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ORIGINAL RESEARCH

An evaluation of community acceptability and adoption of the community-based TB care program in Ethiopia using the diffusion of innovation model

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ABSTRACT

Introduction: Community-based tuberculosis (TB) related interventions still face several implementation challenges that negatively affect attainment of overall national TB program goals. Yet, few studies investigate key implementation outcomes such as acceptability and adoption of these interventions. This study sought to explore the acceptability and adoption of health extension worker (HEW) driven community-based TB care (CBTC) program among community members in Gondar town, Northwest Ethiopia.

Methods: A qualitative case study design was employed, consisting of twenty-four in-depth interviews and three FGDs with a purposively selected sample of HEWs, HEWs' supervisors, TB focal persons and community members. The study utilized deductive thematic analysis guided by Rogers' Diffusion of Innovation theory, which posits that the acceptability and adoption of interventions are influenced by attributes such as relative advantage, observability, compatibility and complexity.

Results: The program's relative advantage including its perceived ability to promote TB prevention, early diagnosis, as well as the observed improved reporting mechanisms and treatment outcomes arising from HEWs visits facilitated its acceptability and adoption. The integration of community-based TB care into the health system and use of outreach activities to deliver TB information and services enhanced compatibility of the program with community health expectations. However, several factors hindered the delivery of the program, affecting its acceptability and adoption. These included limited career progression for HEWs, inadequate support from the district health office, an insufficient number of HEWs for the growing population, challenges in sustaining TB donor-funded programs, the impact of the civil war, the non-adherence to referral guidelines, and resource constraints.

Conclusion: To enhance the acceptability and adoption of CBTC, we recommended prioritizing community engagement, improving integration of the program in community health systems, addressing contextual challenges such as TB stigma, as well as enhancing program support for the health extension workers.

Keywords: Acceptability, adoption, community-based, case detection, health extension worker, tuberculosis

Abstract in Español at the end of the article

INTRODUCTION

Tuberculosis (TB) remains one of the leading causes of death worldwide [1]. In 2020, an estimated 10 million people fell ill with TB, with most of the infections happening in low-and-middle-income countries (LMICs) [2]. Over 80% of new TB cases occurred in the 30 high TB burden countries, eight of these accounting for the majority of these cases [2]. Further, about 55% of TB affected households in LMICs experience catastrophic health expenditure due to the disease's diagnosis and treatment, with the poor households more affected than the richer ones [3]. Therefore, ending the TB epidemic by 2030 is among the priority health targets of the United Nations Sustainable Development Goals [4].

Ethiopia is among the countries with a high burden of TB [5]. In 2018, the country had an estimated TB incidence rate of 151 cases per 100,000 people, with a corresponding mortality rate of 22 cases per 100,000 [6]. In 2019, Ethiopia recorded 212,220 new TB cases and 29,874 TB-related deaths [7]. Additionally, it is one of 14 countries facing the triple burden of the fatal combination of TB, TB/HIV, and multi-drug-resistant TB according to the World Health Organization (WHO) [1].

A major barrier to TB elimination in Ethiopia is the low TB case-detection rate [8]. Annually, a third of estimated TB cases are not detected by the national program, hence the Ethiopian national strategic plan for TB and leprosy control highlights the need to increase case notification [9]. The trend in TB case detection has shown considerable fluctuation, it declined from 69% in 2011 to 59% in 2014, and then from 70% in 2015 to 67% in 2017 and increased in 2020 to 71% [10]. Majority of the missed TB cases are concentrated among the poor, vulnerable and underserved communities [11]. Additionally, the decline of TB incidence and prevalence rates has also been relatively slow [5].

