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Intent to get vaccinated against COVID-19 pandemic and its associated factors among adults with a chronic medical condition

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ABSTRACT

Background: Vaccination intent is defined as the willingness to get vaccinated against a COVID-19 pandemic in a situation where the vaccine is available at no cost. Nevertheless, even with the availability of COVID-19 vaccines, some part of the public is not expected to get vaccinated, mainly due to a phenomenon known as vaccine hesitancy or lack of intention. Furthermore, there is little information available on the intention of people with chronic medical conditions about the COVID-19 vaccines in Ethiopia.

Objective: The study aimed to assess the intent to get vaccinated against COVID-19 and its associated factors among adults with a chronic medical condition.

Method: An institutional-based cross-sectional study was conducted from February 15 to March 15, 2021. Simple random sampling was employed to get representative samples. Data were collected by using a structured questionnaire through face to face interviews. The data were entered by Epi Info version 7 and analyzed with SPSS version 20. The data were analyzed by using binary logistic regression. Those variables with a P-value of $\leq$ 0.05 were considered significantly associated with the outcome variable.

Result: In this study, 423 study participants took part with a response rate of 100%. The mean age of the study participants was 50.07 (SD $\pm$ 13.7) with a range of 18–85 years. The intention to get vaccinated against the COVID-19 pandemic was 63.8% [95% CI (58.6–68.2)]. In the multivariable analysis the variables, retiring from the job was [AOR = 2.65, 95% CI (1.02–10.35)], having health insurance coverage [AOR = 1.38, 95%CI (1.04–3.65)], being in the high socio-demographic status [AOR = 1.67, 95%CI (1.01–2.78)], being confident with the Country's health care system [AOR = 2.00, 95%CI (1.15–3.49)], and having good knowledge about COVID-19 [AOR = 6.59, 95% CI (4.02–10.78)] were significant predictors of intent to get vaccinated against COVID-19 pandemic compared.

Conclusion: The intention of getting vaccinated against the COVID-19 pandemic was relatively low. There has to be a great effort by the health caregivers as well as the government to increase vaccination intake, particularly for these priority groups.

1. Introduction

World Health Organization (WHO) has acknowledged a novel strain of coronavirus (COVID-19) as a global pandemic on March 11, 2020 (Loomba, de Figueiredo, Piatek, de Graaf, & Larson, 2021; Nguyen et al., 2021). In Ethiopia, the first COVID-19 case was detected on 13 March 2020. From the time when it was detected in the country, the number of new cases has been increasing dramatically. A year later from the time it was detected as the first case, on March 10, 2021, the country had 168,335 COVID-19 positive cases and 2451 deaths nationally (Ali; Organization, 2021). Searching for the vaccine to curb the COVID-19 pandemic spreads around the world has become one of the prime agendas. However, developing an effective COVID-19 vaccine will be only a first step in achieving immunity and controlling the pandemic

(Callaway, 2020; Omer, Salmon, Orenstein, Dehart, & Halsey, 2009). Vaccination will be instrumental in controlling the COVID-19 pandemic, and vaccination of a patient with a chronic illness will be necessary as they were amongst the increased risk of COVID-19. Large-scale vaccination efforts will be required, and governments worldwide are currently devising vaccination strategies (Drouin et al., 2021; Lazarus et al., 2021). One key element of any strategy is the acceptance of the vaccine by the general public. Surveys conducted around the world suggested that willingness to get vaccinated against COVID-19 is deviated from what is expected (Lazarus et al., 2021; Loomba et al., 2021). Starting from December 2020, different vaccines were authorized by the U.S. Food and Drug Administration and currently, there are three vaccines authorized and recommended in the United States to prevent COVID-19 the so-called Pfizer-BioNTech for age 12 and above will get 2 shots, Moderna for age 18 and above will get 2 shots and considered fully vaccinated two weeks after the second shot. Moreover, Johnson and Johnson's Janssen for age 18 and above will get 1 shot and code considered fully vaccinated after 2 weeks of the shot (Thorneloe, Wilcockson, Lamb, Jordan, & Arden, 2020). Into all the spread of the COVID-19 pandemic, there have to be safe and effective vaccines as well as the population intent to get vaccinated when available (Ali, 2021).

