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International Journal of Current Research
Vol. 7, Issue, 01, pp.11292-11298, January, 2015

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

A STUDY ON EXCLUDED GROUPS FROM REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAME: PERSPECTIVE OF WEST BENAGL, INDIA

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ARTICLE INFO

Article History:
Received 21st October, 2014
Received in revised form
24th November, 2014
Accepted 08th December, 2014
Published online 23rd January, 2015

Key words:
Tuberculosis,
RNTCP,
DOTS,
Excluded group

ABSTRACT

Objective: The study explores community's knowledge about tuberculosis and causes of exclusion from sputum examinations at designated government facilities under the Revised National Tuberculosis Control Programme in West Bengal, India.

Methods: The prevalence of suspected tuberculosis is 10% among persons attending in a medical Out Patient Department (OPD). Here, survey based work has been carried out on 90 persons with cough for two weeks or more from representative sample of 36 Designated Microscopy Centre (DMC) catchment areas. Demographic and socio-economic characteristics, vulnerabilities of participants in respect to tuberculosis infection, participants' knowledge regarding tuberculosis infection and symptoms, level stigma and facilities available at govt sector meant for tuberculosis have been studied by survey questionnaire.

Results: Results indicated that overall knowledge about tuberculosis is significantly poor among the participants. Among 90 participants, 26.7% knew without being probed by the surveyor that people with cough more than or equal to two weeks are susceptible to have tuberculosis; and whereas, 50.0% participants could mention this with probe. Knowledge score of participants about six key symptoms of tuberculosis (0-6 scale: Yes-1, No-0) were assessed to see that 75.6% participants lying in lower knowledge score level (0-2) compared to 24.4% in the higher knowledge score level. Among several factors knowledge about tuberculosis and stigma are significantly associated with exclusion from access to sputum examination services within duration of two weeks' cough.

Conclusion: The survey based study identified respondent's poor knowledge level and stigma attached to tuberculosis as important factors for exclusion from early sputum examination from DMC or TU. Finally, study results provide opportunity to review the matter in details through qualitative research among certain excluded groups in connection to different approaches for intervention.

INTRODUCTION

In spite of the development of BCG vaccine and other remedies like Directly Observed Treatment Short Course (DOTS) chemotherapy for its treatment, Tuberculosis (TB) is the leading dreadful infectious disease in the world causing major human mortality (Herzog, 1998; TB India, 2012). This is partly due to neglect of it as important public health priority. Tuberculosis disproportionately affects the poorer and marginalized sections of society. It accounts for more deaths among women than all other causes of maternal mortality (NFHS III, 2005-06; Karim *et al*., 2007). Tuberculosis in developed countries has also historically been associated with poverty and low socioeconomic status (SES) (Olson *et al.,* 2005). India introduced the Revised National Tuberculosis Control Program (RNTCP) in mid-1990s for the prevention, containment, and cure of TB infections in the country through DOTS strategy endorsed by World Health Organization (WHO). The RNTCP currently works in conjunction with 'Stop TB Partnership' with a goal of worldwide reduction of TB prevalence by 50% by 2015 and less than 1 TB case per million population by 2050 (TB India, 2012). In 2013, World Bank has estimated total TB burden of India to be 2160 cases per million populations. In West Bengal, detected TB cases put on DOTS regime are 107225, 105938, 102397, 99829, 93274 and 90424 respectively during 2008, 2009, 2010, 2011, 2012 and 2013 (Annual Bulletin of State TB Cell, 2013). In West Bengal during 2013, there are 904 detected cases of TB per million population. At the country level and as well as in the state of West Bengal; progress is much behind the target of 'Stop TB Partnership' (TB India, 2012). RNTCP provides free service with advanced protocols of examination, laboratory tests and highly effective DOTS therapy for the people susceptible or infected with tuberculosis (TB India, 2012). Compared with private provider's treatment cost, RNTCP is economic and effective also. However, people rely poorly on RNTCP.