Decentralization of TB services to the community is among the key strategies to improve access to services [12, 13]. Since 2003, Ethiopia began to actively implement a nationwide community health program known as the health extension program (HEP) primarily in rural areas [14]. In 2010, the program was scaled-up to also accommodate pastoralist and urban regions [15]. The Health Extension Workers (HEWs) are females who receive one year of training and are paid a government salary. They work in rural health posts across Ethiopia. Each health post serves an average population of 5,000 individuals. HEWs are supervised by nurses or environmental health professionals. The HEP is part of the health system and is organized under three themes: family health, disease prevention, and hygiene and environmental sanitation, with health education and communication as a cross-cutting theme [14].

The Community-based Tuberculosis Care (CBTC) strategy, a key package delivered by HEWs, focuses on enhancing TB prevention, detection, and treatment. HEWs conduct health education, awareness creation, active case finding, referrals, and support TB patients throughout the treatment process, while engaging and leveraging community resources [16]. This strategy has achieved significant success over the years, improving TB outcomes and treatment success rates by increasing access to timely diagnosis and care among vulnerable communities [17, 18]. Additionally, studies evaluating TB service delivery models in Ethiopia have found that HEWs significantly increased TB preventive treatment initiation and completion rates, while also improving timely case detection among populations less likely to seek healthcare or experience access barriers [19, 20].

By 2017, the CBTC program in Ethiopia faced several implementation challenges, including the inaccessibility of TB diagnostic services at nearby health facilities, and high transportation and investigation costs [20, 21]. Evidence showed that the national contribution of HEWs to the detection of TB cases was as low as 24% [20]. Further, the expanded strategy has struggled to adequately address TB among pastoralist communities [22]. As a result, the goal of ensuring effective and responsive TB services in community settings remains unmet, despite over a decade of CBTC implementation [23]. Moreover, the continued low TB case detection rates, presence of untreated infectious TB cases in the community, coupled with the recent COVID-19 pandemic pose a serious threat to TB control efforts [8, 24]. These challenges are further exacerbated by inadequate health-seeking behaviors, limited awareness of symptoms, self-treatment, and insufficient community mobilization and health education [25].

Acceptability and adoption of CBTC by community members is key to the program's success [26]. However, most studies, do not explore this beyond just identifying factors contributing to delayed TB detection. Using Rogers' Diffusion of Innovation model (DOI), this study aims to understand how the attributes of the CBTC program and its implementation in the Gondar region influence its acceptability and adoption by community members and HEWs [27]. The model examines how conditions affect the likelihood of a social system accepting or adopting an innovation, and is widely used to analyze program adoption in both formal and community health systems [27-29].

According to the DOI, diffusion is the process by which an innovation, such as the CBTC, is communicated through specific channels over time within the adoption system. It posits that the acceptability and adoption of an innovation are influenced by attributes such as its perceived relative advantage compared to other options, compatibility with existing values, needs, and interests, trialability allowing experimentation on a limited basis, observability of results, and the perceived simplicity or complexity of its usage [27, 30]. In this study, we focused on four of these five attributes—relative advantage, observability, compatibility, and complexity—as they were most relevant to understanding the acceptability and adoption of the CBTC program.

METHODS

Study design

The case study design was employed to facilitate an in-depth understanding of community acceptability and adoption to CBTC using a variety of data collection procedures [31]. Gondar Town comprised the case in study because it provided both rural and urban perspectives of the program. Further, Gondar Town has some of the highest reported TB cases in Amhara Region, Ethiopia [24].

Study context

The study was conducted in Gondar Town, Central Gondar zone, Amhara Regional State, between March and August 2021. This town is located 750 km northwest of Addis Ababa. It has 23 kebeles – the smallest administrative unit in Ethiopia and 48 health facilities comprising: 1 comprehensive referral hospital, 8 health centers, 1 private general hospital, 15 specialist clinics, 15 medium clinics and 8 primary clinics. In Ethiopia, a standardized TB prevention and control programme, incorporating the Directly Observed Treatment, Short Course, was introduced at Gondar University Teaching Hospital in 2000 [32].