In Africa, a substantial degree of variation between studies (e.g. 59% and 85% intention for participants in one country but different studies) and between countries (e.g. 59% to 94% intention in different countries within one study) was observed public perceptions about COVID-19 vaccines collected between March 2020 and March 2021 in 22 countries (Tulloch, Roldan de Jong, & Bardosh, 2021). In Addis Ababa, Ethiopia 13 March 2021, the Ministry of Health of Ethiopia launched COVID-19 vaccine introduction in a high-level national event held at Eka Kotebe COVID-19 Hospital for one of the prioritized groups the so-called frontline health workers were vaccinated to mark the beginning of the vaccination campaign. The first shipment of 2.2 million vaccine doses out of the total 7.62 doses planned to be deployed to Ethiopia by May 2021 are being administered in the national launch of the vaccine introduction with the aims of vaccinating 20% of the population by the end of 2021 next followed by high-risk groups like those who have a chronic illness ("Ethiopia introduces COVID-19 vaccine in a national launching ceremony ", 2021). Nevertheless, even with the availability of COVID-19 vaccines, some part of the public is not expected to get vaccinated, mainly due to a phenomenon known as vaccine hesitancy or lack of intention(MacDonald, 2015) and vaccination no intent is defined as not intending to receive a COVID-19 vaccination upon its availability (Kimberly H. Nguyen). In Ethiopia, six in every ten individuals have the intention to accept the COVID-19 vaccine among the general population (Abebe, Shitu, & Mose, 2021). Another study in Ethiopia showed low willingness to take a COVID-19 vaccine among University instructors, bank employees, and primary/secondary school teachers in southern Ethiopia was reported (Zewude & Habtegiorgis, 2021). The factors which positively associated with COVID-19 vaccination were education, having insurance, subjective norms, attitudes, perceived severity, perceived susceptibility, perceived benefits, and self-efficacy (Alobaidi, 2021; Nikolovski et al., 2021).

In a study done in the Saudi population factors like monthly income, no past exposure to COVID-19, comorbidities, and no side effects of the vaccine were significant predictors of the intent to get vaccinated (Alobaidi, 2021; Guidry et al., 2021). Intention to accept the COVID vaccine had significantly correlated with chronic disease among the adult population (Alqudeimat et al., 2021; Nikolovski et al., 2021). In Ethiopia, a study conducted on the adult population, factors like having an age ≥ 46 years, attended secondary and above education, having a chronic disease, and having good knowledge about the COVID-19 vaccine were significant predictors of intention to get vaccinated (Abebe et al., 2021)

The most prevalent comorbidities identified with the increased belief of getting vaccinated against COVID-19 were chronic respiratory diseases, autoimmune diseases, hypertension, respiratory system disease, and cardiovascular diseases (Alobaidi, 2021). The high-risk individuals identified by WHO were over the age of 60, particularly those with chronic co-morbid conditions, frontline healthcare workers and those involved in essentials industries working in the place where the vaccine was authorized (Kaur & Gupta, 2020; Kreps et al., 2020; Ricotta, Kwan, Smith, & Evans, 2021; Yang et al., 2020). There is a paucity of information regarding the chronic patient's intention of COVID-19 vaccines in the current study area, especially after the government announced the COVID-19 vaccination program for the high-risk group after being vaccinated by all healthcare professionals. This study was conducted before the COVID-19 vaccine was launched in Ethiopia. The information gained from our study will be useful for healthcare workers and policymakers in planning targeted education activities and vaccination awareness campaigns.

Vaccination is an effective intervention that can reduce the high burden of diseases like COVID-19 globally. However, public vaccine decline to take is a presenting problem for public health officials (Reiter, Pennell, & Katz, 2020). With the availability of COVID-19 vaccines, little information is available on the intention of individuals' with chronic medical conditions to get vaccinated against the COVID-19 * pandemic in Ethiopia. Hence, this study aimed to assess the intention to get vaccinated against the COVID-19 pandemic and its associated factors among adults with chronic medical diseases.

2. Methods and materials

2.1. Study design and period

An institutional-based cross-sectional study was conducted from February 15 to March 15, 2021.