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The private medical sector remains the primary source of health care for the majority of households in both urban areas (70%) and rural areas (63%). Households in the lowest three wealth quintiles rely on the public and private medical sector in about equal proportions. It is among the fourth and particularly the highest wealth quintiles that poorly rely on the public sector and reliance on the private sector increases (NFHS III, 2005-06). Private practitioners are often preferred due to their easy accessibility and the patient's confidence towards the providers. They use public health system as a last resort, because they find that public health facilities are not approachable, although less expensive than private services. This is again compounded with neglect of social, psycho-social, cultural and political factors causing exclusion from services. Disregard or a lack of understanding for certain factors on the part of the health system can lead to voluntary and involuntarily exclusion of individuals from services, especially from the most vulnerable and marginalized sections of society, in lieu of meeting program goals (TB India, 2012).

RNTCP's overarching objective is to "achieve and maintain a cure rate of at least 85 percent in new cases, and to achieve and maintain detection of at least 70 percent of sputum positive pulmonary TB patients" (Indian Institute of Health Management Research, 2003). Considered to be vertically-oriented, in the case of tuberculosis, the prevalence of the disease and an individual's ability to seek and complete an anti-TB treatment regimen is strongly linked with factors like physical, social, and cultural environment. It is found that various caste and vulnerable groups consistently rank the lowest in having heard of the disease, having knowledge of its transmission, and believing that there is a cure (Indian Institute of Health Management Research, 2003). To comply fully the objective of RNTCP; the programme has to mobilize community to public facilities for sputum test as first and foremost strategy (TB India, 2012). Programme's lack of efficiency in mobilizing this community presenting with cough i.e. in other words, exclusion from access to facilities for sputum examination is linked with poor case detection rate. RNTCP which is implemented through public health system is yet to pay adequate attention to social, psycho-social, cultural and political factors that make tuberculosis endemic among poor and excluded population. Many socially excluded patients are at risk of delayed presentation, poor adherence, and loss to follow up (Hest, 2006). The risk of tuberculosis in groups of people migrating is highly variable and is influenced by several factors (Wendy *et al.,* 2000).

There is very little information on why certain groups of our community is not coming to facility for sputum examination which is a first step of RNTCP services and what are their perceptions behind it. Sputum examination is the first opportunity where the public health system is coming in first contact with people and has the opportunity to develop people's mind set. If it is good, people will come forward, if they do not like, they will move away. A study is therefore required to capture factors those adversely affect seeking of sputum examination services under RNTCP. In this respect, objective of our study is to explore the causes of exclusion from sputum examination services under RNTCP in West Bengal.

The planned study therefore will look at different causes of exclusion from sputum examination especially people's knowledge and perceptions about tuberculosis.

MATERIALS AND METHODS

Operational definition of exclusion

Excluded people has been defined as who are suspected to be sputum positive (cough for two weeks or more), therefore, eligible for accessing and utilizing standard RNTCP sputum examination services but could not have for any reason.

Study setting

Selection of district

In West Bengal there are 19 districts and out of which three districts – Birbhum, Jalpaiguri and North 24 Parganas were selected those geo-ethnographically represent the state. In our state there are three subdivisions – Jalpaiguri, Presidency and Bardhaman. From each sub-division one district has been selected, so capture maximum variations - Birbhum for Schedule tribe (ST) population, Jalpaiguri for ST and North 24 Pgs for Schedule caste (SC) and urban variations together with factors related to riverine variety.

Selection of Tuberculosis Unit (TU)

Each TU covers around 0.5 million population. A total of 12 TUs were selected – seven from North 24 Parganas, three from Jalpaiguri and two from Birbhum based on their population proportion. From each district TUs were listed. TUs have been notified based on certain criteria like urban/rural, SC/ST, minority and hard to reach areas. For North 24 Parganas, randomly one TU was selected from each criterion, for Jalpaiguri randomly three TUs were selected from first three criteria and for Birbhum two TUs were selected based on first two criteria.

