IMPROVEMENT OF KNOWLEDGE AND PERCEPTIONS TOWARDS TUBERCULOSIS AMONG ANGANWADI WORKERS AFTER SIMPLE INTERVENTION.

RAHUL R.BOGAM*

ABSTRACT

'Anganwadi Worker' approach has regained credibility in recent years through its support of tuberculosis prevention and control, in particular awareness, treatment adherence support etc. Studies have shown that Anganwadi Worker can be utilized as potential resource person for delivery of health education about tuberculosis and need to be oriented towards various aspects of it .The present study was undertaken to measure the effectiveness of role play method on knowledge and perceptions of Anganwadi Workers pertaining to tuberculosis. A cross sectional study where all 103 Anganwadi Workers from rural provinces of Western Maharashtra State, India participated in role play competition and completed pre and post intervention questionnaire. Each completed questionnaire was assigned scoring system. The data was analysed by using 'Paired t test'. Significant improvement in knowledge was found after role play competition (Pre test mean marks: 4.23, post test mean marks: 7.42, $t = 20.58$, $p < 0.001$). Statistically significant difference was observed for all knowledge based questions regarding TB. The study reported favourable attitudes of participants towards tuberculosis after an intervention. There was significant improvement in Anganwadi Worker's knowledge regarding TB from pre to post-intervention as a result of role play method. It indicates that even a simple intervention like role playing can make significant change in knowledge of Anganwadi Workers about TB.

Keywords: anganwadi workers, knowledge, perceptions, role play, tuberculosis

* Assistant Lecturer, Department of Community Medicine, Bharati Vidyapeeth Deemed University Medical College, Maharashtra, Pune, India.

Introduction

Community health workers are the members of community who are accountable to the community that they serve, have limited training compared with health professionals, and receive support from the healthcare system without necessarily being fully integrated into its organization (WHO, 1989). They are becoming increasingly effective members of the health care delivery team because they are able to provide outreach services to communities been missed through larger main stream organization (Andrea Leinberger-Jabari, 2005)

'Anganwadi Worker' is a female community health worker who provides integrated health services to beneficiaries under the 'Integrated Child Development Services (ICDS) Programme' of India. She is a lynchpin community health worker who mobilises community and facilitate them in accessing health and related services available at the Anganwadi /Subcenter/Primary health centre such as immunization, antenatal check up, post natal check up, supplementary nutrition, sanitation, health education and other services being provided by government (J.Kishore, 2012)

India is the highest TB burden country in the world and accounts for nearly one fifth (15%) of global burden of tuberculosis (K.Park, 2011). In India, today two deaths occur every three minutes from tuberculosis but these deaths can be prevented. With proper care and treatment, TB patients can be cured (RNTCP updates).

'Anganwadi Worker' approach has regained credibility in recent years through its support of tuberculosis prevention and control, in particular counselling services, awareness, provision of DOTS, treatment adherence support for people on HIV and TB treatment etc. The role of Anganwadi Worker as a 'DOTS provider' is also well acclaimed. At some rural parts of India, they were considered as 'Best DOTS Provider' (TBC India).

Studies have shown that Anganwadi Worker can be utilized as potential resource person especially in rural communities, for delivery of health education about tuberculosis and need to be oriented towards various aspects of it like provision of DOTS, filling up treatment cards, refreal of patients for follow-up sputum examination at stipulated intervals in order to reduce TB burden.

The present study was undertaken to measure the effectiveness of role play method on knowledge and perceptions of Anganwadi Workers pertaining to tuberculosis.

Methods

Participants

This was a cross-sectional study. The study participants were all 103 Anganwadi Workers working in rural provinces of Western Maharashtra State, India who attended 'Tuberculosis Awareness Session.' This awareness session was conducted on occasion of "Women Empowerment Programme" organised by local Non Governmental Organization (NGO).

Data Collection and Procedure

The methodology was divided into three phases.

Pre-intervention Phase

Informed consent was obtained from participants after explaining the purpose of study to them. Also anonymity of participants was maintained throughout the study.

A structured modified pretested self administered questionnaire consisting of 15 questions in local language was distributed to 103 participants. It consisted of 15 multiple choice questions, of which 10 were knowledge based and remaining 5 questions were related to perceptions regarding Tuberculosis and DOTS.

The participants were allowed 15 minutes to complete questionnaire under strict supervision. Anonymity of participants was guaranteed. Those partciapnts who had difficulty in filling self administered questionnaire, they were assisted by trained facilitators to fill up a questionnaire.

Intervention Phase

All participants were divided into small groups of 8-10 persons. Each group was named as group 1 to 11 and one participant from each group was identified as a coordinator. An intervention used

for present study was 'Role Play Competition.' All groups were given detailed information and instructions about an intervention.

They were mainly instructed to include major aspects of tuberculosis like modes of transmission, signs and symptoms of tuberculosis, DOTS, RNTCP etc. Necessary guidance was given to participants by trained facilitators. All the groups were given one hour for preparation of role play. One by one, all 11 groups were allowed to perform seven minutes 'Role Play' based on various essential components of tuberculosis and it's management practices.