2.2. Study setting

The study was conducted at the University Of Gondar Comprehensive Specialized Hospital in chronic follow-up clinics. It is one of the teaching hospitals which serve more than seven million people in the catchment area. It had established in 1954 as the disease control and prevention center and grows to the University. There are more than 5000 chronic follow-up adult patients in the hospital. It provides promotive, preventive, curative and rehabilitative services to the catchment population. The Hospital has more than 750 beds and of these 320 was assigned for COVID-19 quarantine and treatment purpose.

2.3. Source population

The study includes all adults with chronic medical conditions having follow-up at the chronic outpatient department of the Hospital (OPD).

2.4. Inclusion and exclusion criteria

All adults with a chronic medical condition and having follow-ups at the chronic outpatient department of the Hospital (OPD) during the data collection period were included. Those adults who were critically ill were excluded.

2.5. Sample size and sampling technique

The Sample size was determined using a single population proportion formula with the assumption of a 95% level of confidence and 5% marginal error. The intent to get vaccinated against COVID-19 was taken 50% with the formula, $n = (z\alpha/2)^2 p (1 - p) / (d)^2 = (1.96)^2 * 0.50 (1–0.5) / (0.05)^2 = 384$, taking 10% non-response rate the required sample size was 423. A simple random sampling technique was employed to get the representative sample of the study. Then each study participant was selected only once and to avoid recycling of data due to double interviewing for the coming follow-up day special markers were used in the

chart of an interviewed patient with a chronic medical condition. It was also strengthened by verbal confirmation whether they interviewed in the previous data collection days or not at all.

2.6. Operational definition

Knowledge about COVID-19: The overall knowledge level was assessed using the mean score of knowledge question due to the symmetrical nature of the data ($\geq 13.44 \pm 5.63$) was good knowledge and ($<13.44 \pm 5.63$) was poor knowledge) (Kaliyaperumal, 2004).

Wealth status: It was computed using the principal component analysis from the variables of monthly income, agricultural productivity, household assets, and utility by checking the necessary assumptions of (PCA) and the percentile group of sum up was classified as low wealth status based on the first per cent quartile as, 2nd percentile quartile medium based on the 2nd percentile group and the 3rd per cent quartile as high-level wealth status (Hackman, Hruschka, & Vizireanu, 2020).

The habit of drinking alcohol: Among the participants those who drunk ≥ 3 drinks per day(female), ≥ 4 drinks per day for males were considered as alcohol drunker in this study (Abuse & Alcoholism, 1995).

2.7. Data collection tools and procedures

Data were collected by using a structured interviewer-administered questionnaire developed by reviewing different related articles (Nguyen et al., 2021; Thorneloe et al., 2020). The questionnaire included questions that assessed socio-demographic characteristics of study participants, COVID-19 vaccination intent questions, COVID-19 related knowledge assessment tool (Supplementary file 2). There were 2000 chronic patients on follow-up during the data collection period. Among those 572 was diabetes, 681 were hypertensive, 354 HIV, 161 heart diseases, 81 chronic respiratory diseases, 81 chronic kidney diseases, and 70 others (Cancer, chronic rheumatoid arthritis, Epilepsy, and Gout arthritis). By then we have made proportional allocations for each chronic diseases and took the representative samples by simple random sampling. We made proportional allocations since the follow-up day is not the same for all the chronic diseases. The participants were approached randomly with voluntarily basis. Confidentiality was maintained through omitting their names and any single identification in the given interview. The data collection was done at the University of Gondar comprehensive and specialized hospital chronic follow-up clinic. The data was collected through face to face interview of the participants by four BSc Nurses. The interview took approximately 15–25 min to complete.

Intent to get vaccinated against the COVID-19 pandemic was assessed using the question "are you intending to get vaccinated against COVID-19 if available without any cost?" The participants' response was classified as "Yes" for those who intend to get vaccinated and "No" for those who did not intend to get vaccinated. The responses were recorded as "No = 0" and Yes = 1 respectively for not intended and intended to get vaccinated against COVID-19 pandemic if the vaccine was available at no cost. Knowledge about COVID-19 was assessed by using 16 items with the Cronbach's Alpha of (0.77) and was computed by taking the mean value after sum up all the responses. Each correct response was coded as "1" and the wrong responses were coded as "0" to classify the respondents as having good knowledge and poor knowledge about the COVID-19 pandemic. The designed questionnaire was initially developed in English and then translated into the local language Amharic and then back to English by experts to ensure its consistency.