Selection of Designated Microscopy Centre (DMC) and DOTS Providers

Each DMC covers 0.1 million population. Under the selected TUs again following above procedure; three DMCs were selected from each TU. Therefore a total of 36 DMCs were selected. From each DMC, list of DOT providers were prepared. Randomly from the list, one DOT providers were selected. Thus 36 DOT Providers were selected.

Sample size

When prevalence of suspected tuberculosis is 10% among persons attending in a medical OPD; this may be assume that prevalence of tuberculosis among people with cough equal or more than two weeks. In the present study, survey was carried out on 90 persons with cough equal or more than two weeks.

Selection of respondents

Community based DOTS providers from the village prepared list of people in the households with cough equal or more than two weeks. Two to three such persons were selected randomly from the list and interviewed from each village.

Variables measured

Variables those have been analyzed under this study are profile of the participants, knowledge score of the participants about symptoms of tuberculosis and facilities, source of information, barriers of access to facilities, stigma about tuberculosis and others. Knowledge score on symptoms of tuberculosis was done based on five itemised questions on symptoms of tuberculosis. Maximum possible score is 5 and minimum is 0. Stigma scoring was done based on 11 questions (Stigma present -1, Stigma absent -0). Therefore, total score could be 0 to 44 because for each item scale was from 0-4 (0 means no stigma and 4 means maximum stigma attached to the issue).

Ethical consideration

Standard ethical permission for human studies was obtained from all concerned authorities before commencement of the study. Department of Health and Family Welfare, Government of West Bengal was given formal permission to conduct such study within the community.

RESULTS

Profile of the participants

There were 90 participants in this study out of which 63 (70.0%) were male and 27 (30.0%) were female. Among the respondents 11 (12.2%), 43 (47.8%) and 36 (40.0%) persons belong to age group of <= 20 years, 20-40 years and 40-60 years respectively. Age and sex wise distribution of respondents are given below Table 1.

The socio-economic characteristics are presented below Table 2. Different castes of participants took part in this study; General 33 (36.7%), Scheduled Caste (SC) 28 (31.1%), Scheduled Tribe (ST) 17 (18.9%) and Other Backward Class (OBC) 12(13.3%). Similarly there was a wide range of religions who participated; Hindu 70 (77.8%), Muslim 16 (17.8%) and Christian 4(4.4%). Literacy wise distribution depicts that illiterate group constitutes 38 (31.1%) compared to the literate group 62 (68.9%). Only 7 participants (7.8%) were employed and majorities 58 (64.4%) are daily wage labour. Vulnerability factors linked with tuberculosis like place of residence, migration status, dwelling in slum and any history of substance use have been provided below Table 3. Among the participants, 37 (41.1%) are residing in urban area compared to 53 (58.9%) in rural area. Around 32 (35.6%) are slum dweller compared to 58 (64.4%). Among all the participants in the study, 19 (21.1%) reported to be migrant in nature and 53 (58.9 %) reported to be substance users.

Knowledge among the participants about tuberculosis symptoms

Knowledge of the participants about tuberculosis was explored through three options; whether they know the matter without being probed, whether know being probed and whether made no response. Among the participants 24 (26.7%) knew without probe that people with cough more than or equal to two weeks are susceptible to have tuberculosis. Similarly without any probe, 27 (30.0%), 24 (26.7%), 20 (22.2%) and 28 (31.1%) participants respectively could mention that night fever, weight loss, anorexia and haemoptysis (blood cough) are symptoms of tuberculosis.

