COVID-19 Vaccines Hesitancy Among Community Health Workers in Ethiopia and Associated Factors

Brief Report

Johns Hopkins Center for Communication Programs
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Abbreviations

CCP	Center for Communication Programs
CHWs	Community Health Workers
COVID-19	Coronavirus 2019
HCWs	Healthcare Workers
HEWs	Health Extension Workers
HH	Household
MOH	Ministry of Health
SBCC	Social and Behavior Change Communication
TV	Television
USAID	United States Agency for International Development
WDA	Women Development Army
WHO	World Health Organization

Executive summary

Johns Hopkins Center for Communication Programs (CCP) has implemented the COVID-19 vaccine promotion project in Ethiopia with funding and support from the United States Agency for International Development (USAID) through the Global Breakthrough ACTION mechanism. CCP/Ethiopia conducted a cross-sectional community-based assessment of community health workers' (CHWs) hesitancy toward COVID-19 vaccines during June and July 2022. CHWs include both Health Extension Workers (HEWs) and Women Development Army (WDA). The assessment aimed to inform risk communication and vaccine promotion programs in Ethiopia. Face-to-face interviews were used to collect information from CHWs regarding exposure to messages about COVID-19 vaccines, risk perceptions and practices related to COVID-19 vaccines. A total of 998 randomly sampled CHWs (491 HEWs and 507 WDAs) were interviewed in five clusters of major regions of Ethiopia (Amhara, Oromia, Benishangul-Gumuz, Southern Nations and Nationalities Peoples Region, Dire Dawa). About 200 randomly sampled CHWs were interviewed from each cluster.

Key findings

CHWs' exposure to messages about COVID-19 vaccines, and sources: Almost all interviewed CHWs were exposed to messages about COVID-19 vaccines from different sources. Half of the interviewed HEWs said they were often exposed to messages from radio or TV, and 50% reported exposure from health facilities (PHCUs and Woreda Health Offices). About 30% of WDAs often received messages from a health facility (Health Post) and 30% from their family/friends. About 32% of HEWs and 14% of WDAs were often exposed to three or more sources, and 44% of HEWs and 44% of WDAs were often exposed to one or two sources. The most frequently reached messages to HEWs and WDAs were about the efficacy and availability of COVID-19 vaccines.

Perceptions on importance, safety, and side effects of COVID vaccines: HEWs and WDAs were asked their level of agreement to statements about importance, safety, accessibility, and side effects on COVID-19 vaccines using categorical response options: "high," "moderately," "little," and "not at all." More than 98% of CHWs highly or moderately agreed that COVID-19 vaccines are important and more than 90% of CHWs highly or moderately agreed that the COVID-19 vaccines available in Ethiopia are safe. Less than half of CHWs (35% HEWs and 25% WDAs) highly or moderately agreed that COVID-19 vaccines have no severe side effects. Almost all interviewed CHWs (99% of HEWs and 93% of WDAs) recommended COVID-19 vaccines to other eligible individuals, and 91% of HEWs and 85% of WDAs believed that taking COVID-19 vaccines is a responsibility of the CHWs.

Family and community support: Family and community support are among key determinants of behavior. HEWs and WDAs were asked their perceived support from family, friends, religious leaders for them to take COVID-19 vaccines. More than 90% of CHWs thought that their family members and friends wanted them to take COVID-19 vaccines. The majority of CHWs (78% of HEWs and 82% of WDAs) thought that their religious leaders wanted them to get COVID-19 vaccines. The findings also indicate a strong social norm among CHWs towards COVID-19 vaccines. The majority of CHWs (87% of HEWs and 85% of WDAs) thought that most of their colleagues took COVID-19 vaccines.

Perceived risk and perceived severity of COVID-19: Perceived risk and perceived severity of COVID-19 determines the decision to take COVID-19 vaccines. Less than a third of CHWs (31% of HEWs and 28% of WDAs) had high perceived risk of getting infected with COVID-19 virus; while 44% of HEWs and 44% of WDAs had high perceived severity on health issues related to COVID-19 infection respectively.

Uptake of COVID-19 vaccines and willingness to receive COVID -19 vaccines: Most of interviewed CHWs (89% of HEWs and 70% of WDAs) reported that they completed the recommended doses of COVID-19 vaccines. About 10% of HEWs and 26% of WDAs started the vaccination but didn't complete recommended doses.

Uptake of COVID-19 vaccines has shown significant variation by respondent's education and region. The percent of respondents completing the recommended doses of COVID-19 vaccines was 70%, 73% and 86% among uneducated, primary and diploma-level CHWs respectively. The lowest uptake was found in Benishangul-Gumuz (60%), while the highest was found in SNNP (91%). About 79% of CHWs in Amhara, 81% in Oromia and 86% in Dire Dawa cluster completed the recommended doses of COVID-19 vaccines.

