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Review Article

Integrating tobacco and tuberculosis control programs in India: A win-win situation

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ABSTRACT

An unequivocal relationship exists between tuberculosis (TB) and tobacco use. India has made the sustained efforts to reduce the dual burden of morbidity and mortality due to these two epidemics individually. It is now being felt to integrate two national programs which are tackling these diseases for their increased efficiency. Several opportunities exist for integration which includes joint policy development and planning, integrated trainings, joint supervision and monitoring, delivering tobacco cessation services among TB patients along with partnerships, and multisectoral approaches at national and subnational levels. The opportunities are limited by challenges such as lack of leadership and political commitment, limited resources, poor intersectoral coordination, dearth of community awareness, and limited capacity of TB program staff in tobacco cessation services. It is concluded that convergence of two national programs may lead to synergistic effect in decreasing the burden of both the public health problems. This kind of successful initiative of integrating tobacco control activities with TB, the control program may subsequently pave the way toward integration of tobacco control in other national programs and primary health-care services.

Keywords: Cigarettes and Other Tobacco Products Act, India, national program, tobacco, tobacco control, tuberculosis control program

Introduction

In the modern world, tobacco is perhaps the only legal product that kills almost half of its users when used in different forms.^[1] In India, although there is a pre-existing well-structured national health program in the name of National Tobacco Control Programme (NTCP) that is actively working towards the timely containment of this public health problem, but exploring the ways of addressing this problem with the help of other national programs can be even more fruitful. In this context, Revised National Tuberculosis Control Program (RNTCP) merits a significant consideration because of strong evidence of association between tuberculosis and tobacco consumption. Through this paper we intend to review

the scope and feasibility of integrating the two national programs.

Burden of Tobacco Use and Government Initiatives

As per the WHO estimation, mortality due to tobacco-related diseases is more than the combined mortality due to top three communicable diseases (tuberculosis [TB], HIV/AIDS, and malaria) which is expected to increase to 8 million by 2030.^[2] Over the period of time, the gap between

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high- (25%), low-, and middle-income countries (21%) has been gradually decreasing with respect to smoking prevalence and consequent mortality.^[3] Even in India, approximately 196 million (28.6%) adults consume tobacco in one or the other form, though the number of tobacco users has reduced from Global Adult Tobacco Survey-Round 1 (GATS 1 [2009–2010] to GATS 2 [2016–2017]).^[4]

As a part of the global efforts made toward the control of noncommunicable diseases (NCDs), tobacco control was accorded much-needed priority.^[5] The Tobacco-Free Initiative (TFI) (1998) and WHO Framework Convention on Tobacco Control (WHO FCTC) (2003) were some of the steps taken in this direction. To assist countries for fulfilling their FCTC obligations, the WHO (2008) introduced MPOWER package, which are six component evidence-based tobacco control demand reduction measures that have been proven to reduce the tobacco use.^[6] India has dominated the tobacco control efforts made globally over the last five decades. Government formulated the Cigarettes Act (Regulation of Production, Supply, and Distribution) way back in 1975.^[7,8] India was also among the first 168 nations to express its willingness to ratify the WHO FCTC and has reiterated its true commitment to implementation of the WHO FCTC.^[9] Major policy regulations and initiatives include Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 commonly known as COTPA 2003; the National Tobacco Control Programme (NTCP) launched in 2007, under the 11th 5-year plan; the Cable and Television Act, 2008; and the Finance Act (Union Budget), among others.^[10,11] NTCP was implemented at national, state, and district levels and focused on different aspects of tobacco control including generating awareness regarding the ill effects of tobacco use through IEC and mass media campaigns, youth awareness, various laws concerning the control of tobacco and their effective enforcement, and support tobacco cessation. NTCP is presently (2017) under implementation in 31 states covering >400 districts.^[12] The taxation on tobacco products has also increased in majority of the states. Conventionally, bidis (hand-rolled cigarettes) capture a major share (currently 46%–47%) of the tobacco products market in India and evaded huge taxes.^[13] However, with the introduction of a single common Goods and Services Tax, bidis have also come under the ambit of 28% taxation. Recently, India was ranked among the top three countries in the world, ineffective implementation of the largest

pictorial warnings on the tobacco products. There have been many excellent examples of collaborations of state administration authorities, civil society, and academic institutions for control of tobacco in India. Furthermore, mCessation Programme has been launched that provides evidence-based behavioral change (short) text messages on mobile phones, which include health information on tobacco use hazards, tips on quitting, and encouragement for those attempting to do so. As a part of Digital India Initiative, a pilot testing of counseling services through toll-free number – “National Tobacco Quitline” has been initiated under the NTCP by MoHFW. It aims to provide telephonic counseling to those desirous to quit tobacco.