Table 1. Demographic and socio-economic characteristics of the participants

Age group (year)	N (%)	Sex	N (%)	Marital status	N (%)
< = 20	11 (12.2)	Male	63 (70.0)	Married	70 (77.8)
20-40	43 (47.8)	Female	27 (30.0)	Unmarried	20 (22.2)
40-60	36 (40.0)				

Base: 90

Table 2. Socio-economic characteristics of the participants

Caste	N (%)	Religion	N (%)	Literacy	N (%)	Employment	N (%)
General	33 (36.7)	Hindu	70 (77.8)	Illiterate	28 (31.1)	Employed	7 (7.8)
SC	28 (31.1)	Muslim	16 (17.8)	Primary	32 (35.6)	Daily wage labour	58 (64.4)
ST	18.9 (17)	Christian	4 (4.4)	Upper primary	12 (13.3)	Others	25 (27.8)
OBC	13.3 (12)			Secondary	10 (11.1)		
				Higher secondary and above	8 (8.9)		

Base: 90

Table 3. Vulnerabilities of participants in respect to tuberculosis infection

Residence	N (%)	Slum dweller	N (%)	Migrant status	N (%)	Substance user	N (%)
Urban	37 (41.1)	Yes	32 (35.6)	Migrant	19 (21.1)	Yes	53 (58.9)
Rural	53 (58.9)	No	58 (64.4)	Permanent residence	71 (78.9)	No	37 (41.1)

Base 90

Table 4. Participant's knowledge about symptoms of tuberculosis

	A N (%)	B N (%)	C N (%)	D N (%)	E N (%)
Knowledge without probe	24 (26.7)	27 (30.0)	24 (26.7)	20 (22.2)	28 (31.1)
Knowledge with probe	25 (50.0)	45 (50.0)	43 (47.8)	41 (45.6)	38 (42.2)
Not response	21 (23.3)	18 (20.0)	23 (25.6)	29 (32.2)	24 (26.7)

Base 90

(**A** = Knowledge that a person with cough = > two weeks is TB suspect; **B** = Knowledge that night fever is a symptom of tuberculosis; **C** = Knowledge that weight loss is a symptom of tuberculosis; **D** = Knowledge that anorexia is a symptom of tuberculosis; **E** = Knowledge that haemoptysis is a symptom of tuberculosis)

It is clear that knowledge about symptoms of tuberculosis among the respondents vary from 22.2% to 31.1% when they were not probed. Knowledge level is 20.0% to 32.2% when they were probed. Naturally for these symptoms, the knowledge level came up when they were probed, which is evident from Table 4. Knowledge score on symptoms of tuberculosis was done based on six itemised questions. Maximum possible score is 5 and minimum is 0. Mean score was 1.52 and therefore, in 0-2 and 3-5 scale, groups were made to define high and low knowledge score. Within the low scale, 68 (75.6%) participants lie. The result is depicted in Table 5.

Table 5. Knowledge score on symptoms of tuberculosis among the participants

Score	N (%)
0-2	68 (75.6)
3-6	22 (24.4)
Total	90 (100.0)

Base 90

Same time participants reported that 27 (30.0%) and 31 (34.4%) of them have ever visited government hospital for any type of illness. Results are depicted in Table 7 in this regard. Further participants reported about the reasons of no visit to any government hospital. Majority of the participants, 31 (49.2 %) has mentioned that they just did not want to visit, no specific reason. Next to that important reasons are poor welcoming attitude of service providers 19 (30.2%) and lot of waiting time 8 (12.7%). Other reasons are stated in the Table 8.

Knowledge and stigma about tuberculosis and their covariates

Mean score was 27. In 0-27 (low stigma level) and 28-44 (high stigma level), distribution for higher stigma level was more 54 (60.0%). Among the different covariates explored in this study; caste and duration of cough were three covariates those were found to be significantly associated with stigma.

