

Community-based Advocacy Communication Social Mobilization (ACSM) intervention by empowering key community leaders: Evaluation using the RE-AIM framework

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ABSTRACT

Background: Based on the theme of World Tuberculosis (TB) Day 2018—“*Wanted Leaders for TB free world,*” various studies and country-level project have witnessed how training leaders on TB has helped enhance TB awareness in the community. This study was conducted to evaluate the effectiveness of Advocacy Communication and Social Mobilization (ACSM) intervention strategy through key community leaders, using Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) framework. **Materials and Methods:** This study was undertaken by the Department of Community Medicine, Sri Manakula Vinayagar Medical College and Hospital (SMVMCH), Puducherry, in the field practice area of Primary Health Centre (PHC), Thirubuvanai. The STOP TB, ENGAGE-TB, and National TB Elimination Program (NTEP) guidelines were used for interventions. Key community leaders (KCL) list ($N = 117$) was obtained from Mannadipet commune panchayat and PHC. The study was conducted in four phases: phase 1 (baseline): quantitative data: proportion of presumptive TB cases from notification register; phase 2 (intervention): training program for staff nurses, auxiliary nurse midwife (ANM), Accredited Social Health Activist (ASHA), and Anganwadi workers (group activity), participatory rural appraisal (PRA) activity for self-help group (SHG) leaders, and health education session for religious leaders and ex-panchayat leaders; phase 3: strengthening of ongoing activity: health education session and active case finding for TB; and phase 4: end line: outcome of the intervention, evaluated using the RE-AIM framework. **Results:** As an outcome of the intervention, there was a marginal increase (21 cases) in the proportion of presumptive TB cases when comparing before (2018) and after (2019) intervention. The proportion of presumptive TB cases identified and referred by KCL was 312. A total of 77 presumptive TB cases were identified through community-based active case finding (ACF). Two sputum samples (on the spot early morning) were collected and sent for Cartridge-based nucleic acid amplification testing (CBNAAT), of which three cases were positive. **Conclusion:** This study was community led and involved leaders from diverse backgrounds, optimizing the chance of success. For sustainability, we have initiated TB support group.

Keywords: ACSM, key community leaders, PRA, RE-AIM, TB

Introduction

To combat the problem of tuberculosis (TB), various strategies have been implemented by the World Health Organization (WHO) within the tuberculosis control program.^[1] The Advocacy Communication Social Mobilization (ACSM) was the key intervention strategy was undertaken to

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empower the community and help in capacity building.^[2-4] The collaboration of leading health workers from various sectors was needed to raise awareness of TB within the community people, which in turn increased case finding.^[5-10] The development of need-based Information, Education and Communication (IEC) training tools^[11-13] is mandatory for IEC activities as mentioned by WHO-STOP TB strategy^[14] and Engage-TB strategy^[15] and also mentioned in the recent National TB Elimination Programme (NTEP).^[1,2] Based on the theme of World TB Day 2018—“*Wanted Leaders for TB free world*”,^[16] various studies^[5-10] and country-level project^[17-19] have witnessed how training leaders on TB has helped enhance the TB awareness in the community, as a result of increased diagnosis of presumptive TB cases. With this backdrop, we have planned and incorporated intervention-based community study using the abovementioned strategies.^[1,2,14-16] This study was conducted to evaluate the effectiveness of Advocacy Communication and Social Mobilization (ACSM) intervention strategy to enhance TB awareness and improve the presumptive TB cases through key community leaders, using Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) framework.

Operational definition

Presumptive pulmonary TB is defined as a person with any of the signs and symptoms suggestive of TB including cough >2 weeks, significant weight loss, hemoptysis, and any abnormality in the chest radiograph.^[1]

Key community leaders

Leader has social responsibility for improving quality of life of their people by keeping them informed of protecting themselves from illness such as TB.^[19]

Materials and Methods

The present mixed-methods intervention study^[20] was undertaken by the Department of Community Medicine in the tertiary care teaching hospital, Puducherry, in the field practice area of Primary Health Centre (PHC). The STOP TB, ENGAGE-TB, and NTEP guidelines were used for interventions. The key community leaders' list ($N = 117$) was obtained from the commune panchayat and PHC. The key community leaders are auxiliary nurse midwives (ANMs) (5), Accredited Social Health Activist (ASHA) (1), Anganwadi teachers (15), staff nurses (10), ex-panchayat leaders (34), and religious leader (13): Hindu, Muslim, and Christian leaders and self-help group (SHG) leaders (39). After ensuring the free time of the key community leaders through phone call, the time and venue for intervention were planned. Interactive training workshops, community-based Participatory Rural Appraisal (PRA) (social mapping) activity, health education sessions, sensitization programs, and active case finding activities were planned and implemented under the following phases. The above was supervised by senior faculty trained in TB care programs, which ensured the fidelity of intervention (Figure 1: Visual diagram).