Two of the trained and experienced social workers from local NGO were appointed as a 'Judges' to evaluate 'Role Plays' performed by participants. The parameters used by judges for evaluation of role plays were 'Script Writing', 'Voice Quality', 'Delivery of technical information' and 'Overall quality of presentation.' At the end of each role play, feedback about role play, especially about technical information was given by judges before all the partciapnts. The total duration of an intervention was about three hours.

Post-intervention Phase

At the end of programme, the same questionnaire was distributed to all participants and responses were collected. It was followed by prize distribution for winner team and runner up teams.

Data Analysis

Of 15 questions, five questions were perceptions based; hence the scoring system was assigned to only knowledge based questions. The scoring system for each complete question was assigned for pre and post intervention. One score was given for correct response and zero for incorrect response.

Statistical analysis was done using Microsoft Office Excel Sheet. A *p* value of less than 0.05 was considered significant. 'Paired t-test' was used to compare pre and post intervention knowledge of participants.

Results

Table 1 shows the distribution of participants according to age, education, family composition, marital status and duration of work.

Table 1: Socio-demographic and other characteristics of participants. (n = 103)

Sr. No.	Characteristics of Participants	No. (%)
1	**Age**	
	18-25	54(52.43)
	26-36	44(42.72)
	>36	5(4.85)
2	**Educational class**	
	$5^{th} - 7^{th}$	34(33.01)
	$8^{th} - 12^{th}$	60(58.25)
	UG and PG	9(8.74)
3	**Family Composition**	
	Nuclear	26(25.24)
	Joint	77(74.76)
4	**Marital status**	
	Married	99 (96.12)
	Widow	4(3.88)
5	**Work duration as an Anganwadi worker (in years)**	
	≤ 2	69(66.99)
	>2	34(33)

Present study showed significant improvement in knowledge of participants about various components of tuberculosis from pre to post intervention as a result of 'Role Play Competition' ($t = 20.58$, $p < 0.001$) (Table 2). Statistically significant difference was observed for all ten questions.

Table 2: Mean marks of participants. (n = 103)

	Mean marks (out of 20)	S.D.	t value	p-value
Pre intervention	4.23	1.56	20.58	< 0.001
Post intervention	7.42	1.59		

Even though the post test score of participants regarding all questions was found to be more, prior to an intervention, participants showed poor level of knowledge about certain aspects of tuberculosis like symptmatology, modes of transmission, DOTS categories, required sputum samples for TB diagnosis etc. (Table 3)

Table 3: Pre and Post intervention knowledge based questions with correct response. (n = 103)

Question No.	Question	Correct Response
1.	TB can infect any person irrespective of socioeconomic status or HIV status	True
2.	TB spreads from one to other person through air	True
3.	Predominant symptom of pulmonary TB	Cough more than 2 weeks.
4.	Mode of transmission of TB	Respiratory route
5.	Average duration of DOTS treatment	6-9 months
6.	How many sputum samples are required for diagnosis of TB	Two
7.	There is an effective vaccine for TB	True
8.	Number of categories of DOTS under RNTCP	Two
9.	Reliable method of diagnosis of pulmonary TB	Sputum examination
10.	DOTS is available free of cost	True

Discussion

As per RNTCP recent guidelines (RNTCP updates), the predominant symptom of pulmonary tuberculosis is cough with or without expectoration for 2 weeks or more, rather than 3 weeks or more. Before an intervention, Eighty eight (85.43%) participants stated cough of more than 3 weeks as a predominant symptom of pulmonary TB. It indicates that participants were not well versed with recent guidelines of RNTCP as cough more than 3 weeks were old guidelines. Only 15(14.56%) participants were aware about recent guidelines of RNTCP pertaining to pulmonary TB suspect.

In pre-intervention phase, more than two third of participants i.e. 88 (85.44%) could correctly state that the pulmonary TB spreads from one person to another person through air. Of remaining 15 (14.56) participants, 5 (4.85%) did not give any response, 6 (5.82%) selected blood, 3 (2.91%) selected mosquitoes and 1 (0.97%) opted water as possible mode of tuberculosis transmission. A Baseline KAP Survey (Baseline KAP Study under RNTCP (2011) reported that more than one third of opinion leaders in all the states except Utterpradesh mentioned the right mode of spread of TB i.e. respiratory route. However, after role play competition, all 103(100%) participants became aware that TB spreads through respiratory route. Observed difference was found to be statistically significant ($t = 4.01$, $p < 0.001$).

Before an intervention, 34 (33%) particpants were aware that TB can infect any person irrespective of socioeconomic status or HIV status. After an intervention, 85 (82.52%) participants agreed that anyone can acquire TB irrespective of socioeconomic or HIV status ($t = 10.20$, $p < 0.001$).

