ECRONICON OPEN ACCESS

EC MICROBIOLOGY
Research Article

Assessment of Community Attitude and Challenges Toward Polio Vaccination in Bokh Woreda of Dollo Zone, Somali Regional State, Ethiopia

Diriba Sufa[1] and Urge Gerema[2]*

[1]*Ethiopian Public Health Institute (EPHI,) Center for Public Health Emergency Management (cPHEM)*

[2]*Department of biomedical sciences, Institute of Health Sciences, Jimma University, Ethiopia*

***Corresponding Author:** Urge Gerema, Department of biomedical sciences, Institute of Health Sciences, Jimma University, Ethiopia.

Received: May 25, 2021; **Published:** November 30, 2021

DO: 10.31080/ecmi.2021.17.01169

Abstract

Background: Poliomyelitis is communicable disease which is caused by the polio virus. This polio virus has three serotype, which is differ antigenically protect against one serotype does not provide protection against the others. Global Polio Eradication Initiative (GPEI) has reported a substantial decrease number of cases of poliomyelitis, and poliovirus has been eliminated from the majority of the countries. Recent study detects the Acute Flaccid Paralysis cases from Bokh woreda, Dollo Zone, Ethiopia. This is greater than the expected one. But, Community Attitude and Challenges toward Polio Vaccination in the study were not assessed. Therefore, the current study aimed to assess Community Attitude and Challenges toward Polio Vaccination Bokh woreda, Dollo Zone, Ethiopia.

Methods: The qualitative study design was employed. The study carried out in Bokh woreda, Dollo Zone, Ethiopia. Four in-depth interviews were sampled and they are selected by non-probability purposive sampling methods. A total of 8 key informants and two focus group discussions (FGD) were conducted among mothers/caregiver, community representatives and leaders. Data used for interview contained an open-ended question about attitude and challenges of polio vaccine. The interviews were documented correctly interviewer and the participants speaking were recorded by recording tape. Finally, their speaking was transcript to English words. Data collections were performed from September 1–December 30/2020.

Results: Polio is considered by mother/caregivers as a dangerous disease that causes children's handicap and destroys the future of the children as they cannot go to school. The other key informant's community considers polio as a dangerous disease and they didn't show any resistance to vaccination. Workload, shortage of vaccine, Distance from Health Facility, Lack of human power for Outreach program for next schedule vaccination date, and shortage of vaccine were the major challenges faced by health professional and health extension works in the Woreda.

Conclusion: Despite the challenges Bokh woreda, Dollo Zone community has positive attitude towards polio vaccination and high demands to immunize their children.

Keywords: *Polio; Attitude; Challenges; Dollo-Bokh; Somalia*

Abbreviations

AFP: Acute Flaccid Paralysis; bOPV: Bivalent Oral Polio Vaccine; cPHEM: Center for Public Health Emergency Management; CVDPV2: Circulating Vaccine Derived Polio Virus: EPHI: Ethiopian Public Health Institute; EPI: Expanded Program Immunization; FGD: Focused Group Discussion; NIDS: National Immunization Days; OPV: Oral Polio Vaccine; PHEM: Public Health Emergency Management; PV-2: Polio Vaccine- 2; RI: Routine Immunization; SIA: Supplementary Polio Immunization Activities; tOPV: trivalent Oral Polio Vaccine; VDPV : Vaccine Derived Polio Vaccine; WHO: World Health Organization

Introduction

Poliomyelitis is communicable disease which is caused by the polio virus. This polio virus has three serotypes, which is differ antigenically protect against one serotype does not provide protection against the others [1]. Global Polio Eradication Initiative (GPEI) has reported a substantial decrease number of cases of poliomyelitis, and poliovirus has been eliminated from the majority of the countries. The predominant transmission mode of these diseases in developing countries is the fecal or oral route. Personal hygiene and environmental sanitation condition are inadequate; other people can be infected through dirty hands or contaminated food or water [1,2].

