
Review Article

Role of Health Extension Worker in Tuberculosis Prevention and Control in Ethiopia: Systematic Review

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Abstract: Background: Health Extension Program was designed to serve the rural community of Ethiopia and has brought significant change in improving utilization of family planning, antenatal care, postnatal care, birth preparedness, initiating breast feeding immediately after birth and HIV testing. In relation to Tuberculosis (TB) prevention and control, TB patients believe that they learnt about TB from HEWs and some patients stated that they could not have been diagnosed without the work of HEWs. HEWs focus on Education of the community, Identification of suspects, referral of suspects to health Facilities, Support for adherence to treatment, retrieval of absentees and contact tracing. Objective: The objective of this review was to assess the role of Ethiopian health extension workers in prevention and control of TB. Method: Computerized systematic search was conducted through PubMed, Google Scholar, and Science direct databases. After reviewing for relevance of articles based on title, abstract and eliminating for redundancies five articles were included for this review. Studies presented to the original article, studies that examine contribution of HEWs to TB prevention, studies conducted in Ethiopia; studies written in English were included in the review. Results: Large number of people with TB symptom which is the base for TB prevention and elimination strategy was identified by the HEWs. The health extension workers identified not only new patients but also the retreatment (defaulters) which are the major contributors to (multi drug resistant TB (MDR-TB). From the identified TB suspects by HEWs, majority of them were found to be positive for the disease. Health extension worker remain the health worker who identify TB suspects and refer patient to health facilities. They were also the source of community health educator in relation to TB.

Keywords: Health Extension Workers, Tuberculosis, Ethiopia

1. Introduction

Health extension program (HEP) was introduced into Ethiopian health care system to ensure effective and responsive health delivery system for those who live in rural areas. HEP is similar to PHC in concept and principle and its assumption is that if the right knowledge and skill is transferred to households they can take responsibility for producing and maintaining their own health. HEP assumes that communities are owners, producers and multipliers of health and the role of health provider is to assist the community [1, 2].

Accordingly health extension workers (HEW) have improved the utilization of family planning, antenatal care, postnatal care, birth preparedness, initiating breast feeding

immediately after birth and HIV testing [3, 4].

In terms of tuberculosis control program, there are studies that shows TB patients had learnt about TB from HEWs and some patients believed that they could not have been diagnosed without the work of HEWs. The implementation of health extension package depended on committed HEWs, supervisors and collaboration with different programs like TB control program [5].

Worldwide although death from TB is falling in comparison to the past seven years, TB is the top 10 cause of death. In 2017, 1.6 million people died from TB, including 0.3 million among people with HIV and there were an estimated 10 million new TB cases globally. The post-2015 goal to end TB epidemic globally aimed at reduction of TB death by 95% and

reduction of TB incidence by 90% by 2035 compared to 2015. Ethiopia is one of the high TB, MDR-TB and TB/HIV burdened countries with death from TB declining at high rate (exceeding 6%) and better treatment success rate [6–10].

TB patients are also imposing high socio-economic impact and it was mentioned as a main reason for delayed treatment initiation in Ethiopia. A study conducted on cost faced by TB/MDR-TB in Ethiopia shows 76% of TB Patients and 72% of MDR-TB lost their job, 36% Patients hospitalized for TB and 82% for MDR-TB, 92% of patients reporting income loss due to TB and 79% due to MDR-TB and 24% of patients sold property due to TB and 38% due to MDR-TB. Costs paid for clinic and cost of transportation were the significant factor related to cost of TB treatment [11–13].

The functions of TB and leprosy control can be classified as community, patient-and program management activities. *Community management activities* (mainly carried out by Health Extension Workers (HEWs) and community volunteers/promoters. HEWs focus on Education of the community, Identification of suspects, referral of suspects to health Facilities, Support for adherence to treatment, retrieval of absentees and contact tracing [14].

2. Material and Methods

2.1. Literature Search Strategy

Computerized systematic search was conducted through PubMed, Google Scholar, and Science direct databases. All study published in English were assessed using the following Mesh terms: Health extension, Health extension worker, community health worker, TB, Tuberculosis, Tuberculosis treatment and Ethiopia. The search was not limited by year of publication. Accordingly I identified 102 articles from PubMed, 320 from science direct and 15,700 from Google Scholar. After reviewing for relevance of articles based on title, abstract and eliminating for redundancies five articles were included for this review.

2.2. Inclusion Criteria

Paper which fulfill the following criteria were included in the review: Studies presented to the original article, studies that examine contribution of HEWs to TB prevention, studies conducted in Ethiopia; studies written in English.

2.3. Exclusion Criteria

Studies that focus on cost analysis of TB care by HEWs were excluded.

2.4. Review Process

All of the research articles that were identified from search of the electronic databases were screen based on their title and abstracts to identify potential eligibility.