Table 6. Knowledge among the participants about facilities on tuberculosis services

About DMC	N (%)	About TU	N (%)	About DTC	N (%)
Yes	66 (73.3)	Yes	19 (21.1)	Yes	9 (10.0)
No	24 (26.7)	No	71 (78.9)	No	81 (89.0)
Total	90 (100.0)	Total	90 (100.0)	Total	90 (100.0)

Table 7. Knowledge about sources of information about tuberculosis

Source of information	N (%)	Access to any facility	N (%)
Home visit	36 (40.0)	Government Hospital	
Poster	14 (15.6)	Yes	27 (30.0)
Radio	2 (2.2)	No	63 (70.0)
TV	13 (14.4)	Total	90 (100.0)
Health education session	17 (18.9)	Private Physician	
Others	8 (8.9)	Yes	31 (34.4)
Total	90 (100.0)	No	59 (65.6)
		Total	90 (100.0)

Table 8. Reason stated by participants for no access to facility

Reason for no access to government facility	% (N)
Perceive that drugs are costly and need to be purchased	1 (1.6)
Drugs are free but do not have time	3 (4.8)
Investigations suggested by public facility are costly	1 (1.6)
Takes lot of time in government facility	8 (12.7)
Poor welcoming attitude of service providers	19 (30.2)
I just do not feel to go, no reason	31 (49.2)
Total	63 (100.0)

Knowledge about facilities and access for tuberculosis services

Knowledge about different facilities for tuberculosis services varies from facility to facility. At the Designated Microscopy Centre (DMC), the knowledge about the facility is among 66 (73.3%) participants, compared to 19 (21.1%) and 9 (10.0%) respectively for Tuberculosis Unit (TU) and District Tuberculosis centre (DTC). The results are summarized in Table 6. While probed for source of information about tuberculosis and facilities, majority reported it to be through home visit by health personnel 36 (40.0%) and another important being 17 (18.9%).

The results are presented in Table 9. The results also depicted in Table 10 that majority of the participants lie within the lower knowledge scale i.e. 0-2 which is around 68 (75.6%) and for different socio-economic groups as well. People who have cough with less duration (14-28 days) are more distributed 40 (75.5%) within the less knowledge score (0-2).

Table 9. Level of stigma on tuberculosis among the participants

Level of stigma	% (N)
Stigma score	
1-27	36 (40.0)
28-44	56 (60.0)
Total	90 (100.00)

Table 10. Knowledge score on tuberculosis and other related factors

		Knowledge score	
		Low (0-2) N (%)	High (3-5) N (%)
Age group	<= 20 years	8(72.7%)	3(27.3%)
	20-40 years	29(67.4%)	14(32.6%)
	40-60 years	31(86.1%)	5(13.9%)
Literacy level	Illiterate	17(60.7%)	11(39.3%)
	Literate	51(82.3%)	11(17.7%)
Caste level	General	28(84.8%)	5(15.2%)
	Others	40(70.2%)	17(29.8%)
Family members	01-Mar	20(71.4%)	8(28.6%)
	04-May	31(72.1%)	12(27.9%)
	> 5	17(89.5%)	2(10.5%)
Cough duration	14-28 days	40(75.5%)	13(24.5%)
	> 28 days	28(75.7%)	9(24.3%)
Poverty level	APL	39(57.4%)	9(40.9%)
	BPL	29(42.6%)	13(59.1%)
Dweller in slum	Yes	31(45.6%)	6(27.3%)
	No	37(54.4%)	16(72.7%)
Permanent resident	Yes	25(36.8%)	7(31.8%)
	No	43(63.2%)	15(68.2%)
In-migrant	Yes	16(23.5%)	3(13.6%)
	No	52(76.5%)	19(86.4%)
Stigma score	0-27	36(52.9%)	9(41.9%)
	> 27	32(47.1%)	13(59.1%)

Table 11. Covariates of stigma about tuberculosis

Covariate	P value at 95% CI
Visited physician (Y/N)	0.329
Duration of cough (14-28 days/>28 days)	0.010
No of family members (1-4/>4 members)	0.102
Caste (General/others)	0.014
Literacy (Illiterate/literate)	0.127
Age group (<20/20-40/40-60 years)	0.105

Table 12. Covariates of delay in seeking sputum examination for people with cough