Present study revealed poor knowledge regarding diagnosis of TB patients before an intervention. Only fifty four (52.42%) participants stated that sputum examination is reliable method of diagnosis of pulmonary TB patient. Thirty (29.13%) participants thought x-ray and 19 (18.44%) said that all i.e. blood, sputum, urine and x- ray are reliable tests for diagnosis of pulmonary TB. Present study finding corroborates with study finding of a baseline Report of CMS (Baseline KAP Study under RNTCP (2011), where 60% of opinion leaders in various states of India recognized x-ray as a reliable method for diagnosing tuberculosis. However 87 (84.47%) participants agreed sputum examination as a reliable method of TB diagnosis after role play. The difference was found to be statistically highly significant ($t = 7.09$, $p < 0.001$).

It is surprising to know that only 59(57.28%) participants were well versed with fact that there is a vaccine for tuberculosis and of them, only 18(17.48%) could name it correctly i.e. BCG. A survey conducted by National Institute of Public Cooperation and Child Development (Research on ICDS: An Overview, 1986-1995), revealed that only 12.3% of Anganwadi Workers knew about the existence of vaccine against tuberculosis. Present study reflected gaps in knowledge about BCG vaccine available for prevention of TB, indicating need for regular and substantial training on immunization schedule with more emphasis on practical work including attendance of vaccination clinics.

Directly observed treatment of short course chemotherapy (DOTS) identified as the 'key strategy' to control tuberculosis under RNTCP (RNTCP updates). Tuberculosis diagnosis and DOTS is totally free of charge under RNTCP Programme (RNTCP updates). The average duration of DOTS regimen i.e. 6-9 months, was correctly stated by 52(50.49%) and 68(66.02) participants in pre and post-intervention respectively ($t = 4.33$, $p < 0.001$). Surprisingly only 46 (44.66%) participants were aware that DOTS is available free of cost but after role play competition, the percentage of participants having knowledge about free service of DOTS increased from 44.66% to 74.76% ($t = 6.62$, $p < 0.001$).

The present study reported favourable attitudes of participants towards tuberculosis after an intervention. Before an intervention, 54 (52.43%) participants knew that with prompt treatment, tuberculosis can be cured but after an intervention, all 103(100%) agreed with same fact. After an intervention, nearly all, i.e. 101(98.06%) out of 103 participants preferred to go health facility if they thought that; they themselves had symptoms of tuberculosis. However remaining two (1.94%) preferred to go to medical store/pharmacy for seeking treatment for TB.

In pre intervention phase, 47 (45.63%) participants had fear of getting TB from infected persons. Magnetise et al. mentioned 76.3% of community health workers had fear to contact a TB patient. After the role play, only 5 (4.85%) participants said they had fear of acquiring TB from infected patient (Magnetise et al., 2005).

After role play competition, all participants (100%) were well known that TB can be prevented by covering mouth and nose while coughing or sneezing. However before an intervention, this fact was unknown to 4 (3.88%) participants.

Role play is a form of simulation, which has been used for a providing health education to various target groups. It has also been used to enhance the realism of technical training and to improve doctor-patient communication (Nikendei C et al., 2007)

The prevalence of tuberculosis is high in all parts of India including rural areas. One of the major factors which have contributed to India's large TB infected population is low literacy levels in certain rural areas resulting in lack of awareness about tuberculosis.

It is also evident that it is essential to involve the local community and their opinion leaders to disseminate health information especially about tuberculosis and HIV/AIDS to reach out completely to the community. The grass root level workers like Anganwadi Workers can act as centre point for disseminating information and education on tuberculosis and HIV/AIDS particularly amongst rural and remote areas in India.

The present study used simple but different innovative approach like ‘Role Play Competition’ which helped in improving the knowledge of Anganwadi Workers pertaining to tuberculosis and it’s management practices. Our study may provide preliminary evidence for learning effects of the role play method in preference to tuberculosis and Anganwadi Workers.

Despite of using traditional didactic lecture method, use of different approach in the form of role play to sensitize grass root level workers like Anganwadi Workers about various aspects of tuberculosis, could be the better platform to strengthen their knowledge about TB. This approach can also be expanded to target other grass root level community workers like ASHAs (Accredited Social Health Activist), Self Help Groups (SHGs), Traditional Birth Attendants (TBAs) etc.to educate them about tuberculosis.

Limitations

There were limitations of present study. We cannot definitively conclude that the post-intervention significant differences, that we found, are attributable to an intervention only. Second limitation was small sample size in present study. Various similar multicentric studies in larger samples are required for generalisation of findings.

Conclusions

Present study showed significant improvement in Anganwadi Worker's knowledge and attitudes towards tuberculosis from pre to post-intervention as a result of role play method. The misconceptions as well as number of unanswered questions pertaining to tuberculosis reduced to a great extent after an intervention.

It indicates that even a simple intervention like 'Role Playing' can make significant change in knowledge of Anganwadi Workers about tuberculosis.

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