Willingness for COVID-19 vaccines was measured from those CHWs who didn't complete recommended doses or who didn't yet start COVID-19 vaccines. More than 90% of CHWs who didn't complete the recommended doses reported that they are willing to take COVID-19 vaccines, if COVID-19 vaccines are available for them. This implies that about 10% of CHWs who didn't complete the recommended doses of COVID-19 vaccines were hesitant.

Conclusions

- Most of CHWs completed the recommended doses of COVID-19 Vaccines. Hesitancy on COVID-19 vaccines was found to be low among CHWs.
- CHWs were less vaccine-hesitant than healthcare workers (HCWs). CCP's hesitancy assessment among HCWs in health centers and hospitals in February 2022 indicated only a 66% uptake and 43% willingness to receive COVID-19 vaccines. Both uptake and willingness were found higher among CHWs than HCWs.
- Low uptake of COVID-19 vaccines was found in Benishangul-Gumuz.
- Radio/TV, PHCUs and Woreda Health offices are the major sources of information for HEWs about COVID-19 vaccines, while health facilities/Health Posts and family/friends are main sources for WDAs.

Recommendations

- Explore reasons why there is lower uptake of COVID-19 vaccines in Benishangul-Gumuz than other regions.
- Explore reasons why there is higher uptake of and willingness to receive COVID-19 vaccines among CHWs than HCWs.
- Use a mix of channels (radio/TV) and facility-based education to educate HEWs and WDAs.
- Facilitate dialogues and consultative workshops among CHWs to enhance their risk perception.

Background

Johns Hopkins Center for Communication Programs (CCP) implemented the Breakthrough ACTION, a five-year cooperative agreement from the United States Agency for International Development (USAID) to lead social and behavior change (SBC) programming around the world. CCP has implemented a risk communication and community engagement project in Ethiopia with USAID support through the global Breakthrough ACTION mechanism since March 2020. The project designed and disseminated mass- and mid-media interventions and community engagement activities focusing on the prevention and control of COVID-19 and promotion of COVID-19 vaccines. CCP conducted an assessment on COVID-19 vaccine hesitancy among community health workers (HEWs and WDAs) in collaboration with the National Communication Technical Working Group in June and July 2022. The assessment aimed to gather reliable evidence on hesitancy among community health workers (CHWs) related to COVID-19 vaccines. The findings will help to inform the design and implementation of risk communication campaigns and materials. This brief report presents the main findings of the assessment.

Objectives

- Determine level of hesitancy toward COVID-19 vaccines among CHWs in Ethiopia.
- Identify key determinants of hesitancy toward COVID-19 vaccines among CHWs.

Methodology

A cross-sectional community-based assessment was conducted with face-to-face interviews of 998 CHWs (491 HEWs and 507 WDAs), who were randomly sampled from five clusters of major regions of Ethiopia: Amhara, Oromia, SNNPR, Benishangul-Gumuz, and Dire Dawa. About 200 samples were taken from each cluster to run cluster level descriptive analysis. The following sampling procedure was followed in the assessment:

- Randomly selected four woredas from each cluster
- Collected list of HEWs from each woreda
- Randomly selected 25 HEWs from each woreda
- Collected list of WDAs from sampled HEWs
- Randomly selected 25 WDAs from each woreda
- Administered consent from each sampled CHWs and conducted the interview

The interview focuses on basic demographics of study participants such as age, education, responsibility, media exposure about COVID-19 vaccines, risk perceptions of COVID-19, perception of COVID-19 vaccines (confidence in efficacy of vaccines, side effects, safety); and uptake of COVID-19 vaccines. Trained data collectors who have at least a first degree with intensive data collection experience conducted face-to-face interviews with sampled HEWs and WDAs. A semi-structured questionnaire embedded on the KoboCollect mobile toolbox was used for the interviews.

Data collectors training

CCP provided in-house training for interviewers and supervisors on June 16, 2022. The training covered presentations on survey ethics, sampling procedures, data collection instruments and how to collect

data using the KoboCollect mobile application. Five teams each with a supervisor and three data collectors conducted the data collection from June 20 to July 6, 2022.

Data analysis

Data were analyzed in SPSS Version 26. Univariate, bivariate, and multivariate analysis were done to compute point and interval estimates of the variable of interest, for comparison of estimates by demographics and to identify key predictors for preventive behaviors respectively. Findings of the assessment were presented in tables and graphs with short description in the results section below.