Phase I (Baseline): The proportion of presumptive TB patients from the study area was recorded on the “Notification register” for 2018 at Designated Microscopy Centres (DMCs), Sri Manakula Vinayagar Medical College and Hospital (SMVMCH), and State TB Office, Puducherry, was extracted manually using the extraction sheet.

Phase 2 (Intervention): The training program for key community leaders was conducted by researcher who had undergone short TB courses.^[21] Before the training program, the session plan was planned and approved by senior faculty.

- 1. Interactive training^[12,20,22-24] workshops for allied health workers:** Participants were divided into six groups with 7–8 participants in each group. Each group was given a separate TB-related topic such as causes of TB, common symptoms, risk factors, mode of transmission, risk factors, and management of TB. They were given time for discussion and asked to jot down the points in charts using a sketch pen either in Tamil or in English or whichever language they are comfortable with. Following discussion, representatives from each group came forward and asked to justify the points under their topic to the audience. A comprehensive health education session was improvised to emphasize the gap in knowledge. We used a flipbook, which was more of a pictorial representation, and their queries were also addressed in the end. Pamphlets containing the key message on TB were also distributed to the audience.
- 2. PRA activity—social mapping^[25] exercise for self-help group members:** The main purpose of this activity was to build rapport with the participants. The social mapping exercise was undertaken after finding a convenient time and place for the participants. The purpose of the social map was clearly explained to the participants. The participants were divided into three groups based on their residency. They were given charts and were asked to draw their street along with houses with locally available material and were asked to highlight the houses where the patient had cough symptoms. Participants used small stones representing small houses, big stone for big houses, and medium-sized grasses representing small apartments, which comprised two and three houses. Small sticks were used for street lights, and one marble stone was used for the temple. Finally, tiny flowers that were red in colors were used to spot houses with cough symptoms. The investigator obtained clarification from the participants now and then whenever required causally, which helped in developing a rapport. Finally, when the participants completed their hands-on mapping exercise, they were appreciated and thanked. Participants were asked, “*What is the significance of cough symptoms?*” and “*What will happen if cough persist for more than 2 weeks.*” Every participant shared their knowledge related to TB, after the interactive session followed by a health education session on TB with the help of flip books and followed by pamphlet distribution, which contained all the key messages as per the session plan as mentioned as follows.

Session plan for PRA (SHG leaders and other members)

Activity	Teaching learning method/tools	Duration
Introduction		30 min
Social mapping	Hands-on exercise was conducted by the members of SHG with locally available materials such as leaves, flowers, stone, and match	1 h 40 min
Presentation and discussion on social mapping	Presentation of social map by SHG	1 h
Clarification and reinforcing the key messages on TB	Interactive session/flip book and posters	45 min
Explanation of pamphlets to reinforce facts on TB (which contained both messages and pictorial explanation)	Interactive session/pamphlet distribution that contained information on what was taught	30 min
Discussion and conclusion	Brain storming—to summarize the key message and feedback from participants on what was learned	45 min

3. Health education: A health education session was conducted with the help of religious leaders in Mosques followed by their prayer meeting on Friday^[24] and also in church after their prayer meeting on Sundays. Health education was provided for the community employed in Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in the field with the help of social worker.

Phase 3: Strengthening of ongoing interventions:

Sensitization programs:^[14] These sessions were conducted by key community leaders in neighboring people and members of SHG during monthly meetings, in PHC for the patients attending special clinics, after religious meetings in Church and Mosque, and we distributed pamphlets to emphasize key messages. Some of the sessions were conducted under the supervision of the researcher as per the session plan mentioned.

Enhanced and Active case finding:^[26-28] An effective awareness-driven case finding approach was implemented. 3rd year MBBS Students Compulsory rotatory residential interns (CRRIs), and medical social workers (MSWs) were involved after a one-day hands-on training program on National TB Elimination program guidelines, steps to be followed in the community-based active case finding process, and how to use the Epicollect app. Focused health education was conducted face-to-face, and health education material was distributed by KCL of the respective villages. They also educated the patients and caregivers on treatment adherence.