3. Result

A study conducted in Sidama zone of Ethiopia revealed that

health extension workers reached large number of people with TB symptom which is the base for TB prevention and elimination strategy. Accordingly a total of 216,174 (mean 4,003/month) individuals with TB symptoms were identified by the HEWs and a total of 27,918 TB (a mean of 517 TB cases per month) cases were registered over the 4.5 intervention years in Sidama Zone. Among the 27,918 TB cases, 27,468 (95.2%) were new and 1352 (4.8%) retreatment cases. About two third of smear positive case (11,130 (66%) of 16,895 smear-positive cases) were identified by the HEWs through door-to-door visits and 5765 (34%) by the health centers. Out of 2578 (1.3%) community with smear-negative results who were referred for X-ray examinations, 1730 (67.1%) were diagnosed as having smear-negative TB based on radiological patterns. X-rays therefore contributed to 6% of the TB cases notified by the HEWs in the intervention zone. Further, the smear-positive case notification rate increased from a baseline of 64 (95% CI 62.5 to 65.8) to 127 (95% CI 123.8 to 131.2) per 100 000 population at the start of the intervention and all forms of TB increased from 102 (95% CI 99.1 to 105.8) to 177 (95% CI 172.6 to 181.0) per 100 000 population. A total of 8748 (79%) of the 11,130 smear-positive TB cases diagnosed through the HEWs were visited again by the HEW and supervisors to identify household contacts. The visits identified 38,534 household contacts, of whom 5737 (14.9%) had symptoms suggestive of TB. Of these, 4520 (78.8%) produced sputum for examination, resulting in 288 (6.4%) additional smear-positive cases [15].

Another study conducted in the same zone reported the number of pulmonary TB suspects examined was 723 from intervention and 328 from control village. Among these, 230 and 88 smear-positive patients were identified from the intervention and control village, respectively. All the smear positive patients were analyzed Among the 230 patients from the intervention village, 172 (74.8%) were cured, 33 (14.3%) completed treatment, eight (3.5%) died, two (0.9%) had treatment failure, 15 (6.5%) defaulted and no patient was transferred out. This shows the role of health extension worker in TB suspect identification and treatment continuation [16].

A study conducted in Ethiopian Somali Regional State identified that about one fifth (20.3% [95% CI = 16.6–24.5]) of the PTB patients were referred by HEWs. Of the 77 PTB patients referred by HEWs, 32.5% (n = 25) received a referral paper while the rest received verbal referral information. Out of the 177 patients whose homes were visited, about half (53.1%; n = 94) received TB health education at the time of the home visit. The TB health education provided covered information on disease causing agent, transmission pathway and signs and symptoms of TB. Furthermore, 47.5% (n = 84) of those whose home was visited were asked by the HEW about the presence of a family member with a cough of more than two weeks at some of the visits. A quarter 25.4% (n = 45) of patients were asked this during the last visit. Of all 380 PTB patients interviewed, 119 (31.3%) indicated that they had ever obtained one or more TB services provided by HEWs such as health education, symptom inquiry and

referral. Of all the PTB patients who ever received TB services from HEWs, 66.1% indicated that they trusted the information obtained from the HEW while 65.2% rated the obtained information as important. Among the 380 patients, 17.9% (n = 68) were from a graduated model household. Of the 68 graduated, 73.5% (n = 50) were provided with TB education during the model household training. Health extension workers also indicated that health education was the main service they provided in terms of TB control and prevention. In addition, they perform referral of presumptive TB cases if encountered during home visits. Treatment follow up during continuation phase was also mentioned as a service provided. In addition, it was mentioned that as part of TB service provision, they also assessed the housing condition like windows and number of persons sleeping per room during home visits [17].

Another study conducted in Ethiopia indicated that more than one third of patients initiated care with HEWs. While tuberculosis diagnostic technologies were not available at the community level, all patients presumed to have tuberculosis should have been referred to a corresponding health center by HEWs, according to the standard scope of work for HEWs. At the health center level, referred patients joined the 35% of patients who initiated care at this level. While HEWs provided treatment support, they did not initiate treatment or prescribe anti-tuberculosis medicines. As such, they do not appear in the pathway as treatment providers. Excluding HEWs as treatment sites, 42% of patients accessed tuberculosis treatment at the site of care initiation. Considering that HEWs may support tuberculosis treatment where their corresponding health centers initiate treatment and have medicines available, it is estimated that approximately 62% of patients were able to receive treatment where they initiated care [18].

Study from Sidama zone indicated that, Between October 2010 and December 2011, HEWs identified 49,857 (29,314 [60%] women) individuals with cough for two or more weeks, with or without other symptoms. Of these, 2,262 (4.5%) (1,199 [53%] women) were smear-positive (PTB+). Eight thousand and five household contacts of PTB+ cases were visited by the HEWs and supervisors. Of these, 1,949 (13%) had cough for two or more weeks, with or without other symptoms and 1,290 (66%) provided sputum samples. Sixty-two (4.8%) of 1,290 were PTB+ and seven PTB- or EPTB based on clinical and X-ray findings [19].

4. Conclusion

Health extension workers play crucial role in in TB prevention and control. The role of health extension workers can be classified identifying TB suspects in the community, referring to health facility for treatment/test, identifying contacts, providing health education, tracing defaulters and supporting treatment adherence. According to this review, health extension workers have brought a significant impact on TB prevention and control. Even the role of health extension worker can surpass the role of other health institutions in this

regard. So, health extension workers have to have support like training, material support and follow up and supervision from health departments. The base of TB prevention and control should start from community where health extension workers can play super role.

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