The health extension program operates within the framework of the primary health care unit (PHCU). Each health post, serving a population of 3000 to 5000 in a small administrative unit (kebele), is staffed with two HEWs. Collaboratively, the health posts and a health center worker form the PHCU, catering to approximately 25,000 individuals. Acting as a referral center, the health center provides advanced care. Supervision of the health post falls under the purview of the district health office and the kebele administration [9]. Meanwhile, comprehensive information on community-based TB program in this town is lacking [32].

Study population

The study population comprised HEWs, supervisors of HEWs, TB focal persons, community members receiving CBTC services under the health extension program. The participants had to be 18 years of age and above.

Sampling approach and recruitment of participants

Study participants were recruited purposively based on their roles in the CBTC program. Purposive sampling was used to select individuals who have experienced a phenomenon being investigated [33]. The FGD participants were selected from communities or kebeles with poor housing conditions, namely Azezo, Kebero Meda, and Arada. To ensure data collection across different age groups and to facilitate open participation in discussions, we organized FGDs by age groups (Table 2). HEWs were chosen from five health posts that refer presumptive TB cases to the three health centers (Maraki, Poly, and Azezo) in Gondar town, with the study targeting three active HEWs per health post. Supervisors of HEWs were selected from these three health facilities where TB cases were referred (Table 1). For the HEWs, we consulted health facility leadership to identify those who had been actively involved in the TB program over the years. By reviewing records from the TB corner, we identified TB clients associated with specific HEWs and subsequently scheduled interviews with them. Community members targeted by the CBTC program were recruited and interviewed through the health workers at the facilities and the local network of community health workers.

Data collection

Data were collected from March to April 2021 using in-depth interviews (IDIs) and focus group discussions (FGDs) across various participant categories. In total, 24 IDIs were conducted to explore the individual experiences of HEWs, supervisors, and TB program staff in providing CBTC services (see Table 1). Three FGDs were held with community members, categorized as young adults, adults, and older adults, to assess their general perceptions of the CBTC program.

Table 1. Number of participants in the in-depth interviews.

Participant categories	Number of interviews
HEWs	15
HEW's supervisors	6
TB focal persons	3
Total number of interviews	24

Table 2. Number of participants in the focus group discussions.

Participant categories	Number of participants in the FGDs
Young adults (25-34 years)	7
Adults (35-44 years)	8
Older adults (>45)	9
Total number	24

Interviews were conducted at the health facilities and within communities. Health facility structures facilitated participant engagement, while direct phone calls were used to schedule interviews. Community members, HEWs, and their supervisors were contacted through TB focal persons. The interview guides were organized into distinct sections with questions designed to elicit information on the core constructs of the Diffusion of Innovation theory: relative advantage, observability, compatibility, and complexity [27]. Both the IDI and FGD guides were pre-tested before data collection. Audio recordings and note-taking were employed during the IDIs and FGDs.

Data management and analysis

Data were transcribed verbatim in Amharic by the first author and then translated into English. Deductive thematic analysis was employed [34]. Initial themes were identified by the study team after reading six preliminary transcripts, guided by the study's theoretical framework. Several meetings were held to categorize and reclassify themes according to Rogers' DOI theory [27]. A data analysis framework, comprising main themes and sub-themes, was developed and imported into NVivo version 12 software by QSR International for coding all transcripts (Table 3). This software facilitated both the analysis and management of qualitative data. Data analysis was conducted from May to August 2021.

Table 3. Summary of the data analysis coding framework.

Main themes	Sub-theme
Relative advantage	- Early diagnosis and treatment - Prevention and health education about TB
Observability	- Improved community health due to HEWs visits in the CBTC program
Compatibility	- Integration of community-based TB care into the health system - Use of community gatherings and peer education at community level
Complexity	- Lack of career progression opportunities for HEWs - Inadequate support from district health office - Limited number of HEWs to cover a growing population - The challenge of sustaining TB donor funded programs - The civil war - Failure by the community to adhere to referral guidelines - Transport challenges - Lack of resources for diagnosis

Ethical considerations

Ethical approval was sought from the University of Zambia Biomedical Research Ethics Committee (REF. NO. 1033-2020) and the Institutional Review Board of Amhara Public Health Institute in Ethiopia (REF.NO.H/R/T/T/D/3/947). Subsequently, permission was obtained from both regional and local health departments in Ethiopia. Informed consent was sought from the participants during the study process.

