

Epidemic Preparedness and Response to Covid-19 among IDP and Refugee Community in Somali Regional State, Ethiopia

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Abstract

Background: A novel coronavirus disease-2019 has spread rapidly around the world since it was first identified. Refugees and internally displaced people are potentially at increased risk of contracting diseases, including novel coronavirus disease-2019, Ethiopia is now estimated to have approximately 3.1 million internally displaced people country wide, it also host the second largest refugee population in Africa, sheltering 905,832 from 26 countries. The potential risk for novel coronavirus disease-2019 transmission in Ethiopia is very high due to the large number of internally displaced people living in collective sites.

Methods: This survey aim was to assess preparedness level of Refugee and internally displaced people towards novel coronavirus disease-2019.

Result: 65.7% of participants acknowledged the absence of Epidemic Preparedness and Response Committee in their refugee and internally displaced people camps of selected camps in Somali region. 52 (48.1%) of the respondents agreed that their roles in response to outbreaks were clearly stated. The performance drivers of preparedness and response were dependent on presence of a budget availability of funds ($\chi^2=88.000$, P value =0.000). Adequacy of funds ($\chi^2= 0.037$, P value = 0.847.) Knowledge of covid-19 outbreak ($\chi^2= 0.148$, P value = 0.007). Presence of Health Development Partner ($\chi^2=6.259$, P value=0.012).

Conclusion: Based on these findings, there is a big gap in the preparedness and response ability, all of which are dependent on the financial gap and knowledge gap. To this, funding for preparedness and response is a critical aspect to respond and contain an outbreak. In order to address the existing capacity gaps related to the prevention, preparedness, detection and response for novel coronavirus disease-2019 and other emerging infectious diseases. The Somali regional government and its partners should closely work with the relevant authorities and other partners to build strong capacity to prevent, prepare, detect and respond to any potential novel coronavirus disease-2019 outbreak.

Keywords: Preparedness; Responses; Covid-19; Refugee; IDPs; Somali; Ethiopia

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Introduction

The recent pandemic of COVID-19 (coronavirus disease 2019) caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has infected more than 1,000,000 people worldwide in only a few months' time and caused more than 51,000 deaths as of April 2nd, 2020 [1]. This rapidly spreading virus imposes a tremendous burden on national healthcare systems, as they lack sufficient material and human resources to respond to the rapidly

increasing number of patients requiring intensive care [2]. More than 7.2 million people live in refugee camps and Idp settlements worldwide, where high population density, limited water and sanitation infrastructure, and limited healthcare resources can create ideal conditions for the spread of infectious diseases [3].

Many IDPs and refugees live in circumstances that make them particularly vulnerable to respiratory infections, including for COVID-19. This includes overcrowded, and often unhygienic,

living and working conditions due to lack of food and clean water [4]. In Ethiopia, most of the country's registered refugees and IDPs are restricted to camps to avoid infection; however, overcrowded conditions and a lack of water, sanitation and hygiene facilities mean social distancing is not feasible [5].

The Somali Region (SR) hosts approximately 857,000 individuals of internally displaced people (IDPs). Qoloji IDP site is one of the largest IDP sites in the SR. The site is located in a short distance from Jigjiga city and other major cities. It hosts 12,532 HHs (75,192 individuals) who reside in overcrowded settings with very minimal distance in between the shelters. Due to the COVID-19 pandemic, the humanitarian actors have listed Qoloji as one of the 26 IDP sites prioritized for decongestion in Ethiopia [6].

On 30 July, during the regional ECC organized by Disaster Risk Management Bureau (DRMB), The Regional Health Bureau (RHB) announced 17 confirmed positive cases of COVID-19 among Qoloji IDPs. All 17 cases were asymptomatic and were due to be transferred to Jigjiga for isolation [6].

Coronaviruses represent a large family of enveloped RNA viruses found in a broad range of animals including camels, cattle, cats, and bats. Although relatively rare events, vectors can transmit coronaviruses to humans with continued circulation resulting from human-to-human exposure. Examples include severe acute respiratory syndrome coronavirus (SARS-CoV), Middle East Respiratory Syndrome Coronavirus (MERS-CoV), 2019-nCoV, like MERS CoV, and SARS-CoV-2 all of which have their origins in bats [7].