Covariate	P value at 95% CI
Visited physician (Y/N)	0.654
Stigma (0-27/>27)	0.010
No of family members (1-4/>4 members)	0.018
Caste (General/others)	0.828
Literacy (Illiterate/literate)	0.644
Age group (<20/20-40/40-60 years)	0.472

Similarly, Above Poverty Line (APL) group 39 (57.4%), non-slum dwellers 37 (54.4%), non-migrants 52 (76.5%) and less stigma groups (0-27) 36 (52.9%) are more scattered within the less knowledge score group (0-2). While analyzing further between stigma score and knowledge score, it seems that among higher stigma level group (> 27), lower knowledge score (0-2) is proportionately more i.e. 71.1%. Covariates of stigma about tuberculosis and covariates of delay in seeking sputum examination for people with cough are presented below Table 11 and Table 12 respectively.

DISCUSSION

Findings of our study indicate that knowledge level about symptoms of tuberculosis among participants is significantly poor. Among the participants, only 24 (26.7%) knew that people with cough for two weeks or more are susceptible to tuberculosis.

If people do not know about this symptom, they will not approach government facility for sputum examination and will be excluded from RNTCP services. This is reconfirmed by the fact that suspect referral of tuberculosis in West Bengal is around 147 per 0.1 million population, when the expected rate is to be 186 per 0.1 million (Annual Bulletin, State TB cell, 2013). If we look at the knowledge score of five key symptoms (0-5 scale: Yes-1, No-0), there are 68 (75.6%) participants to be in lower knowledge score level (0-2), compared to 32 (24.4%) in the higher knowledge score level. This depicts poor overall knowledge level about symptoms of tuberculosis and as a result, exclusion from RNTCP's foremost strategy i.e. sputum examination from Designated Microscopy Centre (DMC), Tuberculosis Unit (TU) or District Tuberculosis Centre (DTC) under RNTCP. In both cough duration groups proportion of low knowledge score (0-2) is higher; 75.5% and 75.7% respectively for duration of 14-28 days and more than 28 days.

In other words, when people are suffering from cough for more days, it does not translate into more knowledge on tuberculosis or in other words, access to information within the community is also poor. Attitudes towards tuberculosis may have severe impact on individuals and their families as well as on the effectiveness of tuberculosis control programs. In a study report in Croatia, it has been observed that being near to a tuberculosis patient was uncomfortable for 39.9% of respondents and 26.4% of subjects would prefer to avoid any contact (Anamarija, 2011).

Distribution of some socio-economic variables like age, caste, literacy, number of family members, poverty, migration, residence in slum have been explored. It is found that across all subgroups under factors like age, caste, literacy and number of family members; migrants, slum dwellers and below poverty level people; proportion of the participants are much higher in lower knowledge score group compared to the higher knowledge score group. However, it is younger people than aged, BPL than APL, illiterate than literate, backward class people (ST, SC, OBC) than general groups who have less knowledge about symptoms of tuberculosis. Similar to our study, in Saudi Republic a recent review of literature was conducted in 2013 to find association between socio-economic status of an individual and tuberculosis. For individual level studies, a direct statistical association was observed between tuberculosis and alcohol addiction, HIV co-infection, low schooling, marital status, low income, lack of food, immigration, and previous contact with tuberculosis patients.

For collective analyses, an indirect association was observed for variables relating to gross domestic product per capita, human development index, and basic sanitation at the country level. Indicators relating to crowding, poverty, schooling, decline in family income, and households receiving governmental cash support were directly associated with tuberculosis at different levels of spatial aggregation (San Pedro *et al.,* 2013). Overall knowledge about government facilities meant for tuberculosis under RNTCP is also very less. A total of 66 (73.3%), 19 (21.1%) and 9 (10.0%) participants are respectively aware about DMC, TU and DTC. As soon as the level of facility is increasing, knowledge is also coming down. This is actually limiting the scope of the community to access more advanced facilities at higher level. People are being excluded due to poor knowledge about facilities meant for RNTCP. Review of annual action plan for last few years for the state of West Bengal revealed out that there is no specific communication strategy as such existing for the state aiming towards community mobilization.

