

Connecting the DOTS: Feasibility Study of DOTS Health Workers in Tobacco Cessation in New Delhi, India

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Abstract

Objective. There is enough evidence concerning risks for tuberculosis (TB) morbidity and mortality associated with smoking. Directly Observed Treatment, Short-course (DOTS) programme could prove synergistic in fighting two major social health problems, TB and tobacco. The present study was done to assess the knowledge, attitude and current practices of DOTS health workers in providing tobacco cessation advice to TB patients.

Methods. A cross-sectional, close-ended, questionnaire-based study was carried out amongst 209 DOTS providers and allied health workers across various Chest Clinics and DOTS Centres in Delhi to assess the knowledge, attitude and current practices of DOTS providers in tobacco cessation.

Results. Sixty percent DOTS providers were aware of the diseases associated with tobacco use and overall health impact of quitting tobacco. 71% DOTS providers admitted that they were unable to help TB patients for tobacco cessation. DOTS providers believed that asking about tobacco use habit is part of their job and content related to tobacco cessation must be added in their training.

Conclusion. Health workers are an ideal source of contact with the patients at the grass-root level. Development of tobacco cessation skills seems feasible and would allow DOTS creating awareness and rendering referral services for tobacco cessation. This would augment the skilled work-force to deal with the social menace of TB and tobacco together.

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Key words: Smoking, Smokeless tobacco, Tuberculosis.

Introduction

India has an estimated 2.2 million of the 8.6 million new cases of tuberculosis (TB) that occur each year globally and harbours more than twice as many cases as any other country.¹ There were more than 54000 patients registered under Revised National Tuberculosis Control Programme (RNTCP) in Delhi in 2014. TB accounts for one-third of infectious disease-related deaths or 4% of the overall mortality.² Some TB patients spend 20% to 40% of their annual family income being treated for TB in the private sector before reaching the government services.³

At the same time, India is also the second largest consumer of tobacco products and the third largest producer of tobacco in the world. Nearly 8–9 lakh people die every year in India due to diseases related to the use of tobacco.⁴ According to The Global Adult Tobacco Survey India (GATS India) 2016–2017⁵, the prevalence of overall tobacco use among males is 42.4% and 14.2% in females; more than one-fourth (28.6%) of adults in India use tobacco in some or the other form.

It has been demonstrated that tobacco smoking is one of the most important risk factors that favours the progression from latent TB infection to pulmonary disease, increases the probabilities of relapse after TB treatment, and increases TB case fatality.⁶ Almost 38% of deaths from TB among middle aged men are attributed to smoking⁷ which costs India's economy three times its TB budget.⁸ Gajalakshmi *et al*⁹ found that smokers were over four times more likely to die of TB and that one-third of the excess mortality among smokers was related to respiratory diseases.

Aggressive tobacco control (achieving a 1% decrease in smoking prevalence per year) would avert 2.7 crore smoking attributable deaths from TB by 2050.¹⁰ Patients with TB are often advised by their doctors, at the time of diagnosis, to quit smoking. Many patients pay heed to the doctor's advice and quit smoking; but re-start smoking after the treatment is completed. Others shift from smoking to smokeless (SLT) forms of tobacco during the treatment, taking it as a harm reduction strategy; this too does not have much evidence. It has also been reported

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that those who smoked and chewed tobacco before the diagnosis of TB, quit smoking but continue to chew tobacco after the treatment.¹¹ There is a need for integration of consistent advice to quit tobacco and not just smoking in TB management programmes. The advice given by the physicians on cessation needs to be tailor made for TB patients. It should describe specifically the adverse effects of tobacco chewing and smoking on TB, both during and following successful completion of the therapy, and also, to make them aware about the withdrawal symptoms and their management. Advice on cessation must be re-inforced during all stages of treatment and patients should be given a strong warning about the relapse.

The Revised National Tuberculosis Control Programme (RNTCP) in India is one of the largest programmes in the world with a success rate of more than 80%. DOTS providers are primarily responsible for the success of the programme at the field level by giving a very important person status to the patient in the programme. Success of the RNTCP depends on the efficient interaction between the patients and the DOTS providers. Treatment is made convenient to the patient with regard to timing of attendance, distance to be travelled, and choice of DOTS provider. The flexibility to choose the DOTS provider makes the patient feel more comfortable as far as the stigma associated with the disease is concerned.¹² It might prove useful to involve DOTS providers in conveying the message of tobacco use cessation as a routine part of their activities for patients with TB.