Poliovirus isolates detected in person or in the environment can be divided into three major divisions; Wild. Sabin and Sabin- like, or vaccine-derived [3-5]. Detection of wild or vaccine derived poliovirus, which can be categorized as an event that can be lead to an outbreak. Depending on the characteristics of the isolates and the context in which it appears [4,6–8]. Genetically vaccine- derived poliovirus

(VDPV) strains can be emerge during vaccine use and spread under immunized community, becoming circulating (cVDPV) strains, and result in an outbreak of paralytic poliomyelitis [4,9-12].

Global Polio Eradication Initiative (GPEI) has reported a substantial decrease number of cases of poliomyelitis, and poliovirus has been eliminated from the majority of the countries since 1988, when the world health assembly resolved to eradicate poliomyelitis by 2000 [13]. The effort of Global polio Eradication Initiative has been remarkable, but different countries like Ethiopia, Pakistan, and Nigeria remain endemic [14].

Due to many challenges or gaps, the goal set by 20000 was not fulfilled and in 2012 [14]. Global Polio Eradication Initiative (GPEI) developed the polio eradication strategic plan for covering the period 2013 to 2018, aimed at a polio free world by 2018 [15,16]. The basic strategies for eradicating polio include the following: [1] immunization of every child aged less than one year with at least three doses of oral polio vaccine (OPV); [2] national immunization days (NIDS) In which all children less than five years of age receive extra doses of OPV on two days separates by at least 28 days; [3] Surveillance for acute flaccid paralysis to identify all reservoirs of wild poliovirus transmission; and [4] Extensive house to house immunization mopping-up campaign in the final stage in the area where wild poliovirus transmission persists.

Implementation of the polio eradication strategies in Ethiopia started in 1996 [17]. Ethiopia was polio free or four years from January 2001 until December 2004. From December 2004 to February 2006 a total of 24 cases were confirmed from Tigray., Amahara and Oromia regional states. In 2004, surveillance performance for acute flaccid paralysis at national level were above the targets as of February 2005 [18,19]. Recent study detect the acute flaccid paralysis cases from Angalo Kebele of Bokh woreda, Dollo Zone which is above the targets [20]. Therefore, the current study aimed to assess community Attitude and challenges towards polio vaccination in Bokh Woreda of Dollo Zone, Somali Regional State, Ethiopia.

Methods and Materials

Study Area and period

Bokh Woreda is one of the seven woreda's found in Dollo Zone of Somali regional State, Ethiopia. The woreda has 9 main kebeles. According to 2011 EDHS the projected woreda populations estimated is 118,277 predominantly pastoralist populations of which 20,107 (17%) are children of less 5 years old. The woreda is semi-arid with limited rainfall throughout the year. There are poor road infrastructures between kebeles and the woreda, inadequate access to safe water supply and lack of telecommunication networks in most kebeles. There is no water point in the area, the family is using pond that collects rainwater. The woreda has four functional health centers and 18 functional health posts of which only 11 (Eleven Health facility) were providing routine immunization.

Study design

Qualitative study design was employed.

Sample size calculation

Sample size for an in- depth Interview was selected by non- probability purposive sampling methods. A total of 8 key informants and two focus group discussions (FGD) were conducted among mothers/caregiver, community representatives and leaders. Data contained an open ended question about and challenges of polio vaccine and interviewers were documented data correctly. Participants speaking were recorded by tape and then transcribed.

Data collection tool and procedure

An in-depth interview, the key informants and FGDs schedule were used for collecting qualitative data from the participants. The scheduled program contained an open ended question about attitude and challenges of polio vaccine and the interviews were documented correctly by participants word, and the participants speaking was transcribed into English words. Data collection was performed from September 1- December 30/2020.

Data quality and control measure

Data collectors were qualified and trained on qualitative data collection for two days on principle, ethical consideration and the data quality were assured by investigator on strict supervision.