2.8. Data quality control

To maintain data quality, an appropriate and standardized questionnaire was used. Training about the data collection tool as well as data collection procedures was given to data collectors and supervisors for a total of two days before the data collection process. The objectives of the study were clearly explained to data collectors as well as supervisors. The respondents were given a brief orientation before they were interviewed and supervision was done on the spot by the supervisor. In addition, the collected data were checked daily for completeness and accuracy.

2.9. Data processing and analysis

The collected data was checked for its completeness and entered in the Epi info version 7. The data was exported to Statistical Package for Social Science (SPSS) version 20 software for analysis. The data were then re-coded, cleaned with appropriate statistical analysis using SPSS. The sample was described using descriptive statistics such as frequency, percentage. It was also presented by using Tables and graphs. The model fitness was checked by using the Hosmer-Lemeshow goodness of fit test ($P = 0.69$) and interpreted as a model fitted. Multicollinearity was cheeked using variance inflation factor (VIF) and its values lie within 1–10, which was interpreted as no multicollinearity. Bivariable and multivariate logistic regression analyses were used to identify associated factors of intent to get vaccinated against the COVID-19 pandemic.

A Forward LR selection process was used to see the final associated variables with the dependent variable. Those variables with a P-value less than ≤ 0.05 with a 95% confidence interval were considered as significantly associated with intent to get vaccinated against COVID-19.

3. Result

In this study, 423 study participants took part with a response rate of 100%. The mean age of the study participants was $\pm$ SD (50.07 ± 13.7) with a range of 18–85 years. The majority (79.0%) of the participants were urban dwellers. More than half (57.0%) were females and the vast majority (78.3%) were married. Most of the participants (89.8%) had a

Table 1
Socio-demographic related information of the study participants.

Variables	Category	Frequency	Percentage
Age	< 30 years	22	5.2
	30–49 years	174	41.1
	50–64 years	160	37.8
	$\geq$ 65 years	67	15.8
Sex	Male	182	43.0
	Female	241	57.0
Residency	Urban	334	79.0
	Rural	89	21.0
Educational status			
	Can't read and write	175	41.4
	Primary school	35	8.3
	Secondary school	34	8.0
	College and above	179	42.3
Marital status	Single	25	5.9
	Married	331	78.3
	Divorced	26	6.1
	Widowed	41	9.7
Occupation status			
	Government employed	166	39.2
	Merchant	55	13.0
	Farmer	72	17.0
	Housewife	102	24.1
	Retire	28	6.6
Have child	Yes	380	89.8
	No	43	10.2
Family size	<5	243	57.4
	$\geq$ 5	180	42.6
Health insurance coverage	Insured	261	61.7
	Uninsured	162	38.3
Socio-economic status			
	Low	138	32.6
	Medium	138	32.6
	High	147	34.8

child (Table 1).

3.1. Personal and disease-related information of participants

Among the study participants, 121(28.6%) had diabetes and 144 (34.0%) had hypertension. About 10.9% and 1.9% of the participants had a habit of alcohol drinking and smoking respectively. The most reliable source of information about the COVID-19 vaccine was found to be health care providers (39.0%) followed by information from the government (31.4%). More than half, (52.2%) of the participants had good knowledge about COVID-19 (Table 2).

3.2. Intention to get vaccinated against CoVID-19 pandemic

In this study, the intention to get vaccinated against the COVID-19 pandemic was found 63.8% [95% CI (58.6–68.2)]. Of the study participants, 35.92% had an intention to get vaccinated against the COVID-19 pandemic if available with no cost. Whereas, 15.93% had the intention to get vaccinated against the COVID-19 pandemic if available with no cost to contribute to the control of the pandemic (Supplementary file 1: Fig. S1).

