had a work experience of more than 2 years as shown in figure 4 below, 48 respondents representing 25.1% had a work experience of between 1 and 2 years and the remainder 13 respondents (6.8%) had a work experience of less than 1 year. The majority of the 191 respondents who completed the questionnaire, 66, or 34.6%, had a degree. In addition, 63 respondents, or 32.9%, indicated that they had a diploma, while 13 respondents, or 6.8%, had a high school education. The remaining 49 respondents, or 25.7%, indicated that they had postgraduate qualifications.The data analysis indicates that the majority of the respondents 52.9% earn around 201-400 USD. The least 9 respondents representing 5% earn in the range above 600 USD.

Table 1: Social Demographic Characteristics of the Study Respondents

Variable	Categories	Frequency	Valid Percentage%
Age	< 21 years	15	7.9
	21-30 years	76	39.8
	31-40 years	62	32.5
	41-50years	30	15.7
	Over 50years	8	4.1
Gender	Male	101	52.9
	Female	90	47.1
workstation	Kismayo	107	56
	Afmadhow	68	35.6
	Badhadhe	16	8.4
Work experience	Less than 1 year	13	6.8
	1 to 2 years	48	25.1

	More than 2 years	130	68.1
Education level	High school	13	6.8
	diploma	63	32.9
	Undergraduate	66	34.6
	professional	49	25.7
Income	Less than 200 usd	26	13.6
	201-400 usd	101	52.9
	401-600 usd	44	23
	601-1000 usd	9	5
	More than 1000usd	11	5.5

3.5:Social demographic characteristics associated with the Uptake of the COVID-19 vaccine.

Results findings in Table 2 indicate that the male HCWs were found to have 1.4 times the likelihood of being vaccinated compared to the female HCWs (OR = 1.4, 95% CI = 0.7878 to 2.473).Similarly, it was discovered that HCWs between the ages of 21 and 50 had a 2.6 times higher chance of being vaccinated compared to those who were below 21 years (OR = 2.6, 95% CI = 0.8027 to 8.5649). It was further discovered that healthcare professionals with postgraduate degrees had 3.7 times higher odds of receiving COVID-19 vaccination compared to those with only high school certificates (OR = 3.7, 95% CI= 0.9228 to 15.3868).

T**able 2.Regression analysis on Demographic characteristics and covid-19 vaccination status**

	Odds Ratio	**95% C.I**	***p* Value**
Gender			
Males	1.3958	0.7878 to 2.473	0.2532
Females	Ref		
Age of respondents			
20 years and below	Ref		
21-50 years	2.6221	0.8027 to 8.5649	0.1105
Above 50 years	1.6500	0.264 to 10.3129	0.536

Level of Education			
High school	Ref		
Diploma	2.3423	0.5868 to 9.3507	0.2282
Undergraduate	3.5417	0.8932 to 14.0438	0.0720
Masters/PhD	3.7681	0.9228 to 15.3868	0.0646

4. Discussion

From this study, 46.6% of the study participants had been vaccinated against Covid-19 while the remaining (53.4%) respondents had not been vaccinated. study findings are similar to a study by [12], which concludes that only 48% of the healthcare workers had gotten the vaccine against COVID-19.This was contrary to another study carried out in Ethiopia which reported a higher uptake of COVID-19 vaccines of 61.56%[13].AstraZeneca was the most received Vaccine, According to Ahmed (2021) the popularity of the AstraZeneca vaccine was because it was the first to be approved for mass vaccination use by the Federal Republic of Somalia MOH.From this study, male study respondents were more likely to be vaccinated for the COVID-19 vaccine as compared to female study respondents. Male healthcare workers may perceive themselves at higher risk of contracting COVID-19 due to their occupational exposure. Studies suggest that a heightened sense of vulnerability can drive the desire to get vaccinated. These findings were contrary to another study carried out in Ethiopia revealed that women were 5.6 more more likely to seek the uptake of COVID-19 vaccines as compared to males[14].Similarly, it was discovered that HCWs between the ages of 21 and 50 had a 2.6 times higher chance of being vaccinated compared to those who were below 21 years. Healthcare workers in the 21-50 age range are more likely to hold positions that involve direct patient care, putting them at higher risk of exposure to COVID-19. This increased risk can motivate them to get vaccinated to protect themselves and their patients. The

findings from this study agreed with those of a study carried out in Germany where the age of the study respondent was associated with the uptake of the COVID-19 vaccine[15]. Another study carried out in Tanzania was contrary to these findings, where having a young age increased the odds of COVID-19 vaccine uptake by 2[16]. Lastly,It was further discovered that healthcare professionals with postgraduate degrees had 3.7 times higher odds of receiving COVID-19 vaccination compared to those with only high school certificates. The findings were similar to the findings from the study done in Kenya where education level status was associated with the uptake of COVID-19 vaccines, where having a tertiary level of education increased the odds of COVID-19 vaccination[17]. But inconsistent with the findings from a scoping review where education level was not associated with the uptake of COVID-19 vaccines[18].

5. Conclusion

From this research, close to half of the study respondents had been vaccinated with COVID-19 vaccines which is way below bearing this are healthcare workers who are highly exposed to the COVID-19 virus. In addition, male healthcare workers were found to have 1.4 times the likelihood of being vaccinated compared to the female HCWs. Similarly, it was discovered that HCWs between the ages of 21 and 50 had a 2.6 times higher chance of being vaccinated compared to those who were below 21 years.Lastly.Healthcare professionals with postgraduate degrees had 3.7 times higher odds of receiving COVID-19 vaccination compared to those with only high school certificates.

8. Ethical Considerations

Before givingthe questionnairestothe respondents,the researcherensured togettheir verbalconsent,asrequiredbythestandards of medicalethics.A concise explanationofthestudy wasprovidedattheverybeginningofthequestionnaire inorder toprovide the respondentswithfurtherbackgroundinformation. Prior tothe administrationofthequestionnaires,permissionwas soughtfromthemanagement of the health facilities. Efforts were made to ensure the results of the questionnaire were availableforinspectionbytheadministrationofthehealthfacilitiesand officialswhowereinvolvedintheinvestigation.Theoutcomewasnotutilized for any purposeotherthan the onethat had been indicated. The researcher ensuredthatthey neverinterfered withthenormaloperationsof thehealthfacilities.If any respondenthadquestionsor concernsaboutthequestionnaire,theywere given the researcher'scontact information, including theirtelephonenumber for any assistance.

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