Globally, TB and smoking are now becoming 'comorbid' issues, and in general, TB patients lack access to smoking cessation services. Most smoking-related immunologic abnormalities are reversible within six weeks of smoking cessation. Thus, cessation may yield substantial positive effects on TB treatment outcomes, relapse and future lung disease. The DOTS strategy offers access to smokers and guarantees regular patient-provider interaction.¹³ At every encounter with their patients, health-care providers in TB care settings have a unique opportunity to deliver tobacco cessation advice.

It is expected that patients may be more amenable to health education and promotive messages when they are ill and such periods may act as an important interphase for bringing about behavioural changes.¹⁴ A study done in Sudan to assess the feasibility of brief advice in TB patients showed that repeated brief advice does not diminish the quality of TB care management, rather it is associated with lower default rates.¹⁵ There is potential to utilise the opportunity for tobacco cessation interventions among TB patients. However, there is a paucity of studies evaluating the same in DOTS health workers. Therefore, the aim of the present study was to assess the knowledge, attitude and current practices of DOTS health workers in providing tobacco cessation advice to the TB patients.

Material and Methods

A cross-sectional, close-ended, questionnaire-based study was carried out across various Chest Clinics and DOTS Centres in Delhi between August 2015 to February 2016. The participants were chosen from a total population of 430 DOTS providers and allied health workers. Ethical clearance was obtained from the Institutional Ethics Review Board and the State RNTCP Cell. All the health workers who gave consent and were present on the day of interview were included in the study.

The survey was done among 209 participants who were selected by multi-stage random sampling. The sample size was calculated based on the results of a pilot study on 25 participants by the formula ($n = Z^2_{1-\alpha/2} [\text{variance}]^2 / [\text{absolute precision}]^2$), considering alpha at 0.05, 95% confidence interval and absolute precision at 30%. A list of all chest clinics across Delhi was obtained from the concerned website, in which Delhi was divided into five zones, (east, west, north, south and central). Out of a total of 183 DOTS centres in these zones (26 in East, 15 in South, 11 in Central, 9 in North and 8 in West) were included in the present study. More number of centres were selected from zones with lesser number of health workers based on proportional probability to size sampling.

A specially designed close-ended structured questionnaire, administered by a single investigator by interview method, was used to assess knowledge, attitude and current practices. The face and content validity as well as the reliability (Cronbach alpha) of the questionnaire was tested. The questions were modified in order to improve the Cronbach alpha value of knowledge section and finally the value was found to be above 0.7. The questionnaire was divided into three sections. There were 15 knowledge-related questions, those explored the awareness of DOTS providers on harmful effects of tobacco use during TB and the advantages of quitting. Similarly, seven questions on attitude assessed the role of DOTS providers in assisting patients with smoking cessation by using a five-point Likert Scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree), assessing the DOTS workers willingness and level of motivation about advising patients to quit tobacco. Their current practices of actively inquiring and offering advice to patients on smoking cessation were assessed with seven questions. The items in the practice section were scored on a three-point Likert Scale (1=never, 2=sometimes, 3=always). The survey form also included demographic information, the usual time spent with each patient on routine visits, personal tobacco usage and history of any training regarding tobacco use cessation.

Statistical Analysis

Data analysis was done using Statistical Package for the Social Sciences, (SPSS 17.0 Chicago: SPSS Inc). All variables were summarised and reported across the study using Chi square test, t-test, one-way analysis of variance (ANOVA)

and Pearson’s correlation coefficient. A P-value of <0.05 was considered significant.

Results

The mean age of the respondents (63% males and 37% females) was 36.4±7.0 and 37.1±7.6 years, respectively. There were 65% graduates and 22% post-graduates by qualification. Mean work experience was higher for females (12.9±7.2 years) as compared to that of males (10.9±5.7 years). Eighty-three of all health workers admitted that they have not received any training related to tobacco use cessation. Both the groups were able to spend around nine minutes on an average per patient in their routine meeting.

Though 82.8% were aware of all the common forms of tobacco usage, only 2.4% were aware of applied forms of tobacco, like dentifrices (*Gul Manjan*). Nearly 60% were aware of the diseases associated with tobacco usage, and awareness about cancer was the highest amongst all tobacco-related diseases. When asked about the oral manifestations of tobacco usage, 44% were aware of all the common conditions; awareness about oral cancer being higher than other diseases. More than 60% were aware of the advantages of quitting tobacco; 57.4% were aware about the different strategies that can help a patient in quitting and 63.6% answered correctly when asked about the withdrawal symptoms; 56% were aware that tobacco addicts need to be referred to tobacco cessation clinics; though barely anyone was aware of the location of such a clinic or centre. Figure 1 depicts the knowledge regarding other aspects on tobacco usage in TB patients.