On the other hand, 28.76% and 22.57% of participants did not intend to get vaccinated with the concern of vaccine effectiveness and safety respectively (Supplementary file 1: Fig. S2).

3.3. Factors associated with intent to take vaccinated against COVID-19

In multivariable analysis, the variables such as occupation, health insurance coverage, socioeconomic status, confidence with the country's health care system, and knowledge about the COVID-19 pandemic were significant predictors of intention to get vaccinated against the pandemic upon availability. In this regard, retiring from the job was [AOR = 2.65, 95% CI (1.02–10.35)] times more to get vaccinated against COVID-19 upon the availability of the vaccine compared with its counterparts. Having health insurance coverage was [AOR = 1.38, 95% CI (1.04–3.65)] times more to get vaccinated compared with no health

Table 2
Personal and disease-related information of participants.

Variables	Category	Frequency	Percentage
Type of Chronic disease			
	Diabetes	121	28.6
	Hypertension	144	34.0
	HIV/AIDS	75	17.7
	Heart disease	34	8.0
	Chronic repertory disease	17	4.0
	Chronic kidney disease	17	4.0
	Others*	15	3.5
Habit of drinking			
	Yes	46	10.9
	No	377	89.1
Habit of smoking			
	Current smoker	8	1.9
	Ex-smoker	18	4.3
	Not at all	397	93.8
Source of most trusted information about COVID-19 vaccine			
	Health care providers	165	39.0
	Government	133	31.4
	Media	109	25.8
	Family member	16	3.8
Covid-19 related knowledge			
	Good	202	47.8
	Poor	221	52.2

other*; Cancer, chronic rheumatoid arthritis, Epilepsy, and Gout arthritis).

insurance coverage. Being in the high socio-demographic status was [AOR = 1.67, 95%CI (1.01–2.78)] times more likely to get vaccinated against COVID-19 compared with its counterparts. Being confident with the Country's health care system was found to be [AOR = 2.00, 95%CI (1.15–3.49)] times more likely to get vaccinated against COVID-19 compared with not confident. Having a good knowledge about COVID-19 was also [AOR = 6.59, 95% CI (4.02–10.78)] times more likely to get vaccinated against COVID-19 pandemic compared with its counterpart (Table 3).

4. Discussion

The raise in the transmission rate of COVID-19 strives the scientist to get vaccinated to halt the spread of the disease (Dong et al., 2020). However, individuals should be a volunteer to take the vaccination. Hence, this study aimed to investigate the intention to get vaccinated against COVID-19 among adults with chronic diseases which are one of the vulnerable and prioritized groups for vaccination (Nguyen et al., 2021). In this study, the overall intent to get vaccinated against the COVID-19 vaccine was 63.8% [95% CI (58.6–68.2)]. This finding was higher than the studies conducted in the USA by Nguyen, K.H., et al. (Loomba et al., 2021) and Allen, J.D., et al [3] revealed 44.2% and 56.8% respectively. The possible justification might be the studies done USA was on the intention of vaccination among the people of the prioritized group for vaccination. The composite effect of these groups might decrease the intent to get vaccinated against the COVID-19 pandemic so far. Moreover; the study participants in the USA could have a fear of the side effect, speed of vaccine development process, and safety for the vaccination which intern decline the intent for vaccination, and time gap (Nikolovski et al., 2021).

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This finding was higher than the studies done in the USA (39.4–49. %) (Nguyen et al., 2021) and Indonesia (Harapan et al., 2020). The possible justification might be the studies done USA as well in Indonesia were on the intention of vaccination among the people of the prioritized group for vaccination. The composite effect of these groups might be reducing the intent to gate vaccination. Moreover, the study participants in the U.S.A might have fear of the side effect, speed of vaccine development process, and safety for the vaccination which intern decline the intent for vaccination (Bendau, Plag, Petzold, & Ströhle, 2021).

The finding of this study was lower than the studies done US (69%) (Nguyen et al., 2021), and UK (69.9%) (Thorneloe et al., 2020). The possible reason could be studies done in the US and UK was among the general population. All of this group of the population might not have a chronic disease. In addition; study populations in the US, and the UK had a better understanding of the vaccine to reduce the morbidity and mortality of COVID-19 to increase the willingness for vaccination. Moreover, there exists a socio-demographic difference in that most of the participants in the US, and the UK have an intention to get vaccinated by challenging the misinformation related to the drug side effect (Huynh et al., 2021).