E-health messages: Short message service (SMS)^[12] and WhatsApp messenger were used to reinforce key message and remind them to screen presumptive tb cases and refer to nearby PHC. Visual media were sent to educate on symptoms, mode of transmission, and screening modalities (in Tamil and English).

The checklist in the RE-AIM framework was evaluated by trained faculty (guide).

Phase 4 (Endline)

The following indicators were used to measure the effect of the intervention:

- i. Referrals and case notification: The proportion of presumptive TB patients recorded on the “Notification register” reported to the DMC center and State TB Office, Puducherry, was extracted (2019 data) and compared with the previous year (2018 data)
- ii. The information such as number of presumptive TB patients identified and referred, number of TB patients motivated for treatment completion, and number of IEC activities conducted by the key community leaders was obtained.
- iii. Number of presumptive TB cases identified from active case finding activity.

Ethical issues: The present study was cleared by the Sri Manakula Vinayagar Medical College and Hospital Ethics Committee (SMVMCH-EC) (IEC No.: EC/56/2018). Approval was also obtained from the RNTCP (NTEP)-State task Force Operational Research (STF OR) Committee and State Tuberculosis Officer (STO), Puducherry.

Results

Figure 2 illustrates that there was a marginal increase (21 cases) in the proportion of presumptive TB cases when compared before (2018) and after (2019) intervention and while comparing all four quarters in both years. The proportion of presumptive TB cases identified and referred by KCL was 312. Among 19134 households, we were able to identify 77 presumptive TB cases in community-based ACF. Two sputum samples (on the spot early morning) were collected and sent for CBNAAT of which three cases were positive, but the actual proportion of cases extracted from the case notification register was found to be 308. This was due to the overlapping of cases [Table 1]. The effectiveness of intervention was measured using the RE-AIM framework^[24] as mentioned in Table 2. It consists of five dimensions, occurring in a logical sequence: Under the dimension of “REACH” (the target), the proportion of TB cases before and after the intervention was identified, which was 288 (2018) and 309 (2019). The proportion of KCL participated in the intervention was 117 (target group), the number of populations screened in enhanced and active case finding was found to be 19173, and four IEC materials were developed from the key message for training. Their roles and responsibilities as community leaders to create a conducive environment for TB patients and to refer more presumptive TB cases were accepted by the target group.

Under the dimension of “Effectiveness” of intervention, outcome indicators measured in the present study were as follows: Key community leaders’ knowledge on TB was increased, 312 presumptive TB cases were referred for screening by key

