



Trust about corona vaccine among health professionals working at Dilla University referral hospital, 2021

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ABSTRACT

Background: Corona virus is continuing over a year ago throughout the world. To handle the spread and vitality of the virus, several investigations have been done and recently the vaccine has launched in order to effect soon. A vaccine has several controversial issues regarding the effectiveness and potential unwanted serious adverse effects. In low-and middle-income countries including Ethiopia, there is a huge knowledge gap and insufficiency of information about the corona vaccine. Trust is exceptionally crucial to utilize any vaccines apply on human being. This study aimed to assess trust about corona vaccine and its associated factors among health professionals working at Dilla University referral hospital, Southern Ethiopia, 2021.

Method: A hospital-based study employing cross-sectional design and simple random sampling technique was used to select health professionals who are working at Dilla University referral hospital from March 1–15, 2021. Trust about corona vaccine was assessed by a Likert scale type single standard questionnaire. A Binary Logistic regression at 95% CI, $p < 0.05$ was used to identify factors associated with the outcome variable.

Result: This study included 250 health professionals. From the total of respondents, 155(62%) indicated they would not trust COVID-19 vaccines. The most common reasons indicated through a closed series of 10 options for not trusting the vaccine included doubts in efficacy, novelty of the products, fast-tracking of the development and general indecisiveness. Men, people aged less than 32 years, who were single, who worked in a coronavirus treatment unit, who had a positive coronavirus test and no current history of physical illness were more likely to trust or demand the vaccine.

Conclusions: The proportion of health professionals that trust COVID-19 vaccination is among the lowest in the world. Therefore, there is a need of awareness creation training and education about the corona vaccine for health professionals, particularly for those identified groups.

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1. Introduction

The new coronavirus pandemic is a new infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) with acute respiratory syndrome. Coronavirus disease 2019 (COVID-19) has swept the world rapidly and currently affects 4,004,483 million people. The death toll rose again to 1,828,024, in 218 countries, regions and territories [1].

The pandemic has caused in an overwhelming impact on worldwide, which provoked the need for mitigation strategies to contain

the pandemic [2]. To control the spread of the pandemic, the world introduced different guidelines and preventive strategies, including enforcing masks policy, hands sanitization, social distancing, travel restrictions, schools' closures, and partial or complete lockdowns [3]. So far, these measurements were aimed to slow down the spread of the disease, but the most promising strategy to confine the virus and providing hope to reduce the mortality and morbidity rates remains within the capacity of the country's health system. The capacity of the health system includes effective, safe, and affordable [4].

No antiviral drugs have been granted that were specifically developed against the COVID 19 virus till the US Food and Drug Administration (FDA) has authorized remdesivir as an emergency use for critically ill patients with COVID-19 [5,6]. However, the WHO recommended against its use in November 2020 [7].

Abbreviations: AOR, Adjusted odd ratio; CI, Confidence interval; COR, Crude odd ratio; COVID-19, Consider Coronavirus Disease 2019.

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Vaccines are one of the most productive and cost-effective mass community intervention ever implemented. The significant challenge in implementing such a goal is believed to be loss of trust towards vaccine efficacy and incredulity among the population worldwide [8,9]. Vaccine hesitancy was defined by the WHO Strategic Advisory Group of Experts (SAGE) as “delay in acceptance or refusal of vaccination despite availability of vaccination services”. Vaccine acceptability is determined by three factors: confidence, convenience, and complacency [10]. Trust can be defined as belief in the safety and effectiveness of the vaccine, confidence in the delivery system as the healthcare system, and the guarantee in the policymakers [11].

Health care providers have hesitancy towards the safety, effectiveness and continuity of corona vaccine especially among youths, females and pediatric service providers [12–14]. On the contrary, those health care personnel with previous history of flu/ influenza vaccine, chronic medical illness and advanced work experience had willingness to get the vaccine [15–17].