Four out of five participants agree that they will be able to help better if provided sufficient knowledge (Figure 2) and training while 70% favoured an incentive and support from higher authorities for the same. Figure 3 depicts the current practices of DOTS providers; 55% often provide tobacco cessation advice to TB patients but 63% have never referred TB patients to specialists for help and more than half have never gave any health education material to TB patients. The correlation between the mean knowledge, attitude and practice score was statistically significant, as shown in the table.

Table. Correlation between knowledge, attitude and practice

Variables	Pearson’s Correlation Coefficient	P- value*
Knowledge versus practice	0.153	0.027*
Attitude versus practice	0.211	0.002*
Attitude versus knowledge	0.167	0.016*

* = P-value<0.05 is significant

Discussion

Smoking not only increases the incidence of clinical TB, but also a cause for half of the male deaths due to TB in India, and of a quarter of all male deaths in the middle age. At current death rates, about a quarter of cigarette or *bidi*

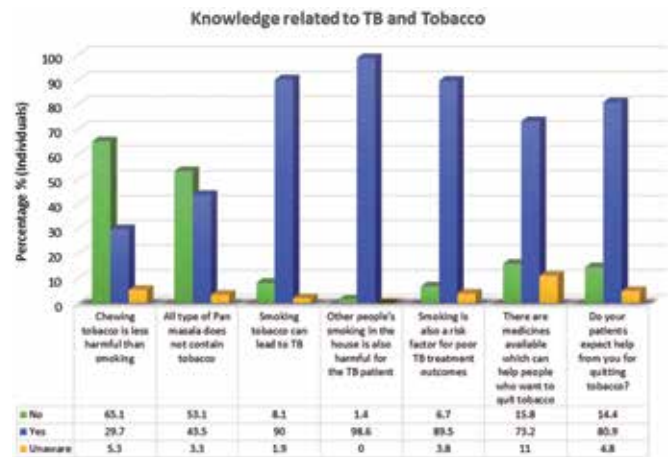


Figure 1. DOTS providers knowledge about relation between TB and tobacco chewing or smoking.

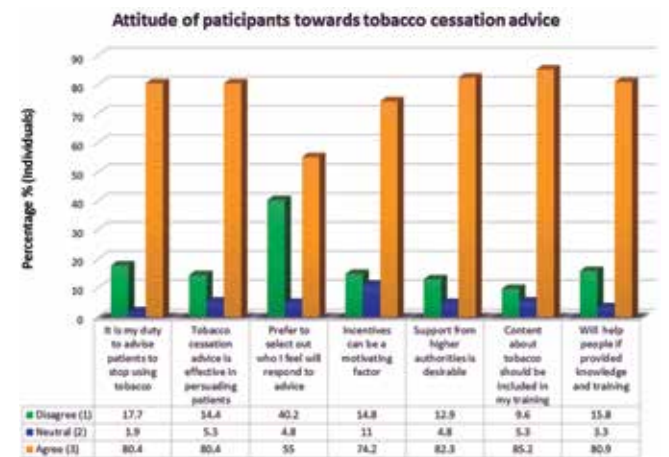


Figure 2. Attitude of DOTS providers towards providing tobacco cessation advice to TB patients.

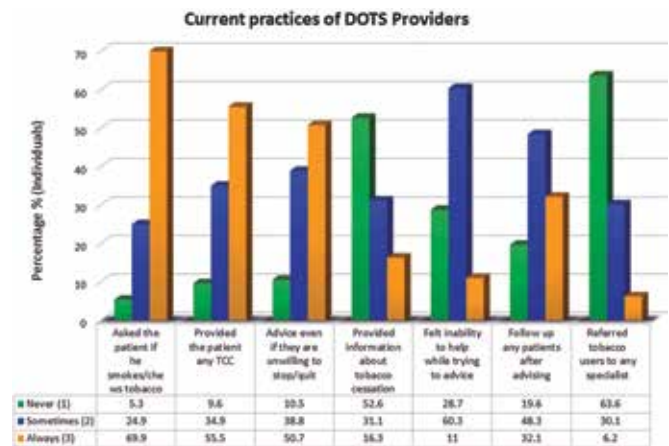


Figure 3. DOTS providers practice of taking tobacco use history and providing cessation-related advice.

smokers would be killed by tobacco between the age of 25–69 years.⁹ Since there is a relation between the tobacco and the TB epidemic, opportunities must be created in the health-care system to provide every TB patient who is a

tobacco user support to quit tobacco use. In addition, every TB patient who is not a tobacco user must also be made aware of the consequences of being exposed to passive smoking. Use of smokeless tobacco (SLT) in TB patients should not be overlooked and be given equal importance. Our results show that health workers often under-estimate harmful effects of smokeless tobacco, as 29% health-care workers believed that chewing tobacco is less harmful than smoking and 43% believed that most of the *pan masala* does not contain tobacco. Smokeless tobacco products are linked to pre-malignant lesions and oral cancer in India and studies have also shown that the use of SLT increases the risk of death from respiratory diseases and TB in male patients.