Definition of key terms

COVID-19 vaccine hesitancy refers to a delay in acceptance or refusal of vaccination despite availability of vaccination services. It is measured from unvaccinated populations or those who didn't complete recommended dose/s of the COVID-19 vaccines.

COVID-19 vaccine uptake refers to the proportion of population who received COVID-19 vaccine services.

COVID-19 vaccine acceptance refers to those who are willing to get vaccination services or who have completed required doses.

Results

Study participants' demographics

The study assessed study participant's basic demographic characteristics. About 83% of HEWs and 5% of WDAs had diploma level education. Seventeen percent of HEWs and 60% of WDAs had at least some primary level education. About 35% of WDAs were uneducated. Eleven percent of HEWs and 12% of WDAs had chronic illness. About half of WDAs (52%) and 15% of HEWs were aged >35 years. More than half (68%) of the HEWs and 25% of WDAs had more than six years of experience in their current role.

Table 1: Study participants' demographics (N=500)

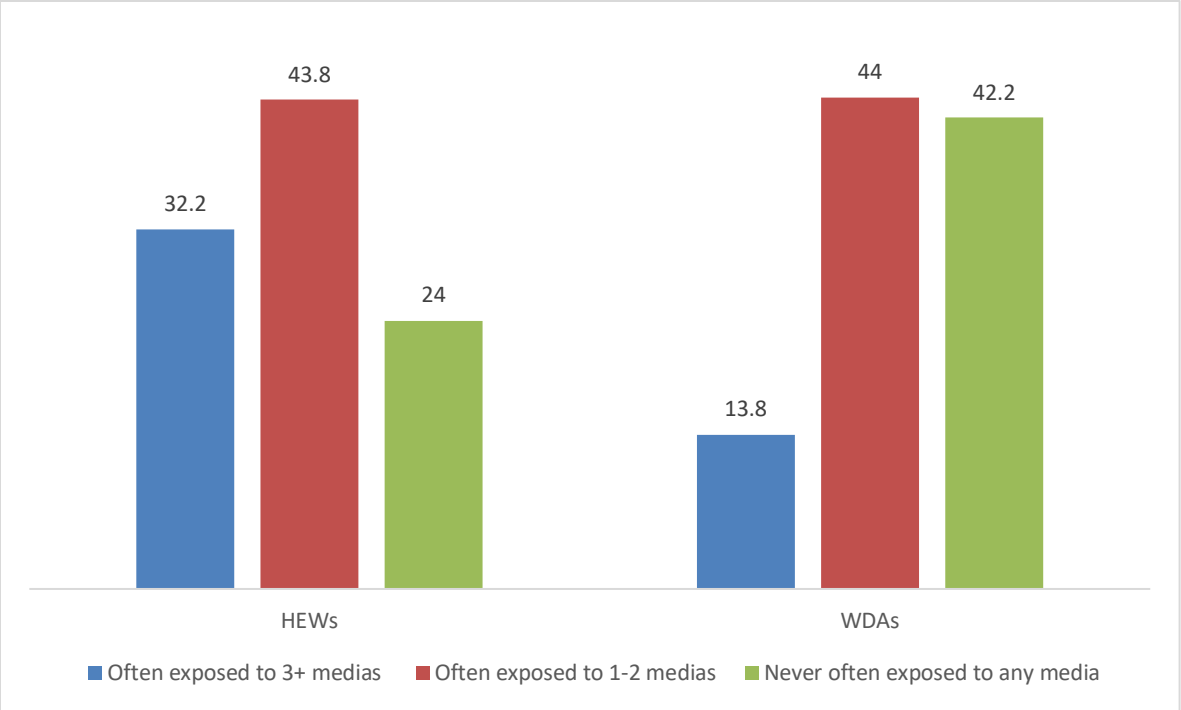
Variables	HEW (N=491)		WDA (N=507)		Total (N=998)	
	n	%	n	%	n	%
Education						
Uneducated	0	0.0	176	34.7	176	17.6
Primary/secondary/Certificate	85	17.3	303	59.8	388	38.9
Diploma or above	406	82.7	28	5.5	434	43.5
History of chronic diseases						
No or do not know	436	88.8	447	88.2	883	88.5
Yes	55	11.2	60	11.8	115	11.5
Age						
18-25	123	25.1	80	15.8	203	20.3

26-34	296	60.3	163	32.1	459	46.0
35 or older	72	14.7	264	52.1	336	33.7
Work experience						
1- 3 years	82	16.7	223	44.0	305	30.6
4-6 years	77	15.7	154	30.4	231	23.1
7-9 years	51	10.4	54	10.7	105	10.5
10 thru highest	281	57.2	76	15.0	357	35.8
Region/Cluster						
Amhara	100	20.4	100	19.7	200	20.0
Oromia	100	20.4	100	19.7	200	20.0
Benishangul-Gumuz	100	20.4	100	19.7	200	20.0
SNNP	89	18.1	111	21.9	200	20.0
Harrar or Dire Dawa	102	20.8	96	18.9	198	19.8