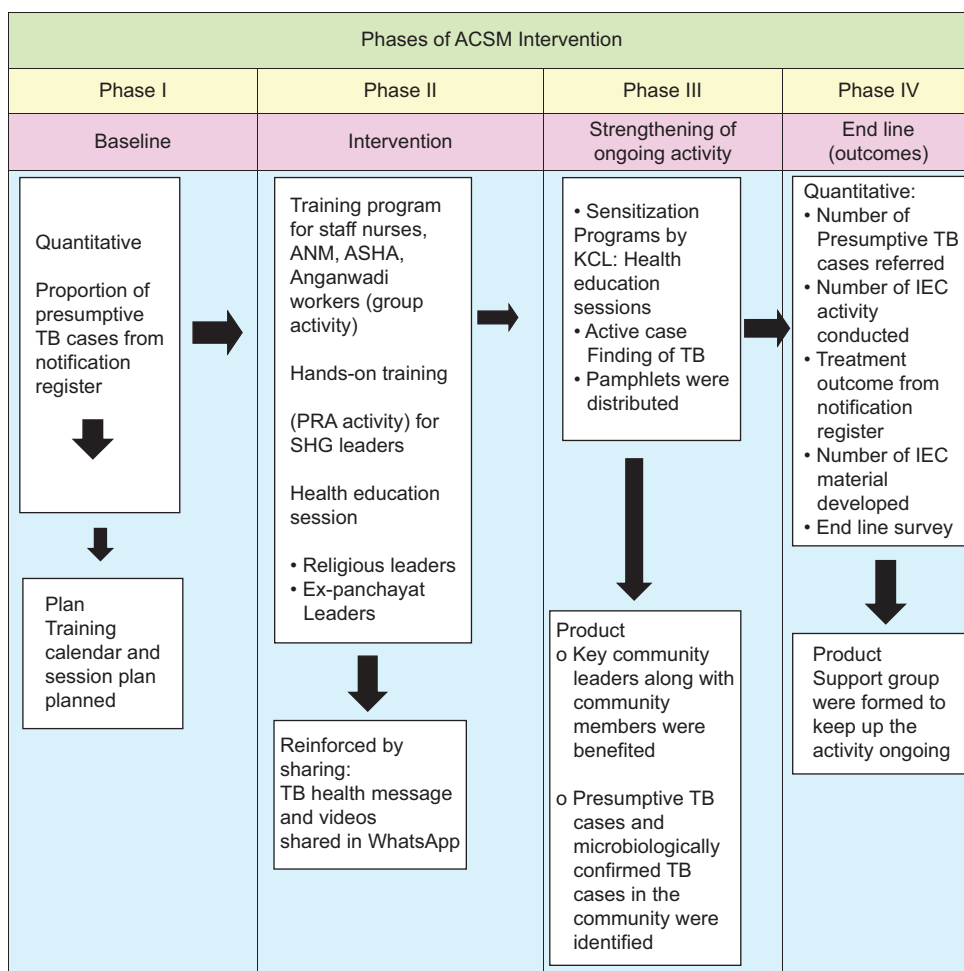


Figure 1: Visual diagram showing phases of ACSM intervention

Table 1: Outcomes measured in the study

Intervention outcome	Details
Proportion of presumptive TB cases identified	
Referred by key community leaders	312
From notification register	308
Enhanced and active case finding	77
Number of IEC materials developed: 4	
Flip book	- IEC materials developed were simple and artistic
Posters	- Content validity was checked by trained faculty
Charts	- IEC tools were used for training and health education session
Pamphlets	
Number of training programs/health education in field	
Number of training programs conducted for community leaders	11
Number of IEC activity conducted by key community leaders	7
E-health messages	27
TB voice videos	7

community leaders, and the proportion of presumptive cases identified from ECF was 77 cases, of which three were positive for pulmonary TB.

Under the dimension of “Adoption” to strengthen the ongoing activity, the number of sensitization programs

conducted was 7, which was conducted by KCL under the observation of researcher. Through this sensitization program, 484 people benefited. Under the dimension of “Implementations,” to ensure the intervention is delivered properly: The study throughout was guided by the guide, and throughout the intervention, we followed the intervention

Table 2: RE-AIM framework to know my intervention worked

RE-AIM dimension and operational definition	Plan	Indicators
Reach: How will I access the target population?	Key influential person in the community (ex-panchayat leaders, self-help group member, religious leaders, and allied health workers) were identified by principal investigator with the help of social worker, MO of PHC. Key message was identified from MO, STS, TBHV IEC material was developed flip book, posters, charts, and pamphlets in Tamil, and content validity was checked by trained faculty Under the guidance of STF chair, interactive training workshop—capacity building on TB for allied health workers, PRA activity for SHG leaders Health education for other key community leaders With help of key community leader’s awareness-driven ACF for TB was conducted (door-to-door survey) Community case finding activity	Proportion of TB cases before and after intervention Proportion of key community leaders participated in intervention Number of populations screened for presumptive TB cases in enhanced case finding (ECF) Number of IEC material developed Number of training program conducted for key community leaders Number of groups benefited
Effectiveness: How do I know the intervention was effective?	Personnel interview with KCL—outcome measurement—post-intervention to assess their knowledge Post-intervention feedback Proportion of presumptive TB cases identified during ACF KCL also identified presumptive TB cases and referred to PHC.	Key community leader’s knowledge on TB before and after intervention Number of IEC activities conducted Number of presumptive TB cases referred by key community leaders Number of presumptive cases identified through ECF
Adoption: How do I develop organizational support to deliver my intervention?	Permission from state TB officer, State Task Force, Puducherry, for the support. Under guidance of STF chair, planning and implementation of intervention were carried out Partnership with medical officer and other stakeholders such as STS, TBHV, and staff nurses. Community empowerment with help of key influential person in the community for creating conducive environment.	Number of sensitization programs conducted by key community leaders
Implementation: How do I ensure the intervention is delivered properly?	Trained faculty (guide) will directly supervise project implementation and review by research committee. The developed health education material in Tamil, content validity was checked by trained faculty (guide). It was finalized and piloted with common people. Training activity was conducted by a researcher who is trained in TB management	Fidelity of intervention is maintained throughout study through proper planning
Maintenance: How do I incorporate the intervention, so it is delivered over the long term?	Sensitization programs should be conducted regularly After the intervention period, support group was formed with nine members Future group will be formed for each subcenter with support of STF involving TBHV and STS	Integration of intervention to other existing program in health facility (TB and HIV, screening all diabetes patients in NCD clinic, screening of ANC mothers along with HIV). Strengthening of ongoing intervention with the help of support group