Data processing and analysis

A recorded interview documented qualitative data. The transcribed into Microsoft word 2020. Transcripts were read and understood by all participants. Similar topic was grouped together, and then those common features were clustered together under same thematic area, then a final theme was emerged.

Ethical consideration

The study was approved by the Ethiopian public Health Institute. The data were collected after taking written informed consent form mothers/ caregiver. This study was conducted in accordance with the declaration with by the Ethiopian public Health Institute. Local institution (Woreda) gave the written consent to conduct the study. The study was commenced after receiving formal permission from the participants.

Results

Key informants Interview and FGDs findings

Theme 1: Community attitude toward polio vaccination

The mother or caregivers heard about polio from Somali and Ethiopian radios, from health workers, and from the community. They know: the symptoms and prevention mean, but needs more information on causes and availability of treatment or not.

Polio is considered by mother/caregivers as a dangerous disease that causes children's handicap and destroys the future of the children as they cannot go to school. Caregivers didn't show any resistance to vaccination. They believe that community members around have also willingness to receive vaccine to their children but no team that give vaccination not around. Most caregivers took her child to the Health post to receive the polio drops after they heard about the campaign from the radio. Main reason mentioned by mothers/caregivers for missed campaigns was that the vaccination team did not come on time during the campaign. They believe that the health facility vaccinator, social mobilizer didn't come when there is a campaign or routine immunization outreach. Caregiver/mothers complained "*we are forgotten because we are nomadic community*"

High polio is mainly associated with dirt and unclean water without the community mentioning, especially, the cycle transmission. Polio is also sometimes considered as "curable with vaccine". When asked on some specificity on RI, such as the Immunization schedule, interviewed persons were not able to respond correctly. There is also a confusion on which diseases are being prevented by the polio vac-

cine, other mentioning measles as part of those diseases.

The other key informant's community considers polio as a dangerous disease which is not curable. According to the key informants, most of the community in Angalo supports the importance of the vaccination in general and is eager to receive vaccination. To raise the demand for vaccination, a social mobilization.

"*Polio can be prevented by vaccine, but as we don't have the vaccine, we pray Allah to be protected…If our community is offering the vaccine, we will accept…Vaccines protect from any health problems like animal vaccine prevent from animal disease." Clan leader, Angalo nomadic communities*.

For polio SIAs, some interviewed caretakers declared their children vaccinated. The children of a clan leader are vaccinated only during SIAs in Angalo of Bokh woreda, religious leaders' children were also vaccinated at home 3 times in the last two years, and last dose was 6 months ago. Main challenges mentioned by the community to vaccine uptake are "the failure of the team to visit or revisit the house". "The absence of the child from the village of Angalo" was also mentioned as one of the reasons why the child missed a vaccination campaign.

For RI, several children from the interviewed mothers are vaccinated mainly from the supported outreach and have their vaccination card. However, "the children don't fulfill the required doses. The outreach is organized every two months and antigen doses are usually not enough for the expected population", reported the HEW. Even though knowledge on the vaccination is not optimal, the demand seems to exceed the supply capacity. As an example "from the HEW, among 50 women coming for the TT vaccine, 30 are offered the vaccine; among 300 children coming for RI, only 100 are vaccinated because of the lack of availability of doses". Despite the HEW's request during higher level's supportive supervision for fixing the new cold chain equipment they received years ago in order to make on-site immunization operational, the equipment is still out of service.

Regarding the influencing environment in Bokh woreda, mother/ care givers are mentioned as influencing actors in the household. Community wide, religious leaders are largely accepted. The HEW is also mentioned as one of the most trusted people for health issues.