Exposure to messages about COVID-19 vaccines

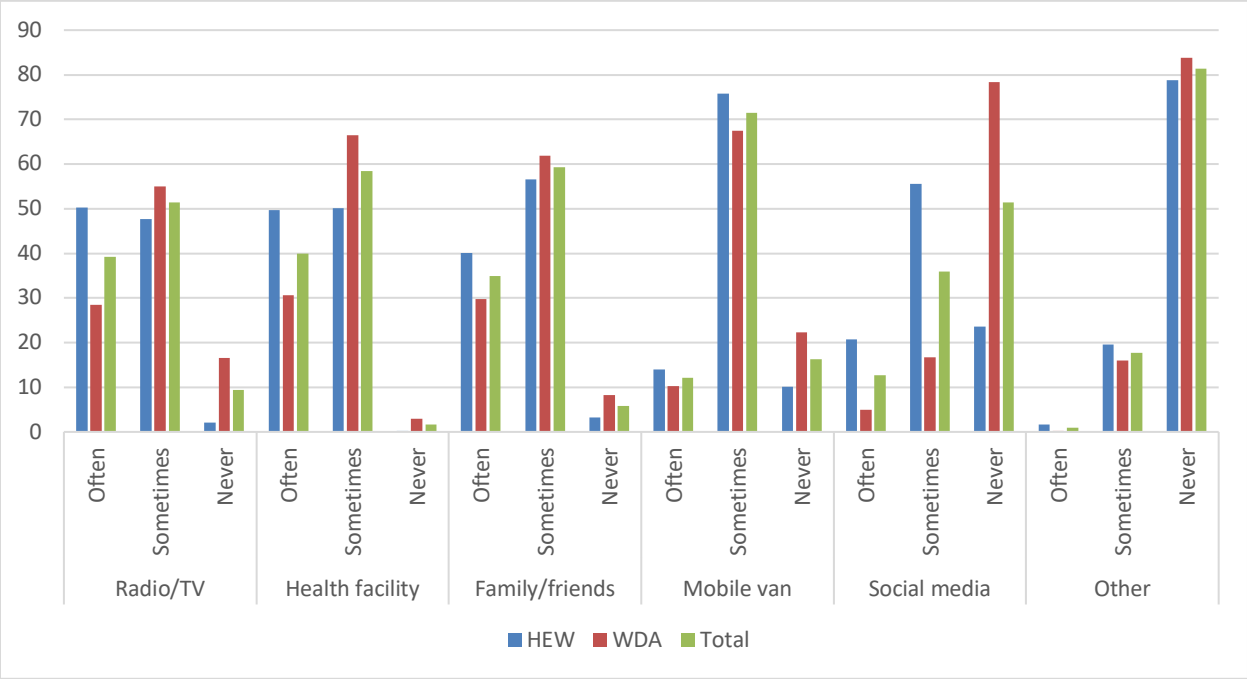
Almost all respondents were exposed to messages about COVID-19 vaccines from different sources. Figure 1 below indicates that about 32% of HEWs and 14% of WDAs were often exposed to three or more sources, while about 44% of HEWs and 44% WDAs were often exposed to one or two media, and 24% of HEWs and 42% of WDAs were never often exposed to any media/channel. HEWs had more exposure to messages about COVID-19 vaccines than WDAs.

Figure 1: Percent of HEWs and WDAs exposed to COVID-19 related messages (N=998)



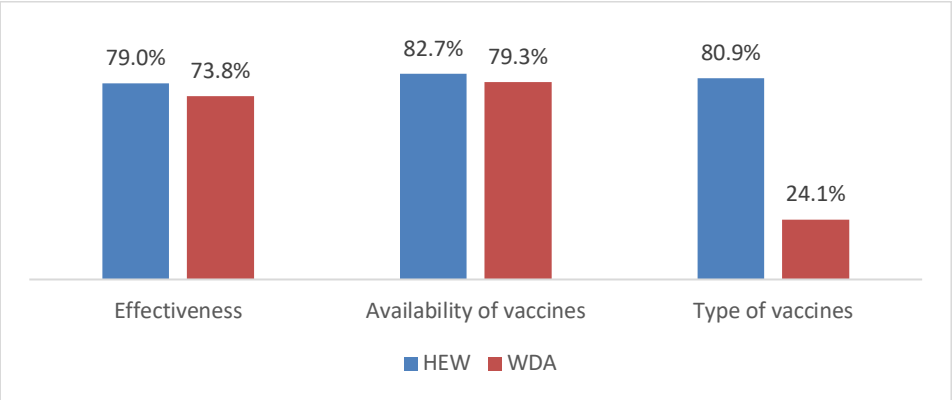
Regarding source of messages about COVID-19 vaccines, nearly half of the interviewed HEWs often received the messages from radio or TV, and 50% of HEWs received information from health facilities (PHCUs and Woreda Health Offices). About 31% of WDAs often received messages on COVID vaccines from the health facility and 30% from family/friends (Figure 2).