Though it has been realised that there is a need to integrate smoking cessation strategies in TB control programmes, no such programmes were available for SLT users.¹¹ Almost one-third health-care providers did not regularly ask their TB patients about tobacco use, although GATS 2010⁴ stated that 53% health-care providers enquired about smoking as compared to a lesser 34% health-care providers enquired about SLT from the patients. However, GATS 2016-17 revealed that 49% smokers and 32% smokeless tobacco users were advised about quitting.

Though these health-care workers admit that they try to advise TB patients about harmful effects of tobacco use but never provided any information, education and communication (IEC) material. Chang *et al*¹⁵ in 2012 postulated that the pharmacists mostly receive IEC material only related to TB and rarely received any material on tobacco use and its prevention.

Deepak *et al*¹¹ observed that the prevalence rate of SLT reduces during the intensive phase of TB treatment but increases again after the treatment completion. There was not just a relapse to the earlier chewing addiction after the treatment, but also an increase in exclusive SLT use.¹¹ In that study, patient interviews revealed that they were not told by their doctors to 'quit chewing tobacco' and they were not aware that chewing tobacco was associated with TB or lung diseases. In a study by Thresia and Thankappan¹⁶, former patients stated that specific advice on the link between smoking and TB would have motivated them to quit and refrain from resuming smoking. Failure to provide such messages is an opportunity missed to promote tobacco cessation among a highly receptive patient group.

Kaur *et al*¹⁷ found that only 74% of DOTS providers asked their patients about tobacco usage. More than 80% DOTS providers in this study agreed that it is a part of their duty to advise patients to stop using tobacco, though only 71.5% of the pharmacists agreed to this, as observed by Chang *et al*.¹⁵ Every three out of five DOTS providers preferred to advise only those patients who were willing to quit. This approach of selective counseling the patients can be attributed to lack of time or fear of contracting the disease.¹⁷ According to World Health Organization

(WHO), male smokers are less adherent to TB treatment, and thus, at a higher risk for the treatment default and persistent infectivity. They also place their families at risk of infection as a result of passive smoking in the household.¹³ Therefore health-care workers' efforts to advise TB patients to quit tobacco during and following treatment needs to be encouraged as a routine part of TB counselling and support.

In a resource-limited setting, like India, health-care workers face a high volume of work and fewer resources, they may not be inclined to incorporate tobacco cessation advice into their care of TB patients, and may not see it as their responsibility.

The DOTS providers and health-care workers cannot be burdened with a responsibility of a task that he/she is not trained to handle. They need to be regularly trained to offer tobacco cessation advice to patients and offer support. This training should be tailored not only for TB patients but also for these health-care workers, such that it really empowers them to perform this task without compromising their routine duties.

The health-care workers should be sensitised that they should contribute in tobacco cessation activities, and it must be ensured that they are fully informed about the protocol and feel confident on their skills developed during structured training programmes for this purpose. The DOTS centres must also be provided with IEC material in this respect. There could also be an integration and collaboration of chest clinics and DOTS centres with tobacco cessation services as well as screening for potentially malignant oral lesions in tobacco users. This will not only allow easy referral but also motivation for the patients in quit tobacco use. The task of capacity building and health-care worker training can also be taken care with this approach.

Conclusions

The present study observed that DOTS providers have a fair knowledge about the relation between TB and tobacco use. They also seem to be positively motivated towards providing tobacco cessation advice; but there are roadblocks to the practice. Extending an effort to stop tobacco use wherever possible is the need of the hour in our country. Involving these grass-root level health-care workers in this endeavour seems promising. In order to enable them to provide cessation advice, it is imperative that they are being trained in a specific and tailor-made fashion that perfectly suits their schedules and routine duties, for the desired results without over-burdening them. Preparation for adding brief tobacco use cessation advice to standard TB case management, trained staff, supporting infrastructure and broader policy support is necessary for RNTCP programmes and to eradicate TB by the year 2025 as per the goals of the Government of India.

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