In multivariable analysis, the variables such as occupation, health insurance coverage, socioeconomic status, confidence with the country's health care system, and knowledge about the COVID-19 pandemic were significant predictors of intention to get vaccinated against the pandemic upon availability. In this regard, being retired from the job was 2.65 times more to get vaccinated against COVID-19 upon the availability of the vaccine compared with its counterparts. This finding was consistent with the study conducted in Portugal (Soares et al.,

Table 3
Factors associated with intent to take vaccinated against COVID-19.

Variables	Category	Intention to get vaccinated		COR (95%CI)	AOR (95%CI)	P-Value
		No	Yes			
Age	< 30 years	7	15	1	1	
	30–49 years	65	109	0.78(0.29–2.82)	0.77(0.26–2.78)	0.63
	50–64 years	61	99	0.76(0.29–1.96)	0.58(0.19–1.69)	0.64
	≥ 65 years	20	47	1.10(0.39–3.09)	0.62(0.18–2.13)	0.31
Sex	Male	67	115	1	1	
	Female	86	155	1.05(0.704–1.567)	1.53(0.87–2.70)	0.14
Residency	Urban	121	213	1		
	Rural	32	57	1.01(0.62–1.65)	0.94(0.58–1.38)	0.24
Educational status						
	Can't read and write	72	103	1	1	
	Can read and write	10	25	1.75(0.79–3.86)	1.68(0.65–2.89)	0.22
	Secondary school	6	28	3.26(1.28–8.28*	3.04(0.99–11.66)	0.25
	College and above	65	114	1.23(0.79–1.88)	1.17(0.63–7.76)	0.51
Marital status	Single	8	17	1	1	
	Married	124	207	0.79(0.33–1.87)	0.62(0.21–1.78)	0.62
	Divorced	8	18	1.06(0.32–3.46)	0.69(0.16–3.03)	0.37
	Widowed	13	28	1.01(0.35–2.95)	0.97(0.25–3.76)	0.96
Occupation status						
	Government employed	64	102	1	1	
	Merchant	20	35	1.09(0.58–2.07)		
	Farmer	27	45	1.05(0.59–1.85)	1.02(0.48–1.69)	0.08
	Housewife	37	65	1.10(0.66–1.84)	1.04(0.57–1.77)	0.06
	Retire	5	23	2.89(1.05–7.98)*	2.65(1.02–10.35)	0.013
Have child	No	15	28	1		
	Yes	138	242	0.94(0.49–1.82)	0.87(0.35–1.68)	0.46
Family size	<5	94	149	1	1	
	≥ 5	59	121	1.29(0.86–1.94)	1.6(0.46–1.77)	0.43
Health insurance coverage	Uninsured	67	95	1		
	Insured	86	175	1.44(1.07–2.15)	1.38(1.04–3.65)	0.032
Socio-economic status						
	low	61	77	1	1	
	Medium	46	92	1.58(0.97–2.58)	1.49(0.88–1.96)	0.061
	High	46	101	1.74(1.07–2.82)*	1.67(1.01–2.78)	0.023
confident with the country's health care system						
	No	128	149	1		
	Yes	25	121	4.16(2.54–6.79)*	2.0(1.15–3.49)	0.014*
Covid-19 related knowledge						
	poor	120	82	1		
	Good	33	188	8.34(5.24–13.27)	6.59(4.02–10.78)	0.0001**

Note: Statistically significant * =p-value < 0.05, ** =p-value < 0.001.
Abbreviations: COR-Crude Odds Ratio, COVID19- Coronavirus, CI-Confidence Interval, AOR-Adjusted Odds Ratio.

2021). The possible reason could be those retired participants most probably are aged population and fear the consequence of covid-19 and they are among the priority group to get the vaccine (Ruiz & Bell, 2021).