Figure 2: Percent exposure to COVID-19 vaccine related messages by media in Ethiopia (N=998)



CHWs were also asked about content of the messages they received. Figure 3 indicates that the most frequently reached messages to HEWs and WDAs were about the efficacy, availability, and type of COVID-19 vaccines.

Figure 3: Percent of HEWs and WDAs most frequently exposed messages by type of message (N=998)

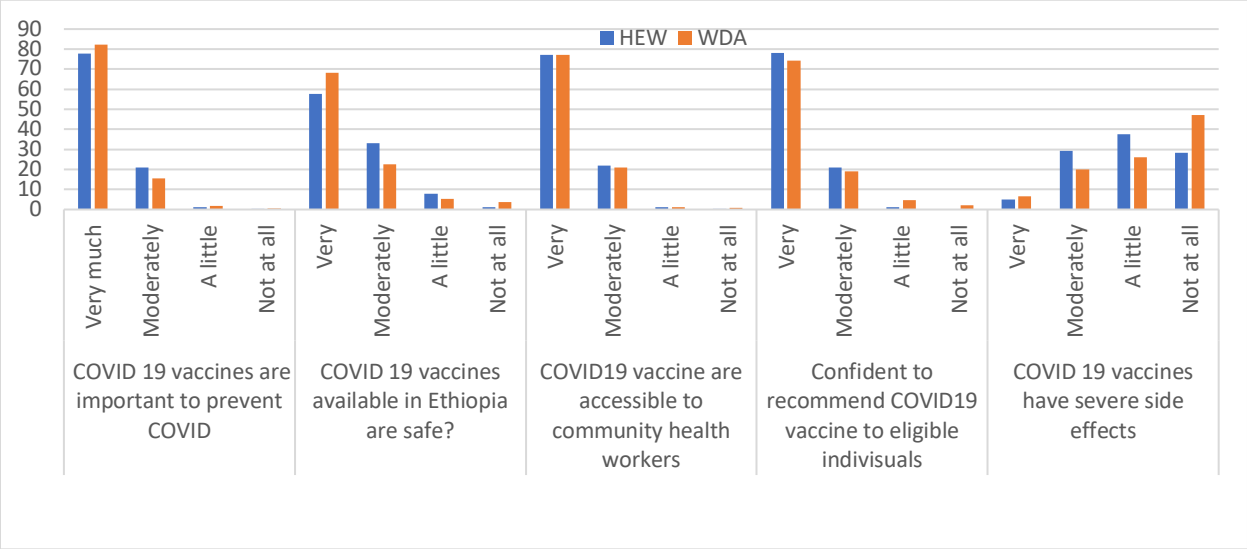


CHWs perception on COVID-19 vaccines

HEWs' and WDA's perceptions about importance, safety, and potential long term side effects of COVID-19 vaccines were assessed using a four-point scale: high, moderate, a little and not all. As shown in Figure 4, about 78% of HEWs and 82% of WDAs had high confidence in the importance of COVID-19 vaccines. More than half (58% of HEWs; 68% of WDAs) had high confidence in the safety of COVID-19 vaccines available in Ethiopia. More than 77% of HEWs and WDAs reported high perceived access to COVID-19 vaccines. The majority of HEWs (78%) and WDAs (74%) recommended COVID-19 vaccines to other eligible individuals. Most of HEWs (91%) and WDAs (85%) perceived that taking COVID-19 vaccines is a responsibility for community health workers.

On the other hand, a significant proportion of HEWs (34%) and WDAs (27%) perceived high or moderate long term side effects of COVID-19 vaccines.