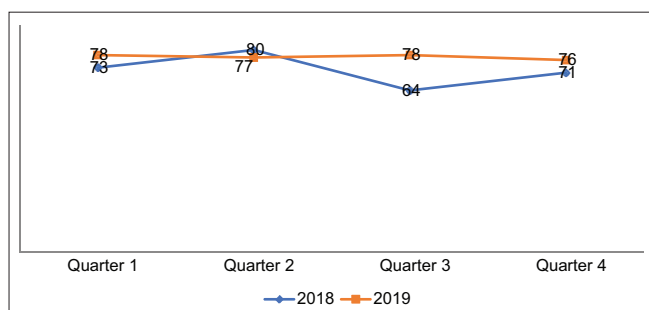


Figure 2: Trend analysis proportion of presumptive TB cases before (2018) and after (2019) intervention

plan. Training to the KCL was provided by the principal investigator who was trained in TB management. To increase the validity of the outcome from the Key Informant

interview (KII) interview, the evolved messages were reviewed by the guide who is trained in qualitative research. All these factors increase the fidelity of the intervention.

Under the dimension of “**Maintenance**” to incorporate the intervention, it was delivered over the long term: We had trained key community leaders so the health message will be shared with their family, relatives, and friends, which will help them to identify presumptive TB cases and refer the patient to TB Care pathway. To start with TB, the support group was formed in one of the subcenters to sustain the activity. The group consists of medical officer of PHC, Senior treatment supervisor (STS), and TB Health visitor (TBHV), religious leader, ex-panchayat leader, Anganwadi teacher, MSW, and postgraduate from the Department of Community Medicine. A total of nine members

had been included in the support group. It was a challenging task as it requires continuous motivation and logistic support. We have planned to start similar groups in the other three subcenters.

Discussion

In our study, the intervention and strengthening of ongoing activity was aligned with strategies such as Stop TB strategy^[14] and Engage-TB approach.^[15] This study addresses key pillars of END TB strategy, namely “integrated patient-centered care and prevention” (pillar 1) and “research to optimize implementation and impact” (pillar 3), and guidelines issued by India’s National TB Elimination Program.^[12] ACSM was one of the community intervention strategies proposed by these agencies. Effects of intervention with reference to similar intervention’s strategies were also propounded by United States Agency for International Development (USAID) in a project conducted in Maguindanao, Philippines, on promising practices for engagement in TB activities^[19] and Uganda’s TB communication strategy,^[18] which proved to have a similar effect of community empowerment, enhancing knowledge of TB, collaboration with other leaders, and early case finding activity. “Involvement” brings in community “leadership”; in turn, “leadership” leads to increased competency (or capacity) and promotes program maintenance.^[18]

Rationale for using RE-AIM: The use of theoretical frameworks can ensure a comprehensive understanding and robust response to community-led intervention. The selected frameworks were highly appropriate to this pragmatic community-based intervention study, in the area where the diverse group of people live. Continuous quality improvement was provided by the support group, which provided a way to engage staff and stakeholders in community participation leading to public–private partnership and to motivate behavior change, which pays way to END TB through early case finding or receiving preventive therapy in Thirubuvanaai.

Strength and limitation of the study: Key community leaders from diverse backgrounds were included in the study, which indicated representation of different sectors of the rural area, as they can influence the community, and focused need-based intervention on TB was planned after identifying the key message (knowledge gap). The KCLs had conducted sensitization programs for their members and neighbors. The formation of support group helps to sustain the intervention and to strengthen the ongoing activity. Creative strategies to work efficiently within existing resources (upfront investment, e.g. in outreach to find presumptive TB cases, to prevent new active TB cases) were encouraged. The number of presumptive TB cases referred to KCL was subjective. A second potential limitation was the sustainability of the support group. The consistent ability to monitor and measure would be a challenge with the need for additional logistic support.

Challenges in conducting this study: A challenge in the analysis of findings is deciding whether changes seen can be attributed

to study activities versus external coincident factors such as the overlapping proportion of presumptive TB cases. As stated by KCL, 312 presumptive TB cases were identified and referred. This was not captured using a referral slip. The record of referral in the notification register was not maintained in PHC. Hence, the number claimed could not be verified. This could have been managed by ensuring that the timing and nature of activities are well documented.

Conclusion

The present study was community led, and maintaining good communication with leaders from diverse backgrounds optimized the chance of success. To sustain this activity, we initiated a village-level TB support group.

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Conflicts of interest

There are no conflicts of interest.

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