Theme 2: Challenges toward polio vaccination

Health extension workers and Health Professional highlight that the faced challenges when polio vaccination, these with shortage of vaccine and workload

Sub theme 1: In health facility, health professional experiences shortage of vaccines, which male it difficult for them to follow up on children who missed vaccination. The mothers come and do not find the vaccine thus, children miss some of the doses. It confirmed by a participant who said "Fact that those vaccines are not enough or is not available to us to immunize the children who come to here expecting us to immunize them"

Subtheme 2: Distance from Health Facility, the fact that affects vaccination of children is a distance to health facilities and availability of transport participant said "Bokh Woreda of Dollo zone, almost all children not get immunization service at a clear health facility, face difficulty accessible to transport, so this influence of taking vaccination and completing the schedule"

Subtheme 3: Lack of human power for Outreach program, Health extension said that "all kebeles do not have health professional and health extension workers, so that the health extension workers cannot reach to all children and vaccinate them".

Discussion

This study aimed to assess community attitudes and challenges towards polio vaccination in Bokh woreda, Dollo Zone, Somali Regional State, Ethiopia. According in to the expanded program of immunization (EPI) schedule of Ethiopia, OPV and pentavalent vaccines are being which could be due to the that there are national immunization supplement campaigns for OPV(14). Global experiences showen that VDPV has showed increased trends in the area in with low immunization coverage of both routine and SIA. The incidence of type- 2 strain of the VDPV disproportionately, higher than the other types. Ethiopia switched providing tOPV as routine since March 2016 following irradiation of type polio virus from the world. Since then a number of SIA has been conducted in Ethiopia. It is worth mentioning that community and its leaders are well aware of the signs, RI services are not fully available [21,22]. Though family and community have a positive attitude towards and high demand for immunization, but the services are not reaching them. Apart from population mobility, world load of staff, inadequate vaccine, transport and manpower shortages, lack of proper planning are major challenges towards polio vaccination this finding similar with studies done in the North East, the Somalia region [23,24].

Conclusions and Recommendation

Bokh Woreda community has a positive attitude towards polio vaccination and high demands for immunization, but the services are not reaching. Workload, shortage of vaccine, distance from health facility, lack of human power for an outreach program for next schedule vaccination date, and shortage of vaccine was the challenges faced by health professional and health extension. Revitalize the social mobilization committee to include religious leaders, women's network, community/clan leaders and nomadic representatives and make routine Immunization functional increase Attitude and halt the challenges of polio vaccination in Bokha woreda.

Acknowledgement

We would like to thanks all government and partner organization for commitment and timely action to investigate and produce evidence for action and further improvement. We extend our thanks to the Dollo zone administration, the community of Bokh woreda administration and health staff and all supporting staff including drivers for their commitment and cooperation.s

Availability of Data and Material

The data used for analysis during the current study are available from the cross ponding Author.

Funding

There is no funding for this study.

Conflicts of Interest

Authors declares that they have no conflict of interest.

Authors' Contributions

Diriba Sufa and Urge Gerema involved in conceiving idea, writing manuscript and managing over all progress of manuscript. Both Authors read and approved the final manuscript.

Consent

All involved individual or organization (Zonal Health Bureau, study participants) agreed to publish in international peer reviewed journal.

Bibliography

1. Mamun KZ., *et al*. "Moving from oral poliovirus vaccine to inactivated poliovirus vaccine: The rationale and challenges". *The Bangladesh Journal of Medicine* 31.1 (2019): 22-28.

2. Stamidis K V., *et al*. "Trust, Communication, and Community Networks: How the CORE Group Polio Project Community Volunteers Led the Fight against Polio in Ethiopia' s Most At-Risk Areas 101.4 (2019): 59-67.

3. O'Reilly KM., *et al*. "Population sensitivity of acute flaccid paralysis and environmental surveillance for serotype 1 poliovirus in Pakistan: An observational study". *BMC Infectious Diseases* 18.1 (2018): 1-10.

4. Kalkowska DA., *et al*. "Modeling undetected live poliovirus circulation after apparent interruption of transmission: Implications for surveillance and vaccination". *BMC Infectious Diseases* 15.1 (2015): 1-12.

5. Ghana Health Service and Minsitry of Health, Populations SC, Colb BBF, Wirotius TCA. Ghana Weekly Epidemiological Report". *Ghana Weekly Epidemiological Report* 2 (2017): 96-109.