Figure 4: Percent HEWs' and WDA's perception on COVID-19 vaccine in Ethiopia (N=998)



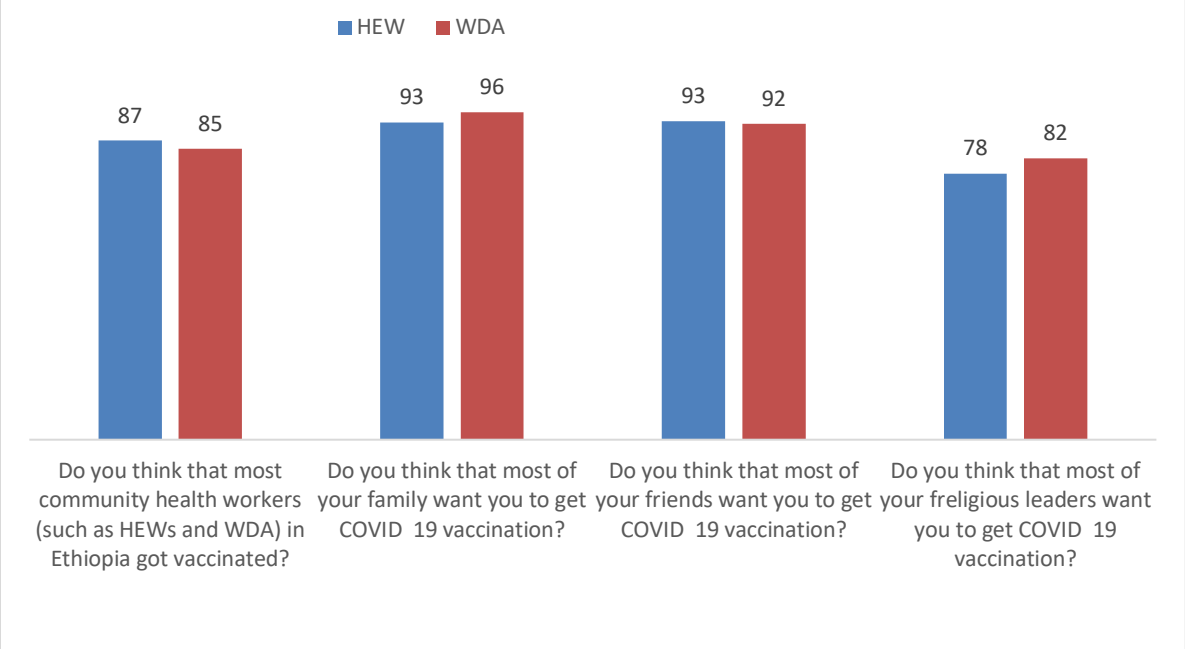
Social norm, perceived family and social support to take COVID-19 vaccines

Social norm and perceived family and social support hold a critical role in an individual's decision to practice or not to practice a particular behavior. In this assessment, respondents were asked their perception toward the uptake of COVID-19 vaccines by other CHWs, and their perceived support by family, friends, or religious leader to take COVID-19 vaccines.

Figure 5 below indicates that the majority of respondents (87% of HEWs and 85% of WDAs) perceived that most other CHWs took COVID-19 vaccines. More than 90% of CHWs perceived that most of their family and friends supported them to get COVID-19 vaccines. About 78% of interviewed HEWs and 82% WDAs perceived that their religious leaders supported them to take COVID-19 vaccines. For those that did not perceive support for taking COVID-19 vaccines, the assessment found that reasons for the lack of

support by family, friends, and religious leaders included fear of side effects, no confidence in vaccines safety, and religion or spiritual (666 bad spirit) fears.

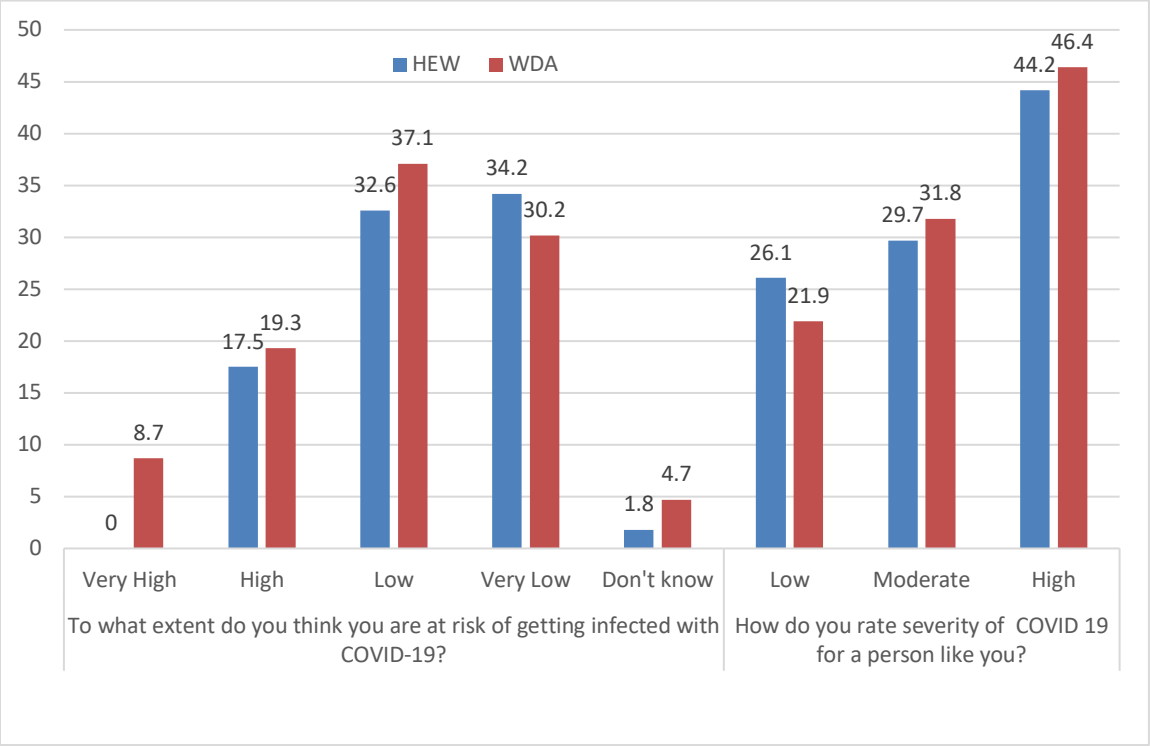
Figure 5: Percent perceived family and social support for HEWs and WDAs to take COVID-19 vaccines (N=998)