RESULTS

The results section is organized according to the elements of Rogers' DOI theory that explain acceptability and adoption of the CBTC program using attributes such as relative advantage, compatibility, observability and complexity

Factors shaping acceptability and adoption of community-based tuberculosis care

Perceived relative advantages of community-based tuberculosis case detection

Relative advantage refers to how much CBTC is seen as more effective than comparable existing interventions, like passive TB case finding. According to the participants, crucial elements that contribute to the relative advantage of CBTC encompass early diagnosis and treatment, as well as comprehensive prevention and health education for TB.

Early diagnosis and treatment

Community members emphasized the importance of early diagnosis and treatment, expressing a preference for HEWs to visit their homes rather than waiting to seek care at health centers after falling ill. They believed that home visits contributed to more prompt treatment and improving health outcomes. HEWs also recognized the critical role of intervening early at the household, understanding that delays in diagnosis and treatment could lead to worse outcomes for those with TB. The CBTC program specifically targeted vulnerable and low-income households, who often delayed seeking medical attention until their symptoms had advanced, making early diagnosis and treatment efforts even more essential.

> *"The benefit is that we get help quicker. If she has a cure, then she will give me energy until I arrive at the health centre."* (FGD 1, community member)

Prevention and health education about TB

The community members mentioned receiving comprehensive information about TB symptoms, signs, and prevention from the HEWs. They appreciated the HEWs' dedicated efforts in conducting regular follow-ups within the community, which were not done under the passive case finding model. Further, they emphasized that this active case finding plays a crucial role in TB prevention, as articulated by one participant.

> *"For example, they teach as about TB as we have to take care, it can be transmitted through the air and the closed door is a risk. …we prefer them to come and teach us. We will learn a lot and understand here than going to health facilities."* (FGD 1, community member)

Observability

This attribute is defined as the degree to which the results of the CBTC program are visible to others. This section outlines some of the key observable program outcomes.

Improved community health due to HEWs visits in the CBTC program

Community members shared that they observed a noticeable improvement in the overall health of the community following the introduction of the CBTC program. They mentioned that the community-based TB case detection helped increase documentation and reporting of cases. Further, community members agreed to be tested by HEWs as they were familiar with them. For example, a community member who had been bedridden for months had her TB diagnosed following her interaction with HEWs.

> "*This disease was able to be identified from her after she bedridden for 2 or 3 months. Then we took her to the hospital and checked for blood it was positive for HIV and TB additionally.*" (FGD 3, community member)

Compatibility of the community-based tuberculosis case detection program

Compatibility is defined as the degree to which an innovation is perceived as being consistent with values, needs, and experiences of an adopting society (or community in which the intervention is implemented). In this section, this compatibility includes integration into the health system and use of outreach programs as explained below.

Integration of community-based TB care into the health system

TB case detection at the community level was integrated with other health services such as maternal and child health services. This integration was compatible with HEW work schedule as it helped them to conduct multiple tasks during one community visit hence resulting into efficient use of time. Further, the provision of multiple packages in an integrated manner helped community members to receive different services at a single time.