To curb the spread of the virus; policymakers, community leaders, and government stake holders are working together to increase the widespread acceptance of the vaccines. The Ministry of Health of Ethiopia launched COVID-19 vaccine introduction at especial ceremony [18].

Trust towards COVID-19 vaccine will undoubtedly be one of the most important primary conditions to comply with the vaccine. However, in Ethiopian as per of our knowledge; there is no published studies on this issue Therefore, this study aimed to assess trust about corona vaccine and its associated factors among health professionals working at Dilla University referral hospital, South-east Ethiopia, 2021.

2. Methods and materials

2.1. Study setting, study design and study period

A hospital based cross-sectional study design was conducted at Dilla University referral hospital from March 1–15, 2021. The hospital is serving for more than 1 million people coming from three regions of the country. Since the corona virus laboratory center has established within the hospital an average of 15 cases were reporting in daily bases.

2.2. Eligibility criteria

2.2.1. Inclusion criteria

Participants working at Dilla University referral hospital and age ≥ 18 and above years old were included in the current study.

2.2.2. Exclusion criteria

Participants with acute and severe physical /mental illness were excluded in this study.

2.2.3. Sample size and technique

This study enrolled 250 respondents selected randomly from all health professions working at Dilla University referral hospital.

2.2.4. Data collection instruments

The data was collected by 5 health extension workers who are working in the health centers by using a semi-structured self-administer questionnaire. The first part of the questionnaire was about the socio-demographic and clinical characteristics of the respondents. The second part of the questionnaire was trust about corona vaccine. The questionnaire was prepared to assess respondent's trust towards COVID 19 vaccine by asking a single question “would you trust a vaccine for the coronavirus.” It has 4 - Likert

scale responses from strongly agree to strongly disagree. The final part of the questionnaire was about the reasons for not trust a COVID-19 vaccine. This questionnaire was begin with asking “Why would you not trust a vaccine for the coronavirus?” with ten different responses (Doubt in efficacy, Vaccine contents, Virus strain/mutation, Current government distrust, Profit distrust, Vaccine fast-tracking, General skepticism, Compromised immune systems, Vaccine skepticism and Too new) [18]. Each tool has good specificity and internal consistency to measure the variables in the current study.

2.2.5. Data quality control

This study used reliable questionnaire which has been translated to Amharic and Gedeoffa local language and showed good internal consistency. The issues written on the questioner were easily understandable by respondents and finished on planned time duration. The validity of the questioner was checked during pretest on 5% of respondents before two weeks of the actual data collection period. The data collected from each respondents has kept confidential /secured. The respondents has informed about the purpose and objective of the study before the actual data collection. The collected data checked at daily basis for its completeness.

2.2.6. Data processing and analysis

The collected data was entered into the Epi-Data version 3.4 software package and exported to the Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics; frequency, percentage, mean and standard deviation were used to describe the socio-demographic and clinical characteristics of respondents. $P \leq 0.05$ were used to select the candidate covariates for multivariate analysis. A binary logistic regression analysis at 95% CI, $p < 0.05$ was used to interpret the association between the independent and dependent variables. Hosmer- Lemeshow goodness-of-fit was used to check the model fitness and was 82% in the current study.

3. Result

3.1. Socio-demographic result

Almost half of the respondents 135 (54.1%) were male and the mean (SD) age the respondents was 32 (± 6) years old. Only 41 (16.4%) of participants had masters and above educational qualification. Almost half of the respondents were nurses by their profession (Table 1).

3.2. Trust about corona vaccine

More than half the respondents 155(62%) indicated that as they would not trust COVID-19 vaccines. The most common reasons indicated through a closed series of 10 options for not trusting the vaccine included doubts in efficacy, novelty of the products, fast-tracking of the development and general indecisiveness (Table 2).