Risk susceptibility and severity on COVID-19

Risk perceptions of infection and severity of a health problem are some of the factors that influence individual behavior to take preventive services. Interviewed CHWs were asked how likely they are at risk of COVID-19 and their perceived severity to it. Figure 6 indicates that a significant percentage of HEWs (67.3%) and WDAs (66.8%) reported that they have low or very low perceived risk to get infected with coronavirus. About a quarter (27%) of HEWs and WDAs had low perceived severity about COVID-19.

Figure 6: Percent HEWs and WDAs risk susceptibility and severity on COVID-19 (N=998)



Uptake of COVID-19 vaccines by basic demographics and type of CHW

Most of CHWs (89% of HEWs and 70% WDAs) reported that they completed the recommended doses of COVID-19 vaccines while 10% HEWs and 26% WDAs started the vaccination but didn't complete recommended doses. Uptake of COVID-19 vaccines has shown significant variation by education, and region of respondent. The percentage of CHWs completed recommended doses of COVID-19 vaccines is 70%, 73% and 86% among uneducated, primary and Diploma level education respectively.

The lowest uptake of COVID-19 vaccines was found in Benishangul-Gumuz (60%), while the highest in SNNP (91%). About 79%, 81% and 86% of respondents completed recommended doses of COVID-19 vaccines in Amhara, Oromia and Dire Dawa respectively.

Table 2: HCWs' willingness to get COVID-19 vaccines by basic demographics (N=171)

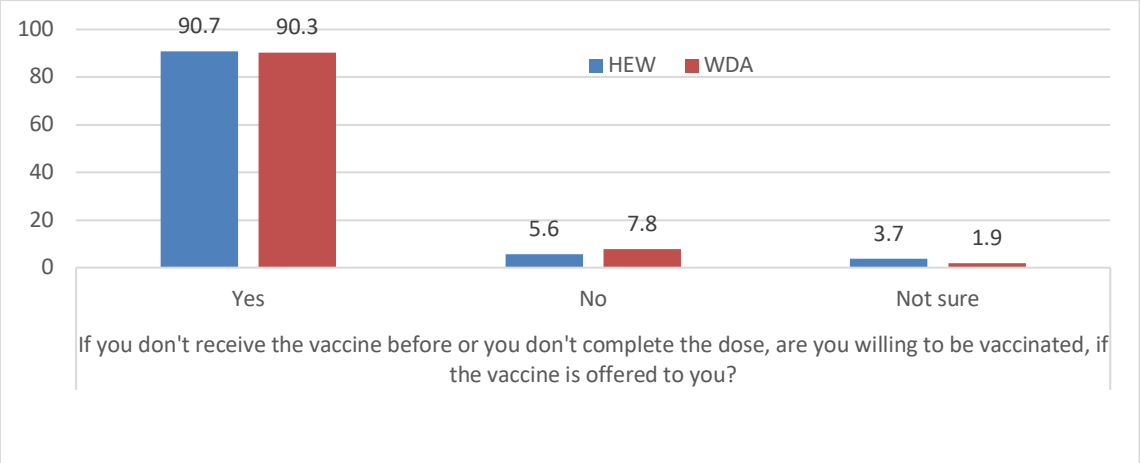
	Yes, completed dose	Yes, but didn't complete the dose	Not yet
Education			
Uneducated	70.5	25.6	4
Primary	72.7	24.2	3.1
Diploma	88.5	9.7	1.8
Region			
Amhara	79	17	4
Oromia	81	16	3