> "*In the previous time, TB screening was carried out integrated with the campaign of maternal health and polio vaccination packages. …Yes, integrated means there are several packages organized and provided in a parallel way which does not need extra time for TB screening.*" (KII 5, HEW´s supervisor)

Use of community gatherings and peer education at community level

To provide TB screening at the community level easily, HEWs used community gatherings and peer education. They gathered community members in groups to educate them about TB. This health education was communicated in a friendly manner to attract people's attention and focus. In addition, the HEWs also conducted door-to- door visits. Conducting such activities within the communities was vital as it reduced transportation costs to the health facilities. One HEW had this to say regarding the community work:

> "*We offer door-to-door visits. Yes, we do 1 to 5 people in a group. We gather and educate people in the same area. This is because we offer different packages, and we teach. …it requires our wise communication and knowledge to do this job.*" (IDI 2, HEW)

Complexity of the community-based tuberculosis case detection program

Complexity refers to how challenging the CBTC program was perceived to be in terms of its usability and comprehensibility. In this section, we present the key issues which affected acceptability and adoption of the program.

Lack of career progression opportunities for HEWs

Most supervisors and HEWs themselves reported that majority of HEWs had worked for longer time in the same sites without gaining career development or progression opportunities. Besides, some HEWs reported that they had not been trained for a while, a situation which reduced their motivation to work. Participants recommended the need to strengthen opportunities for HEWs in terms of career development and trainings in order to motivate them.

> "*The Community-Based TB Care (CBTC) program is facing issues because the health office and health centers aren't prioritizing training for health extension Workers (HEWs), even though they are the ones primarily involved in community healthcare. This situation is frustrating.*" (IDI 9, HEW)

Inadequate support from district health office

The supervisors and HEWs said that there was low district health office support for the HEWs to properly implement the CBTC program. In addition, the HEWs complained that they were not paid for their field work which reduced their motivation to conduct house-to-house TB screening. The lack of a dedicated organized body at the national level to oversee the HEW TB prevention and control services affected the motivation and performance of the HEWs.

In addition, the community members reported that HEWs did not have a strong district health level TB monitoring system. They narrated that sometimes, the district office only reads their reports but did not regularly monitor their tasks as explained below.

> *"Most of the time the district people see what we do from the report. Nobody comes to see what is going on the ground."* (IDI 15, HEW)

Limited number of HEWs to cover a growing population

Both the supervisors and HEWs indicated that the expected number of households assigned to HEWs was initially set at 500 within their designated area. However, the actual number exceeded this range, ranging from approximately 500 to 1000 households due to a gradual increase in population as more children were born in the community. From their perspective, even though TB screening is meant to cover all households, there were still households that HEWs were unable to reach. They contended that TB cases within the community might go undetected due to the absence of HEWs. Additionally, they pointed out that the shortage of HEWs resulted in an increased workload and disappointment for the community, as the anticipated services were not fully provided. For instance, a participant mentioned.

> *"One of the catchment area , [one] Health Center , had only 18 HEWs while the requirement was 32."* (KII 20, HEW)

A supervisor emphasized the strain on the workforce and the occurrence of missed individuals due to the shortage of HEWs, stating:

> *"Expected population addressed by HEWs was 500 households; however, HEWs serve more than this, about 500-1000 households. So, a lot of people are not addressed by the HEWs, a lot of people missed."* (KII 4, HEW´s supervisor)

The challenge of sustaining TB donor funded programs

Supervisors reported that most of the health service packages were supported by the non-governmental organization (NGO) partners in the initial stages. When funding came to an end, the NGOs shifted or phased out the programmes even before the targets were met. When the NGOs discontinued funding, sustainability of the TB prevention and control activities became a problem. For example, some supervisors reported that some HEWs do not willingly undertake their work once donor supported payments end.

> *"When the project launched every worker enthusiastic to participate whereas after the project ceased to finance the workers stopped their activities and now a days there are other activities that people failed to implement due to this issue."* (KII 6, HEW´s supervisor)

The civil war

The Ethiopian political situation was raised as a barrier for implementation of CBTC and other health service packages. Participants mentioned that they went for screening for TB or creating awareness for Covid-19, however, the community had other political concerns hence not giving attention to the health messages. As HEWs reported that the political chaos in some places hindered the work as they could not easily hold meetings. Some community treated HEWs as security agents of the government, hence they did not trust them.