Communication strategies adopted under RNTCP within the community about tuberculosis is poor and limited to some posters, leaflets etc (Annual Programme Implementation Plan 2012, 2013, 2014, West Bengal). It has been observed that higher level of stigma (score: 27- 44) is prevalent among 54 (60.0%) participants of the study. While analyzing the covariates of stigma, we find that stigma is significantly associated with duration of cough (<0.010) and caste ($p< 0.014$). While analyzing the covariates of delay in seeking sputum examination, we found it is significantly associated with stigma ($p<0.010$) and number of family members ($p< 0.018$).

The later may be due to fact that due more family members, each member is getting less priority in getting healthcare attention. In both the stigma score groups (0-27 and >27) and cough duration groups (14-28 days and > 28 days); the lower knowledge score ranges from 71% to 76% of the total participants. Lower stigma level is not associated with higher knowledge and nor higher cough duration group has less knowledge. Poor knowledge is a common problem for all those who have stigma more and those who have stigma less. This re-establishes existing belief that after long RNTCP intervention, the community suffers from poor knowledge about tuberculosis.

This also reflects on poor efficacy of existing communication strategies adopted under RNTCP to improve know how about tuberculosis. Tuberculosis related stigma is a vague concept that cannot be easily assessed. Consequences of stigma on TB patient are under researched (Van Rie and Sengupta*,* 2006). In a study conducted in Croatia in 2011, results revealed high stigma-generating attitudes towards tuberculosis. Around 9.6% of respondents would prefer to keep TB patients away from the society. Almost two third subjects with high literacy would like to hide the disease (p=0.049), or be ashamed if sick in comparison with less educated respondents (p=0.036). The subjects who were not in contact were less likely to feel uncomfortable about being near to a tuberculosis patient (p=0.042). The strong potential of mass media capable of reaching different population groups have been recommended as part of the stigma-reduction strategies (Anamarija, 2011).

Our study could bring some new insights. The study has re-established a fact that due to higher level of stigma and more umber of family members, people are delayed in accessing sputum examination from DMC, TU or DTC. There are several factors like age, literacy, residence in urban area, religion, backward caste, poverty have been proved not significantly associated with care seeking behaviour. Lower stigma level is not associated with higher knowledge and nor higher cough duration group has higher knowledge. Poor knowledge is a common problem for all. Stigma has a pivotal role in delay of healthcare seeking behaviour. Poor knowledge is a common problem for all and not related to stigma, caste or poverty at statistically significant level. All the factors have contributed towards poor community mobilization and poor access to facility for access to early sputum examination services.

Recommendation

There is a need of comprehensive communication strategy for the RNTCP. As on date, there is no concrete and comprehensive communication strategy that exists for the programme except some IEC strategy in West Bengal. There is a need for comprehensive communication strategy aiming towards certain health goals. The state requires a more comprehensive communication strategy as a whole, not only for any certain excluded group. Because the stigma has influence on seeking care; our study suggests that stigma reduction strategies as a whole for all target groups may be designed to address the problem.

This can gear up community mobilization towards government facilities for early sputum examination services; those actually are first and foremost step of RNTCP towards achieving programme goals. Additional assessment studies in diverse contexts are needed so that stigma will be considered as a priority in the organization of care for people affected by tuberculosis (Van Rie and Sengupta, 2006). In addition, the present study provides opportunity to review the matter in details through qualitative research among certain excluded groups like scheduled caste and scheduled tribe in developing target group specific in connection to different approaches for intervention. Increasing poverty and social exclusion, which further entrench inequalities in health, are reported by sources such as government, health and social services departments as requiring innovative local responses to meet pressing welfare needs (Gray, 2002).

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