Benishangul	59.5	37	3.5
SNNP	90.5	8	1.5
Dire Dawa	85.9	12.6	1.5
Age			
18-25	84.7	11.3	3.9
26-34	81.9	16.6	1.5
35 or more	72	24.4	3.6
Work experience			
1-3 years	72.5	23	4.6
4-6 years	80.1	17.3	2.6
7-9 years	82.9	16.2	1
10 or more years	83.2	15.2	1.7

Willingness to receive COVID-19 vaccines by basic demographics

Willingness for COVID-19 vaccines were measured from those CHWs who didn't complete recommended doses or who didn't yet start any COVID-19 vaccines. More than 90% of CHWs (who didn't complete recommended doses or not yet started) reported that they are willing to take COVID-19 vaccines if vaccines are available for them. This implies only 10% of CHWs were hesitant. The main reported reasons for hesitancy to take COVID-19 vaccines are the belief that COVID-19 vaccines cause blood clots, cause miscarriage, and fear of long-term side effects.

Figure 7: Percent HEWs and WDAs willingness to COVID-19 vaccines (N=998)



Rumors and misinformation on COVID-19

Respondents were asked about the common rumors or mis/dis information about COVID-19 and COVID-19 vaccines in their locality.

Common rumors about COVID-19

- In many of the study areas COVID-19 is believed to be political agenda, it is not real (no COVID-19); it is related to 666 evil spirits; it is God's punishment

- Some said COVID-19 is man-made that aimed to reduce population size
- It is like a common cold, not severe

Common rumors about COVID-19 vaccines

- Most of the CHWs talked about rumors regarding severe side effects that might be caused by COVID-19 vaccines:
    - infertility,
    - blood clot,
    - miscarriage
- Most of HCWs reported that COVID-19 vaccines have 666 devil spirit

Study limitations

The sample size may not be sufficient to generalize findings of this study to national level. The study didn't cover Tigray and Gambella regions due to security issues and Somali, Harari, and Sidama due to resource constraints.

In addition, as the data collection was based on interviews (with no verification of records) social desirability biases could be the main limitation since CHWs might not report their actual practice.

Discussion

Johns Hopkins Center for Communication Programs conducted a literature review on COVID-19 vaccine hesitancy in collaboration with the National Communication Technical Working Group before the commencement of this assessment. The review covered 25 relevant articles. Findings of the review indicated that the pooled estimate of willingness to accept COVID-19 vaccines among healthcare workers was 58%. CCP also assessed hesitancy on COVID-19 vaccines among healthcare workers in health centers and hospitals in February and March 2022. The study found that willingness to receive COVID-19 vaccines among healthcare workers (HCWs) was 43% and uptake was 66%. The assessment on CHWs indicated higher uptake and willingness among CHWs than HCWs. More than 90% of CHWs were willing to accept COVID-19 vaccines, and most CHWs (89% of HEWs and 70% of WDAs) already had COVID-19 vaccines. The national third-round COVID-19 vaccination campaign could account for the higher uptake of COVID-19 vaccines among CHWs, as the campaign was conducted after the assessment of vaccine hesitancy among HCWs.

Conclusions

Major conclusions from this assessment are summarized here:

1) Almost all interviewed HEWs were exposed to messages about COVID-19 vaccines from different sources even though frequency of exposure varied.
2) Radio/TV and PHCU were main sources of information about COVID-19 vaccines for HEWs.
3) HEWs and family/friends were main sources of information about COVID-19 vaccines for WDAs.
4) Majority of CHWs (89% of HEWs and 70% of WDAs) completed the recommended doses of COVID-19 vaccines.

5) Lower uptake of COVID-19 vaccines was found in Benishangul-Gumuz (60%), while the highest in SNNP (91%).
6) Majority of HEWs and WDAs had high confidence on efficacy of COVID-19 vaccines, about its safety and availability

Recommendations

Analysis of the assessment findings indicates that CHWs were exposed to messages on COVID-19 vaccines from multiple sources. A key recommendation is to continue to disseminate COVID-19 vaccine messages through multiple channels, including radio, TV and health facilities. Using mix of channels to reach messages on COVID-19 vaccines for HEWs and WDAs appears to be effective.

A second recommendation is to conduct additional research to understand the lower uptake of COVID-19 vaccines in Benishangul-Gumuz. More research is needed to understand why both uptake and willingness to COVID-19 vaccines are higher among CHWs than healthcare workers at health centers and hospitals.