Since emerging in Wuhan, China in December of 2019, the epidemic of the novel coronavirus SARS-CoV-2 has progressed rapidly. The disease caused by this virus, dubbed COVID-19 (coronavirus disease 2019) by the World Health Organization is characterized by fever, cough, fatigue, shortness of breath, pneumonia, and other respiratory tract symptoms and in many cases progresses to death [8].

Refugees and migrants are potentially at increased risk of contracting diseases, including COVID-19, because they typically live in overcrowded conditions without access to basic sanitation. The ability to access health-care services in humanitarian settings is usually compromised and exacerbated by shortages of medicines and lack of health-care facilities. These camps usually provide inadequate and overcrowded living arrangements that present a severe health risk to inhabitants and host populations. The absence of basic amenities, such as clean running water and soap, insufficient medical personnel presence, and poor access to adequate health information are major problems in these settings [9].

The potential risk for COVID-19 transmission in Ethiopia is very high due to the large number of IDPs living in collective sites. Almost all IDPs, including those residing with host communities, have no options to implement the recommended norms of social distance, and no access to proper WASH facilities and essential supplies such as soaps to minimize exposure to COVID-19. In most IDP collective sites, shelters are crowded, and many people sleep in groups or in crowded communal halls. Regional health authorities are concerned about the situation of the IDPs,

however, they point to resource and capacity shortages. The dire health situation of the IDPs and the capacity challenges of the health system, are exacerbated by other public health challenges such as cholera and measles outbreaks [10].

Therefore, preparedness and responses in managing the 2019-nCoV infection are important to prevent the further spread of the disease. The study was conducted to assess the preparedness of refugee and IDP service provider against 2019-nCoV outbreak and how well they respond in an outbreak.

Materials and Methods

Study Area and Period

In Awbare refugee and Qoloji IDP camps of Somali region respectively the study was conducted from May to June 2020.

Study Design and Sampling Procedures

A descriptive cross-sectional study design was adopted using a structured questionnaire. Using the Krejcie and Morgan formula (Krejcie and Morgan, 1970), a sample of 108 respondents was considered adequate for the study.

Study Populations

Respondents were all male and female members of the refugee and IDP camp Epidemic Preparedness and Response Committee of selected camps in Somali regional state.

Inclusion Criteria

IDP and refugee Epidemic Preparedness and Response Committee members who were working in registered IDP and refugee settings.

Exclusion Criteria

A participant who was absent and has no willingness to communicate and answer questionnaire was excluded.

Measuring Preparedness and Response

Using the Integrated Disease Surveillance and Response (IDSR) guideline, a check list (Appendix) of 15 measures was used to assess the level of preparedness of respondents in different locations with yes and no indicating presence and no presence to the measure, respectively. Similarly, response was measured using the IDSR guideline check list, with yes and no indicating compliance and none compliance to the measure, respectively. At the end of the 15 standard questions asked to measure the level of preparedness/response, a scale was developed to measure the overall level of preparedness/response in disease outbreaks with those scoring 0–5 as low, 5–10 as moderate, and 11–15 as high level.

Measuring Performance

At the end of every questionnaire, the overall performance of refugee and IDP community in preparedness and response to disease outbreaks was assessed by compiling the level of preparedness and response to make a total of 30 as the highest and 0 as the lowest performance. A score of 0–15 was rated as low performance and above 15–30 as high performance.

Study instrument and questionnaire design

The study was carried out using a structured questionnaire adapted from the CDC checklist (5). The questionnaire was included questions about demographic, preparedness and response. There were different types of questions in the questionnaire including (Yes/No) questions. The original questionnaire was developed in English and the study team members are responsible for its translation into the Somali languages since all members are native Somali speakers.

Study conduct

To gather the information about the refugee and IDP preparedness in the selected camps in Somali region, was developed hard printed copies of questionnaires' for each idp and refugee to assess the persistent alert and preparedness.

Data management

Data questionnaire was pretested and was kept in researcher's office. Only the research team can access all data. Data was quality-checked by a researcher to ensure accuracy.

Data analysis

Collected data was entered into an Excel spread sheet. Data was checked, cleaned and analysed using SPSS Software version 20 and 95% CI was used to describe IDP and refugee preparedness capacities. Variables were analysed with frequency and percentage. Comparisons of mean score of each site preparedness capacities among different types of IDP and refugee camp was performed with $P < 0.05$. The chi-square test was used to establish associations.