> *"The current situation in the country acts as a barrier to our work; otherwise, there would be no issue in delivering the service. The community perceives HEWs more as security agents of Kebele leaders rather than genuine health extension service providers. Efforts must be made to address this perception thoroughly."* (KII 11, TB focal)

Failure by the community to adhere to referral guidelines

HEWs observed that certain community members failed to comply with referral guidelines and procedures. Despite receiving referral letters from HEWs, some individuals opted not to visit health facilities. Others declined to seek medical assistance due to limited understanding of TB signs and symptoms. The lack of adherence to referral processes served as a demotivating factor for some HEWs.

> *"Occasionally, when we encounter suspected cases, they refuse to go to the health center, claiming it's just a cold rather than TB, despite presenting symptoms consistent with TB. In such cases, we have to insist they seek medical attention, which poses a challenge."* (IDI 6, HEW)

Transport challenges

As reported by the HEWs, conducting house-to-house visits in the CBTC program proved to be strenuous and laborious due to limited transportation options. They recounted that reaching households demanded significant exertion on their part, and at times, they had to use their own resources to reach a particular household. One HEW workers explained how uncomfortable it gets conducting household visits.

> *"It's not comfortable. It's incredibly challenging. The difficulty lies in consistently visiting households, regardless of the circumstances. Unless we actively engage and make efforts to reach out to community members, achieving our goals becomes extremely challenging."* (IDI 2, HEW)

Lack of financial resources for diagnosis

Although TB treatment services were provided free of charge upon diagnosis, there were additional expenses that hindered access to TB services. For instance, community members had to cover costs for card registration and laboratory tests if they were diagnosed with TB. Moreover, some patients were directed to private clinics for chest X-ray examinations, as these services were not offered in some government health facilities. Many patients faced difficulties in affording these expenses. One participant elaborated on the financial burden incurred from referrals to private health facilities for diagnosis.

> "*For instance, in hospitals, they refer patients to private health facilities for X-ray examinations. However, the cost for an X-ray in private facilities is 350 ETB. Despite having health insurance, the reimbursement is only 70 birr for the 350 birr payment, which is not satisfactory for the patients. As a result, they may opt to purchase other medications independently or even stop seeking diagnosis altogether.*" (IDI 8, HEW)

DISCUSSION

The study highlighted factors shaping communities' acceptability and adoption of the CBTC program using the key domains of the DOI theory such as relative advantage, compatibility, complexity of the intervention and observability. We found that the program's relative advantage, comprised the perceived ability to facilitate early diagnosis, treatment, and prevention, along with improved reporting and treatment outcomes due to HEWs visits, played a pivotal role in its acceptability and adoption. The integration of CBTC into the health system and the utilization of outreach activities for delivering TB information and services further enhanced the program's compatibility with community health expectations. However, barriers such as limited career progression opportunities for HEWs, insufficient support from the district health office, a shortage of HEWs to cover the growing population, challenges in sustaining TB donor-funded programs, the impact of the civil war, community non-adherence to referral guidelines, and resource constraints posed challenges to the program's acceptability and adoption.

The program's relative advantage, such as the enhanced early diagnosis and treatment of TB through the implementation of the CBTC program, significantly influenced the community's acceptance and adoption. Early diagnosis became achievable because HEWs were trusted by the community, leading community members to willingly undergo assessment and management by them. These aspects promoted acceptability as early diagnosis and treatment of TB helped in reducing the transmission of TB in the community [35]. Studies have shown that engagement of community health workers (CHWs), such as HEWs in health programs can enhance trust as the CHWs are often respected members of the community [36, 37] Further, since CHWs work within their communities, they often receive support from community leaders which improves legitimacy of their services within the communities [30].