Having health insurance coverage was found to be 1.38 times more to get vaccinated compared with no health insurance coverage. This finding was supported by the studies done in the US (Nguyen et al., 2021) and Australia (Seale et al., 2021). This could be fear of cost unaffordability of the vaccine if unfortunately the vaccine couldn't be provided free of charge and also they are covered for other health care services (Cerda & García, 2021). Being in the high socioeconomic status was 1.67 times more to get vaccinated against COVID-19 compared with its counterparts. This finding was supported by the study done in Portugal (Soares et al., 2021). The possible reason could be since those with low economic status have less information access regarding COVID-19 pandemic severity and vaccine. In contrast, those with high socio-economic status could have high information access through following television news, use smartphones and availability of the internet which increase their intent to get vaccinated against the COVID-19 pandemic (Cerda & García, 2021; Wong, Alias, Wong, Lee, & AbuBakar, 2020). Being confident with the country's health care system was 2.00 times more to get vaccinated against COVID-19 compared with not confident. This finding was supported by the studies done in the US and Kuwait (Alqudeimat et al., 2021). This could be since those who are confident in the health care system had trust in treatment and vaccine-related

complication managements. Furthermore, they could be confident in the information transmission about the vaccine efficacy, and the tolerable side effects by ensuring the misinformation from the country's health care system (Nachega et al., 2021; Nikolovski et al., 2021; Salali & Uysal, 2020). Having a good knowledge about COVID-19 was also 6.59 times more to get vaccinated against the COVID-19 pandemic compared with its counterpart. This finding was supported by the study done in Vietnam (Huynh et al., 2021) and Ethiopia (Abebe et al., 2021) The possible explanation could be having good knowledge towards COVID-19 might have also access to the general information of the preventive measures, the vaccines, its side effects and intern could enhance the rate of intention to accept the vaccine.

5. Limitations of the study

The intent to get a vaccination against COVID-19 was measured through self-report of the participants and in that there might not be the exact and true intention. It was done only if the vaccine is available at no cost, this might increase the intention to get vaccinated. It is an institutional-based cross-sectional study that might not be generalized to the public at large. Moreover, it can't identify the cause and effect relationships of variables. It did not assess the level of stress and anxiety related to the COVID-19 pandemic which could affect vaccination uptake.

6. Conclusion and recommendation

When we had seen it from the severity of the pandemic in adults with chronic medical conditions and other studies conducted around the world there was relatively low intention to get vaccinated against COVID-19 upon launching with no cost. Moreover, retiring from a job, having health insurance, high socioeconomic status, being confident in the country's health care system, and being knowledgeable about COVID-19 were significant predictors of intention to get vaccinated among adults with a chronic medical condition. The study result alarms something to do ahead of launching the vaccine in the country since it was relatively low compared to the other studies conducted outside of the country. To control the spread of the pandemic and its negative consequences in every aspect of daily living measures need have to be taken to improve the uptake of the vaccine particularly by these highly vulnerable groups of the population so far.

Health professionals and other concerned bodies ought to give adequate and clear information regarding the COVID-19 vaccine. There need to strengthen health education about the importance of getting vaccinated against the pandemic and the ways to control its spread. Leaflets, posters, and banners need to be done to improve the awareness of patients about the COVID-19 vaccination. Awareness creation campaigns have to be held by incorporating various target population groups such as patients, families, health bureau officers, health extension workers, and non-governmental organizations. Since chronic medical conditions care necessitates collaborative efforts, particularly in the era of the COVID-19 pandemic.

7. Consent to publish

The consent to publish is not applicable.

8. Availability data and material

For the sake of protecting participants' confidentiality raw data would not be given. However; the summary data are available in the mother document. The data can be given at a reasonable request from the corresponding author.

9. The Ethical Approval and Consent of participating

The study was performed based on the ethical standards of put down the 1964 declaration of Helsinki. The ethical approval was found from our University, college of medicine and health sciences, school of nursing research and the ethical review committee. Letter of permission and support was obtained from the University's Comprehensive Specialized Hospital Clinical Director. The study participants were briefly informed about the purpose, method, advantages expected, and the risk of the study. They had got full information about their rights not to participate or stop participating in the study at any time. We had gotten written informed consent from each study participant.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

Authors' contribution

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijans.2022.100401.

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