Results

Majority 66 (61.1%) of the respondents were males and about 60 (55.6%) were aged 20–30 years. Of the 108 respondents interviewed 45 (41.7%) were camp Administrator leaders while 25 (23.1%) were health workers which is equal with community leader and 13 (12%) belonged to the category of religious leader can be seen in (Table 1).

Table 1. Demographic characteristics of the respondents.

Position	Frequency	Percent (%)
Health worker	25	23.1
Administrator	45	41.7
Religious leader	13	12.0
community leader	25	23.1
Sex	Frequency	Percent (%)
Male	66	61.1
Female	42	38.9
Age	Frequency	Percent (%)
below 20	12	11.1
20-30	60	55.6
36-50	28	25.9
55-70	7	6.5
above 70	1	0.9

Overall Level of Preparedness for COVID-19 Outbreak

At the end of the 15 standard questions asked to measure the level of preparedness, a scale was developed to measure the overall level of preparedness in disease outbreaks with those scoring 0–5 as low, 5–10 as moderate, and 11–15 as high level. The results are summarized in (Figure 1).

Level of Preparedness COVID-19 Outbreak

Majority of respondents 71 (65.7%) acknowledged the absence of Epidemic Preparedness and Response Committee in their refugee and IDP camps. Seventy percent of respondents did not state the roles and responsibilities of committee members. Only 36 (33.3%) of participants said there were available stock piles of emergency supplies. Of the 108 respondents, about 42 (38.9%) of the respondents knew of the surveillance system available to track and detect disease outbreaks. In addition, 27 (25%) had an outbreak treatment centres available in their sub counties. Among 108 of the respondents, 37(34.3%) used maps of water sources to prevent the spread of an outbreak. Most of the respondents 64 (59.3%) reported a clear established referral system for patients in case of an outbreak. 73 (59.3%) reported that training was offered to them on preparedness to outbreaks, majority of respondents 72 (66.7%) said that there were given health education to aware community about the covid-19 disease and about 46 (42.6%) agreed that there were available isolation facilities in their respective camps and most of respondents 84 (77.8%) of the respondents said that there were laboratories to confirm cases of common outbreaks. More than half of respondents 67(62%) were not aware of the protocol for investigating outbreaks. Among 108 respondents 66 (61.1%) had no meetings of EPR to prepare for an outbreak. Details are presented in (Table 2). At the end of the 15 standard questions asked to measure the level of preparedness, the preparedness score is summarized in (Figure 1).

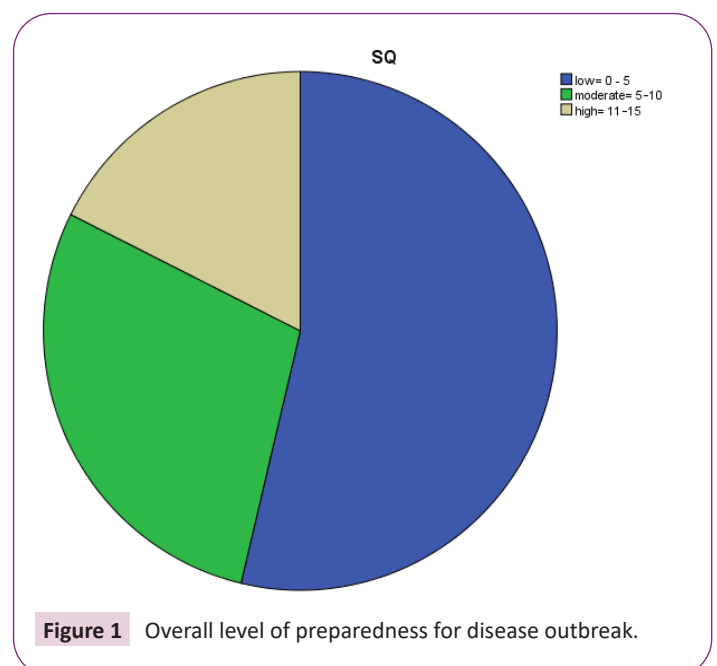


Figure 1 Overall level of preparedness for disease outbreak.

Table 2. Level of preparedness to covid-19 outbreak in Qoloji and Awbare camps of Somali Region.