The compatibility of the programme with community health expectations such as the use of community-based approaches to detecting and managing TB also enhanced acceptability and adoption of the CBTC program. Community and household visits by HEWs that were preferred by the community helped in reducing transportation costs to health facilities and the waiting times. In addition, community outreach is vital as it has the potential for strengthening bonds between the patients and HEWs. Such bonds may have positive implications on health by encouraging patients to adhere to prescribed medication guidance [38, 39]. Metz and Bartley., also observed that community engagement approaches could also supporting adoption of programs at community level by promoting shared understanding and commitment by the community to address the problem being targeted by program during the implementation processes [40].

An increase in the number of TB cases that were noticed or observed to have been treated in the community following the implementation of the of the CBTC program also positively contributed to acceptability of the program. Better health outcomes were due to improved community-based identification and management of TB cases. Further, integration of the program within other programs also contributed to improved acceptability and adoption. Other studies on the HEW program also showed that the implementation of community-based TB intervention package within the exiting HEP and the NTP; its partnership with a functioning HEW system, strategic engagement with stakeholders and its alignment with national health policies and priorities have contributed to fostering acceptability and adoption by the community [38]. An increase in observed positive outcomes could possibly promote the acceptability of the program through enhanced trust and confidence by the community in the program. Increased confidence can further promote uptake of the program through increased local promotion of the program in community networks. Likewise, the implementation of prevention interventions, including door-to-door visits for TB screening and HIV testing in Zambia and South Africa, was found to be feasible and relevant. This approach significantly contributed to active case finding and linkage to care for both diseases [41, 42].

Although several aspects promoted program adoption and acceptability, there are a number of health systems and contextual factors which also complicated these two implementation outcomes. For example, delayed provision of services at the health facilities once referrals due to communication gaps resulted into some people not going to health facilities once they were referred. This delayed delivery of services also contributed

to low community trust in health services including resistance to health education and referral services for TB. Simon et al also documented the need for more effective and good referral networks between community health workers and the formal health system for community-based health programs to be fully accepted and utilised by the community [43].

Local factors such as stigma and discrimination related to TB as well as the civil war also inhibited the adoption and acceptability of TB treatment offered by HEWs. The impact of political conflict has also been reported in Liberia where TB case notifications decreased in areas with conflict compared to those without conflict [44]. Other studies such as Amenuvegbe et al., also noted that stigma was contributing factor for the low TB case detection rate in the Nkwanta South district of Ghana and willingness by the community to take up TB treatment [45]. People did not want to test for stigma as they feared that they might be isolated by close relatives or friends. Addressing TB stigma might require increased sensitisation of the community regarding the transmission and treatment of the disease using local structures [46].

Program specific factors such as lack of career progression opportunities for HEWs, inadequate support from district health office including monitoring system, the challenge of sustaining TB donor programs, failure by community to adhere to referral guidelines and lack of resources for transport and diagnosis also affected the adoption of the program. Inadequacies in HEW can undermine implementation of programs as they contribute to demotivation and poor performance among some CHWs [47]. These situations can result into poor quality of services delivered thus undermining trust and confidence by some people in the CHW programs [48].

To improve the performance and acceptability of the CBTC program, it is vital to strengthen supervision and reporting, feedback processes within the program [49]. It is also important to improve motivation of health workers involved in the active case finding intervention through the provision of adequate incentives including opportunities for career progression such as additional training [49]. Health systems should increase local financing of community-based TB programmes to reduce donor dependence and promote program sustainability [50].

Limitations and strengths

One limitation of this study is the absence of policymakers in the sample, which constrained the scope of insights on policy support and gaps related to community acceptability and adoption of the community-based TB care program. Additionally, the interview guide did not include quantitative data on the uptake of TB services at health facilities and within the community, as the focus was on experiences accessing TB services. This omission may have limited our ability to gain additional quantitative insights into the program's acceptability. Despite these limitations, the inclusive interviews with various stakeholders—community members, HEWs, TB focal persons, and HEW supervisors—provided valuable information for a comprehensive understanding of community acceptability and adoption of the CBTC program.