3.3. Factors associated with the out-come variable (Trust about COVID-19 vaccine)

During multiple logistic regression analysis, at 95% CI ($p < 0.05$), the independent variables such as men, people aged less than 32 years, who were single, who worked in a coronavirus treatment unit, who had a positive coronavirus test and no current history of physical illness were more likely to trust or demand the vaccine. The odd of being male gender (AOR: 5.83(3.09, 11.0), age < 32 years old (AOR: 3.20 (1.9,5.39), Single marital status

Table 1
Socio-demographic result of the respondents, March 2021 (N = 250).

Variables	Category	Frequency	Percentage
Sex	Male	135	54.1%
	Female	115	45.9%
Age	Below 32	141	56.3%
	Above 32	109	43.6%
Educational status	Diploma	75	30%
	Bachelor	134	53.6%
	Masters/ specialty	41	16.4%
Marital status	Single	142	56.8%
	Married	92	36.8%
	Others *	16	6.2%
Area of profession	Medicine	31	12.2%
	Anesthesia	12	4.9%
	Laboratory	20	8%
	Pharmacy	21	8.6%
	Psychiatry	12	5 %
	Midwives	21	8.4%
	Nurse	133	53.2%
History of work at corona unit	Yes	51	20.3%
	No	199	79.7%
Past positive coronavirus test	Yes	41	21%
	No	209	79%
Years of experience	<5 year	164	65.6%
	>5 year	86	34.4%
Current history of chronic physical illness	Yes	44	17.7%
	No	206	82.3%

Others* – Separated /Widowed/ Divorced.

Table 2
Reasons for not trusting the corona vaccines (N = 155).

Item response	Frequency	Percentage
Doubt in efficacy (belief that one may still become infected)	40	26%
Vaccine contents(unsure what is in the vaccine)	15	10%
Virus strain/mutation(modifications would be necessary due to mutations or new strains)	5	3%
Current government distrust (lack of trust in the current administration, re-election scam)	8	5%
Profit distrust(distrust of "Big Pharma," emphasis on profit aspect)	3	2%
Vaccine fast-tracking (belief that the vaccine is being distributed too soon without adequate testing, data, or proof of success)	20	13%
General skepticism (general indecisiveness and lack of trust)	19	12%
Compromised immune systems (unable to get some vaccines or get sick from vaccines, or prefer natural immunity)	11	7%
Vaccine skepticism (distrust in vaccines in general, distrust in a flu vaccine, vaccine source)	12	8%
Too new(no knowledge of long-term side effects or safety)	22	14%

(AOR: 4.92(2.80,8.66), work at corona center (AOR: 2.23(1.17, 4.26), past positive history (AOR: 3.75(1.95, 7.22) and free from any medical illness (AOR: 3.53(1.75–7.15) were more likely to trust corona vaccine (Table 3).

4. Discussion

Trust and sufficient information about the new corona vaccine have a paramount benefit. Particularly, the role of health care providers on informing, explaining and creating awareness towards the new corona vaccine for their patients regarding to its benefit and risk plays a significant positive attitude and trust to use the vaccine. This study aimed to assess trust related to the new corona vaccine among health professionals working at Dilla University referral hospital. The current study found that only 95(38%) had

Table 3
Multi-variable logistic regression analysis result of the participants (N = 250).

Variables	Category	AOR(95% CI, p < 0.05)
Sex	Male	5.83(3.09,11.0)***
	Female	1
Age	<32 years	3.20 (1.9,5.39)**
	>32 year	1
Educational level	Diploma	0.72(0.31,1.69)
	Bachelor/ Degree	0.52(0.23,1.18)
	MSc/specialty	1
Marital status	Single	4.92(2.80,8.66)**
	Married	1
Area of profession	Medicine	1.38(0.47,2.74)
	Anesthesia	2.25(0.68,7.47)
	Laboratory	2.41(0.92,6.3)
	Pharmacy	0.99(0.38,2.55)
	Psychiatry	0.8(0.23,2.81)
	Midwives	0.87(0.32,2.32)
	Nurse	1
History of work at corona unit	Yes	2.23(1.17, 4.26)*
	No	1
Past positive coronavirus test	Yes	3.75(1.95, 7.22)**
	No	1
Years of experience	<5 year	0.69 (0.41, 1.17)
	>5year	1
Current history of chronic physical illness	Yes	1
	No	3.53(1.75–7.15)***