Variables	Frequency (percentage)	χ^2	P value
Presence of Epidemic Preparedness Response Committee			
Yes	37 (34.3%)	10.704	0.001
No	71 (65.7%)		
Clarity or roles of members			
Yes	38(35.2%)	9.481	0.002
No	70(64.8)		
Presence of plans for action			
Yes	33(30.6%)		
No	75(69.4%)	16.333	0
Availability of stock of supplies			
Yes	36(33.3%)	12	0.001
No	72(66.7%)		
Presence of volunteers and peripheral health staff			
Yes	43(39.8%)	4.481	0.034
No	65(60.2%)		
Availability of surveillance systems			
Yes	42(38.9%)	5.333	0.021
No	66(61.1%)		
Treatment centers for outbreaks in locality			
Yes	27(25%)	27	0
No	81(75%)		
Water sources and food stalls			
Yes	37(34.3%)	10.704	0.001
No	71(65.7%)		
Established referral systems			
Yes	64(59.3%)	3.704	0.054
No	44(40.7%)		
Trained staffs in diseases preparedness and responses			
Yes	73(67.6%)	13.37	0
No	35(32.4%)		
Availability of Health Education for community awareness			
Yes	72(66.7%)	12	0.001
No	36(33.3%)		
Presence of Sites for isolation			
Yes	46(42.6%)	2.37	0.124
NO	62(57.4%)		
Presence of Labs to confirm cases			
Yes	84(77.8%)	33.333	0
NO	24(22.2%)		
Protocol for investigating outbreak			
Yes	41(38.0%)	6.259	0.012
NO	67(62.0%)		
Frequency of meetings before outbreaks			
Yes	42(38.9%)		
NO	66(61.15)	5.333	0.021

P value < 0.05 is statistically significant.

Level of Response for COVID-19 Outbreak

Accordingly, 52 (48.1%) of the respondents agreed that their roles in response to outbreaks were clearly stated. About 45 (41.7%) of the respondents said precautions were taken by their committees to prevent spread of a disease during an outbreak.

Around 46(42.6%) adhered to the outbreak response plan. About 50(46.3%) agreed that sanitation promotions were carried out during disease outbreaks. In addition, raising community awareness during outbreaks was reported by 51(47.2%) but 64(59.3%) of the participants stated that notification of higher authorities during the previous outbreak was not timely and 46(42.6%) of the respondents adhered to the response plan. Forty four (40.7%) of the participants were provided with soap in cholera outbreaks, and only 36(33.3%) of the respondents made use of surveillance data to respond to an outbreak. Also, 72(66.7%) of the respondents reported absence of rapid response teams in their committees, and 48(44.4%) of the respondents reported that the meetings during outbreaks were not frequent. Overall, a larger proportion reported a moderate level of response to disease outbreaks. Details are presented in (Table 3).

Table 3. The level of response to covid-19 outbreak in Qoloji and Awbare camps of Somali Region.

Variables	Frequency (percentage)	χ^2	P value	P value
Clarity of response roles of committee members				
Yes	52(48.1%)			0.001
NO	56(51.9%)	0.148	0.7	
Limitations of threat by taking precautions				
Yes	45(41.7%)			0.002
NO	63(58.3%)	3	0.083	
Level of adherence to response plans				
Yes	46(42.6%)			
NO	62(57.4%)	2.37	0.124	0
Further training and use of volunteers in case detention				
Yes	49(45.4%)			
NO	59(54.6%)	0.926	0.336	0.001
Cases are isolated in shelters during outbreaks				
Yes	52(48.1%)			
NO	56(51%)	0.148	0.7	0.034
Supply of safe drinking water during corona outbreak				
Yes	43(39.8%)	4.481	0.034	0.021
NO	65(60.2%)			
Sanitation promotion during outbreaks				
Yes	50(46.3%)	0.593	0.441	0
NO	58(53.7%)			
Raising community awareness about outbreak				
Yes	51(47.2%)	0.333	0.564	0.001
NO	57(52.8%)			
Timeliness of notification of MOH				
Yes	44(40.7%)	3.704	0.054	0.054
NO	64(59.3%)			
Response timeliness of authorities				
Yes	42(38.9%)	5.333	0.021	0
NO	66(61.1%)			
Level of adherence to response plan				
Yes	37(34.3%)	10.7	0.001	0.001
NO	66(61.1%)			
Provision of soap or sanitizers in Corona outbreaks				
Yes	44(40.7%)	3.704	0.054	0.124
NO	64(59.3%)			