Conclusion

In sum, this study illuminates several factors influencing the acceptability and adoption of the CBTC program in Gondar town, Ethiopia. To enhance the acceptability and adoption of the CBTC, it is recommended to prioritize community engagement, improve health system integration, address contextual challenges such as TB stigma, enhance program support for frontline health workers, diversify funding sources, and expand human resources. Strengthening community involvement, streamlining referral processes, tailoring health education messages, providing adequate support to health workers, exploring sustainable financing mechanisms, and increasing workforce capacity are essential steps to overcome barriers and ensure the success of the CBTC program.

DECLARATIONS

Publication Consent

Written informed consent was obtained from all subjects and/or their legal guardian(s).

Competing interests

The author reports no conflicts of interest in this work.

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Author contributions

AG, AS, PM, AB, PH, and JMZ conceptualized and designed the study. AG did the data collection and analysis. AG, AS, and JMZ drafted the manuscript. PM, PH, AB, commented and revised several versions of the draft manuscript. PH oversaw the entire writing process, proving critical scientific leadership. All authors have read and approved the manuscript for publication.

Data availability

The raw data generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

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Evaluación de la aceptabilidad y adopción por la comunidad del programa comunitario de atención a la tuberculosis en Etiopía mediante el modelo de difusión de la innovación

RESUMEN

Introducción: Las intervenciones comunitarias relacionadas con la tuberculosis siguen enfrentándose a varios retos de implementación que afectan negativamente a la consecución de los objetivos generales del programa nacional de tuberculosis (TB). Sin embargo, son pocos los estudios que han investigado los principales resultados de implementación, como la aceptabilidad y la adopción de estas intervenciones. Este estudio pretendía explorar la aceptabilidad y adopción del programa de atención comunitaria de la tuberculosis (ACT) dirigido por agentes de extensión sanitaria (AES) entre los miembros de la comunidad de la ciudad de Gondar, en el noroeste de Etiopía.
Métodos: Se empleó un diseño cualitativo de estudio de caso, consistente en veinticuatro entrevistas en profundidad y tres grupos de discusión con una muestra seleccionada intencionadamente de agentes de extensión sanitaria, supervisores de estos agentes, personas de contacto para la tuberculosis y miembros de la comunidad. El estudio utilizó un análisis temático deductivo guiado por la teoría de la difusión de la innovación de Rogers, que postula que la aceptabilidad y la adopción de intervenciones están influidas por atributos como la ventaja relativa, la observabilidad, la compatibilidad y la complejidad.
Resultados: La ventaja relativa del programa, incluida su capacidad percibida para promover la prevención de la tuberculosis y el diagnóstico precoz, así como la mejora observada en los mecanismos de notificación y los resultados del tratamiento derivados de las visitas de los AES, facilitaron su aceptabilidad y adopción. La integración de la atención comunitaria de la TB en el sistema sanitario y el uso de actividades de divulgación para ofrecer información y servicios sobre la TB mejoraron la compatibilidad del programa con las expectativas de salud comunitarias. Sin embargo, varios factores agravaron la ejecución del programa, afectando su aceptabilidad y adopción. Entre ellos, la limitada progresión profesional de los AES, el apoyo inadecuado de la oficina de salud del distrito, el número insuficiente de AES para la creciente población, las dificultades para mantener los programas de TB financiados por donantes, el impacto de la guerra civil, el incumplimiento de las directrices de derivación y la escasez de recursos.
Conclusiones: Para mejorar la aceptabilidad y la adopción de la ACT, recomendamos dar prioridad a la participación de la comunidad, mejorar la integración del programa en los sistemas de salud comunitarios, abordar los retos contextuales como el estigma de la tuberculosis, así como mejorar el apoyo del programa a los agentes de extensión sanitaria.

Palabras clave: Aceptabilidad, adopción, basado en la comunidad, detección de casos, agente de extensión sanitaria, tuberculosis

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