Others* – Separated /Widowed/ Divorced, 1 = Reference, AOR – Adjusted odds ratio, *(p < 0.05), ** (p < 0.01) and *** (p < 0.001).

trust for the new corona vaccine and this study result was lower than the study done in United states 53% [19], Ecuador (97.0%) [20], Malaysia (94.3%) [21], Indonesia (93.3%) [22] and China (91.3%) [23], Italy (53.7) [24], Russia (54.9%) [25], Poland (56.3%) [26], 78.1% Israel [27] and France(76.9%) [28]. However, higher than a studies conducted in Kuwait (23.6%) [29], Jordan (28.4%) [30] and Democratic Republic of the Congo 27.7% [31]. It might be explained by the socio-demographic and vaccine awareness difference between participants.

This study revealed that the odd of trust for corona vaccine among male was AOR 5.83;95 %CI (3.09, 11.0) times as compared to female, this was consistent with the study done in France [32]. The natural and cultural influence of males have less fear to test new situation and events. The odd of trust for corona vaccine among participants with age < 32 years old was AOR 3.20; 95% CI (1.9, 5.39) as compared to their counterparts which was on the contrary with the study done in France and United Kingdom [33]. In our country there was no much age difference in epidemiology of corona virus and youths were most likely prone to take any risks. Participants who were single had AOR 4.92; 95% CI (2.80, 8.66) times more likely trust for corona vaccine which was in agreement with the study done in Israel [27]. Those health professionals with older age might have a high responsibility and fear of transmitting any vaccine related complications to their parent and children.

This study revealed that those who had history of working at COVID-19 treatment centers had AOR 2.23; 95% CI (1.17, 4.26) times trust for corona vaccine. Incongruent finding were reported from study done in Democratic Republic of Congo [34]. Front line health workers during COVID-19 pandemic had positive attitude and good awareness regarding the virus and its preventive measures which results in trust for the vaccine.

Participants with previous history of corona positive test had AOR 3.75; 95% CI (1.95, 7.22) times more trust for corona vaccine. The result is supported by study done in Russia [11]. The really bad experience of disease and psychological stigma related to the virus push them to have a trust and acceptance for the new scarce corona vaccine.

The odd of trust for corona vaccine among those participants with no current physical illness was AOR 3.53; 95% CI (1.75, 7.15) times as compared with their counterpart which was in line with the study done in France [11]. They might fear the vaccine as worsening of their physical illness and drug-drug interaction results unwanted side effect.

4.1. Limitation of the study

Since the study was cross-sectional design, no conclusions can be drawn regarding causality and alternative explanations of the findings.

5. Conclusion

This study found that only one-third of the participants had trust for the new corona vaccine. participants who were male, < 32 years old, single, working at corona unit, history of positive for corona test and no current history of physical illness answered "Yes" for corona vaccine trust questionnaire. It indicates that there should be awareness creation and enough explanations about the new corona virus vaccine. It is better to give formal training for health care providers about efficacy, and possible unwanted side effects of corona vaccine. Moreover social media, government and non-government organizations should work in collaboration with health care provider to enhance on the awareness and acceptability of the vaccine.

Ethics approval and consent to participate

The ethical clearance was given from the Institutional Review Board to conduct this study. The written consent was obtained from the study participants. The confidentiality of the information was ensured with all respondents who participated in the study.

Consent for publication

"Not applicable".

Availability of data and materials

The datasets analyzed for this study is available from the corresponding author on reasonable request.

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.

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