Use of surveillance data for outbreak response				
Yes	36(33.3%)	12	0.001	0
NO	72(66.7%)			
Presence of Rapid Response Team				
Yes	36(33.3%)	12	0.001	0.012
NO	72(66.7%)			
Frequency of meeting during outbreak				
Yes	48(44.4%)	1.33	0.248	0.021
NO	60(55.6%)			

Performance Drivers of Preparedness and Response to COVID-19 Outbreak

COVID-19 Outbreaks in refugee and IDP community in Somali region. Apart from knowledge on common outbreaks and time of notification, all other factors were found to be significantly associated with performance in outbreak preparedness and response. Therefore, knowledge on common outbreaks and time of notification to the MOH were not performance drivers of preparedness and response to disease outbreaks in Somali regional state refugee and IDP camps. Details are presented in (Table 4).

Discussion

Level of Preparedness COVID-19

Refugees and IDPs in Somali region are at high risk of COVID-19. This study found that the status of Epidemic Preparedness and Response of both selected refugee and IDP community camps in Somali region is considered low in the level of preparedness. This is explained by the fact that members of Epidemic preparedness and response stake holders in Somali region were not highly motivated to play their roles even if there were doing certain aspects and there were limited by some factors such as financial and logistical insufficiencies. In another study carried out to measure the level of disaster preparedness of San Francisco's community- and faith-based organizations, over 90% were found to have low levels of preparedness [11].

Another study evaluated different countries for their level of preparedness to a possible outbreak. Sixty-two percent of the countries were found to have low levels of preparedness. Low level of preparedness to corona outbreaks is not good enough, especially in outbreak prone areas such as Somali region, and should be one of the reasons for the spread of diseases since a well-prepared stake holders helps to prevent spread, hence reducing the cases and in some instances preventing the outbreak from reaching a location [12].

Level of Response to COVID-19

Humanitarian actors should engage from the very start of the response affected communities and trusted sources, including survivors and community leaders, instead of it being an 'add-on' or afterthought [13].

To enable practices to reduce transmission, and to triage at the community level, humanitarian responders need to move beyond a traditional health-facility-focused response. Community-level

Table 4. Performance drivers in outbreak preparedness and response refugee and IDP camp of Somali regional state

Variable	Frequency (percentage)	χ^2	P value
Knowledge of common outbreak			
Corona	50(46.3%)	7.259	0.007
Cholera	14(13.0%)		
TB	7(6.5%)		
Other	37(34.7%)		
MoH should be notified within			
20hrs	44(40.7%)	44.37	0
24hrs	57(52.8%)		
48hrs	6(5.6%)		
72hrs	1(0.9%)		
Availability of funds			
Yes	41(38.0%)	88	0
NO	67(62.0%)		
Financial support adequate			
Strongly agree	45(41.7%)	0.037	0.847
Agree	51(47.7%)		
Strongly disagree	12(11.1%)		
Presence of Health Development Partner			
Yes	46(42.6%)	6.259	0.012
NO	62(57.45%)		
Form of support by HDPs			
Supplies	43((39.8%)		
Technical support	56(51.9%)	24.5	0
Human resource	3(2.8%)		
Financial Support	6(5.6%)		
HDPs are very helpful			
Yes	39(36.1%)	2.37	0.124
NO	69(63.9%)		
Sufficiently facilitated			
Strongly agree	48(44.4%)		
Agree	43(51.9%)	78.3	0
Disagree	15(13.9%)		
Strongly disagree	2(1.9%)		
I am making a contribution			
Strongly agree	46(42.6%)		
Agree	56(51.9%)	8.333	0.004
Disagree	3(2.8%)		
Strongly disagree	3(2.8%)		
Feel encouraged to perform duties			
Agree	54(50%)		
Disagree	48(44.4%)	54.3	0
Strongly disagree	6(5.6%)		
Role recognized by community			
Yes	42(38.9%)	87.19	0
NO	66(61.1%)		

efforts should account for language, cultural and social factors around risk perception and risk management, and follow good principles followed in other COVID-19 responses [14].

While we are focused here on the possible impact of SARS-CoV-2 of Qolaji and Awbare site, most of these findings are applicable to other refugee and IDP camp-like situations. While government's

preparedness and response plans for COVID-19 may mention these populations, it is the details or lack of that must be examined.