6. Polio Global Eradication Initiative. Standard Operational Procedures for Responding to a Poliovirus Event or Outbreak 34 (2019): 3101.

7. Blake IM., *et al*. "Type 2 poliovirus detection after global withdrawal of trivalent oral vaccine". *The New England Journal of Medicine 379*.9 (2018): 834-845.

8. Foiadelli T., *et al*. "Nucleotide variation in Sabin type 3 poliovirus from an Albanian infant with agammaglobulinemia and vaccine associated poliomyelitis". *BMC Infectious Diseases* 16.1 (2016).

9. Jorba J., *et al*. "Update on Vaccine-Derived Poliovirus Outbreaks - Worldwide, January 2018-June 2019". *Morbidity and Mortality Weekly Report* 68.45 (2019): -1028.

10. Sun JK., *et al*. "Vaccine-associated paralytic poliomyelitis: A case report of flaccid monoparesis after oral polio vaccine". *Journal of Korean Medical Science* 22.2 (2007): 362-364.

11. Alleman MM., *et al*. "Vaccine-derived poliovirus outbreaks and events - Three provinces, democratic republic of the congo, 2017". *Morbidity and Mortality Weekly Report* 67.10 (2018): 300-305.

12. Mbaeyi C., *et al*. "Update on vaccine-derived poliovirus outbreaks - democratic republic of the Congo and horn of Africa, 2017-2018". *Morbidity and Mortality Weekly Report* 68.9 (2019): 225-230.

13. Weiss P., *et al*. "Comparison of attitudes about polio, polio immunization, and barriers to polio eradication between primary health center physicians and private pediatricians in India International Journal of Infectious Diseases Comparison of attitudes about polio, polio immunization , and barriers to polio eradication between primary health center physicians and private pediatricians in India 16.6 (2014): e417-423.

14. Polio Global Eradication Initiative. Polio Global Eradication Initiative 2016 (2016): 9.

15. Mbaeyi C., *et al*. "Strategic response to an outbreak of circulating vaccine-derived poliovirus type 2 - Syria, 2017-2018". *Morbidity and Mortality Weekly Report* 67.24 (2018): 690-694.

16. UNICEF. UNICEF's engagement in the Global Polio Eradication Initiative (2012): 1-2.

17. Session TO. "Declarations, Resolutions and Decision Adopted By the Thirty-Second Ordinary Session of the Assembly of Heads 4 (1996): 1-55.

18. Belete H., *et al*. "Routine immunization in Ethiopia". *The Ethiopian Journal of Health Development* 1 (2015): 2-7.

19. Mesfin G., *et al*. "Polio outbreak response in Ethiopia". *The East African Medical Journal* 85.5 (2008): 222-231.

20. Sufa D and Gerema U. "Case Report Investigation Report of cVDPV2 Outbreak in Bokh Woreda of Dollo Zone, Somali Regional State, Ethiopia (2020).

21. World Health Organization (WHO). Information sheet: observed rates of vaccine reactions, Oral Poliovirus Vaccine". *Information Sheet. Observed Rate of Vaccine Reactions. Polio Vaccines* (2014): 1-5.

22. Tevi-Benissan C., *et al*. "Introduction of Inactivated Poliovirus Vaccine and Trivalent Oral Polio Vaccine/Bivalent Oral Polio Vaccine Switch in the African Region". *The Journal of Infectious Diseases* 216.2015 (2017): S66-75.

23. Mohamud AN., *et al*. "Immunization coverage of 12 – 23 months old children and associated factors in Jigjiga District , Somali National Regional State , Ethiopia (2014): 1-9.

24. Abebe AM., *et al*. "Coverage, Opportunity, and Challenges of Expanded Program on Immunization among 12 – 23-Month-Old Children in Woldia Town Northeast Ethiopia (2019).

Volume 17 Issue 12 December 2021