Performance in Preparedness and Response for COVID-19

Performance in preparedness and response was low with more than 6 out of 10 respondents performing poorly. We attributed the poor performance to lack of knowledge of the roles and responsibilities of the EPPRC members, in adequate funding and the perception that disease outbreaks preparedness and response is the responsibility of health worker alone.

Performance Drivers on Preparedness and Response to COVID-19 Outbreak

This study found out that EPPRC members were knowledgeable about outbreaks in Somali regional state refugee and IDP camps. During the study, no EPPRC in any location was found with funds ready to respond to an outbreak. To this effect, although the Somali regional Government allocated at least 1.5% of its total annual budget for disaster preparedness and response in disaster management policy, this may be insufficient to meet the ever increasing epidemic outbreaks. The high motivation in the EPPRCs is sparked by the fact that most of the members interviewed see their role in the committee as crucial in prevention, preparedness and response to outbreaks which have recently been common in the region [15]. To this, it is worthy to scale up prevention strategies during the assessment and management of the outbreak instead of concentrating on only the medical aspects of containing the disease.

Demographic Factors Associated with Performance in Preparedness and Response to COVID-19

The study revealed that more than three-quarters of the EPPRC members were male although no association was found between gender and performance in preparedness and response. This is On the other hand; our findings contravene a report that showed a significant association of gender with performance in emergency preparedness and response [12].

Further, the duration served as a member of the EPPRC means experience, where the longer the duration the more the experience and therefore better performance in preparedness and response. This is similar to what was reported in Northern China [16].

Recommendations

The study recommend to:

- Ensure the access of IDPs and refugees to quality, equitable and affordable COVID-19 health care services.
- Ensure that regional government and its partners improve that COVID-19 preparedness and response strategies and plans are inclusive of IDPs and refugees.
- Provide COVID-19 prevention and control measures to IDPs

and refugees community.

- Enhance COVID-19 surveillance and health information systems to include IDPs and refugees.
- Ensure that IDP and refugee families and communities are kept informed about COVID-19 prevention, including lockdown, measures and that places for isolation are available.
- Develop and implement outreach plans to prevent, detect, isolate and treat COVID-19 among hard to reach IDPs and refugees of Somali regional state.
- Ensure that IDP and refugee COVID-19 patients who require referral service feel confidentiality.
- Ensure that health sector policies, plans and strategies are informed by lessons learnt from COVID19 experience in IDP and refugee contexts.
- Awareness raising activities should continue and be reinforced.
- Provide technical and financial support.

Conclusion

Many IDPs and refugees live in circumstances that make them particularly vulnerable to respiratory infections, including for COVID-19. This includes overcrowded, and often unhygienic, living and working conditions due to lack of food and clean water.

The vulnerable populations living in camps or camp-like settings are of particular concern due to the limited water, sanitation and hygiene services and overcrowded conditions, in particular in Somali region where IDP and refugee are also characterized by overcrowded and unhygienic conditions, with limited space for quarantine and self-isolation

The performance of the Somali regional state and its partner in preparedness and response to outbreaks was wanting, and this calls for concerted efforts to improve training and resource availability as the Somali regional government to deal with global epidemic outbreaks. The locality of Somali region is unique in its geographical neighbourhoods, and also, sanitation challenges as living conditions were demised by the nature of its geographical. Further, there is growing need to foster collaboration with Health Development Partners (HDPs) so as to improve the performance of stake holders in preparedness and response to COVID-19 outbreak.

In order to address the existing capacity gaps related to the prevention, preparedness, detection and response for COVID-19 and other emerging infectious diseases. The Somali regional government and its partners should closely work with the relevant authorities and other partners to build strong capacity to prevent, prepare, detect and respond to any potential COVID-19 outbreak.

Availability of data and materials

Data sets used in the study are available from the corresponding author upon request.

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Conflict of Interest

The authors declare that they have no conflicts of interest.

Ethics approval and consent to participate

Ethical clearance to conduct the study was obtained from Jigjiga university research and community service directorate. Permission was also asked from regional health bureau, each

camp administrator to conduct the study.

Consent for publication

All authors agree to submit for publication.

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Authors' contributions

Abas Mahammed is the principal investigator and Ali maalim and Abdiwas were co-investigators of the study.

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