Tuberculosis Burden and Government Initiatives

TB has been an important public health problem for centuries and among the leading ten causes of mortality globally.^[14] The burden of TB has reduced from 289 incident cases per lakh per year in 2000–217 in 2015 and the death due to TB has reduced from 56 per lakh per year in 2000–36 in 2015. Treatment success for new and relapsed TB cases registered in 2014 was close to 74%.^[15] India also has the highest burden of TB and multidrug-resistant TB (MDR-TB) and is responsible for 27% of this global burden with emergence of around 1.3 lakh cases of MDR-TB in India annually.^[13] Besides, India is also among the top two countries in the world, in number of HIV-associated TB cases.^[16] The Revised National TB Control Program (RNTCP) was launched in 1993 in a phased manner and has over the last 25 years progressed steadily toward its goals. In terms of treatment of patients, RNTCP has been acknowledged as the largest and fastest expanding TB control program in the world. The program provides free testing facilities for patients and suspects, including DR-TB, pediatric TB and HIV-TB, and extrapulmonary TB. All TB patients, including those with comorbidities such as TB-HIV or TB-diabetes, registered under the program are provided free quality assured treatment services through a network of providers. Besides revising the diagnostic services and guidelines, the treatment strategy has also been changed based upon the current evidence. Some of the recent initiatives includes, introduction of Bedaquiline (a new drug for MDR-TB management), expansion of single window delivery of HIV-TB services at all antiretroviral treatment centers; mobile application-based support system for treatment adherence (99 DOTS) for HIV-TB patients, and implementation of E-NIKSHAY for improved notifications of TB cases from private

health-care providers. The program was analyzed on the PRAGATI platform by the Prime Minister's Office, depicting government's commitment toward TB control efforts. Furthermore, the program has developed its National Strategic Plan (2017–25) for TB elimination in India by 2025, ahead of the Sustainable Development Goals (SDGs). In addition, a targeted approach for 100 high priority districts as per caseload of TB, comorbidity, drug resistance, and case identification efforts have been planned to intensify the TB control efforts.

Association between Tuberculosis and Tobacco Use

Besides being a risk factor for many NCDs, tobacco has been documented to be a major and independent risk for development of TB. The WHO South-East Asia Report on Global TB Control (2016) states that comorbidities of TB such as diabetes, tobacco smoking, silicosis, alcohol and drug misuse, and undernutrition are often ignored and not addressed adequately. The presence of these comorbidities may complicate TB management and result in poor treatment outcomes,^[17] especially in low- and middle-income countries. Conversely, TB may worsen or complicate management of other diseases. There is an urgent need to address these comorbidities if SDG 3.3 (ending the epidemic of TB and other communicable diseases by 2030) is to be attained.^[18] An association between TB and tobacco smoking has been deliberated for nearly 100 years, however, it is only recently that the association has been gaining widespread attention.^[19] Tobacco contributes to around 40% of mortality from TB among male population of India which is a cause for great concern.^[20] Different systematic reviews and meta-analyses have synthesized significant evidence on association between tobacco and TB. The analyses suggested that smoking interferes with TB at every stage of the disease. The smokers have two times higher chances of getting infected with TB, progressing into active disease, having recurrent TB and die from TB as compared to a nonsmokers. Further, it increases the risk of latent TB infection, culture conversion, sputum smear positivity, cavitary disease, treatment delay, treatment default, poor treatment outcomes, and transmission of the disease. Some of these effects are mediated by a higher bacillary load among smokers.^[21] However, there is still a scarcity of literature pertaining to association between smokeless tobacco and TB.^[22] The another study concluded that there is a high prevalence of tobacco smoking among people with TB and poor treatment outcomes are more common among such patients, however, there is a lack of high-quality evidence that supports the effectiveness

of smoking cessation interventions in improving TB treatment outcomes.^[19] Second-hand smoke exposure is associated with an increase in the relative risk of latent TB and active TB and the TB burden is highest in countries with increasing SHS exposure.^[23]

Global Efforts in Addressing Dual Burden: Need for Integration between Programs

The World Health Organization recommends the assessment of tobacco use and tobacco cessation services routinely for all diagnosed TB patients for improving their clinical outcomes.^[24] Similarly, efforts in tobacco control in general are expected to reduce the number of incident TB cases and deaths due to TB. Hence, the two aspects are expected to supplement each other apart from being cost-effective.^[25] Recognizing the benefits of this, the WHO has been exploring collaborative activities between TB control and tobacco control efforts since 2005.^[21] In 2006, the WHO TFI and the WHO Stop-TB programme, in collaboration with the union developed a policy paper and successfully integrated the tobacco control into a TB control program through the practical approach to lung health, a component of the stop-TB strategy. The policy paper^[26] calls upon primary care workers under TB control program to identify smokers, provide behavioral therapy (counseling) and pharmacological interventions for smoking cessation including nicotine replacement therapy and nonnicotine medications, refer smokers to specialist services for intensive cessation therapy when required and where possible, and deliver primary care services in smoke-free environments.

In spite of encyclopedic legislations in NTCP, their effective implementation is a matter of concern due to which tobacco control is still a future dream for many states of India. Although the tobacco control movement has been using a multisectoral approach involving multiple departments, it has been largely unable to integrate with other National Health Programs for its increased efficiency. As tobacco is a known hazard for many other medical conditions,^[27] collaboration of tobacco control with different National Health Programs will guarantee efficient utilization of existing funds and human resources in both the programs. Collaboration can also provide more frequent point of interventions at the different levels of existing health system.^[22] Community-based tobacco control strategies that are even more resource intensive could have a greater reach into the community if they are merged with the country's primary health-care services. In this context, the National TB Program can be seen as

a silver lining in the dark sky where its well-established organizational setup can also assist Tobacco Control Program. The National Framework for TB-Tobacco Collaborative Activities between the two national programs, namely RNTCP and NTCP, aims to reduce the burden of comorbidity due to TB and tobacco use. The objectives of the collaboration includes establishment of the mechanism of collaboration between RNTCP and NTCP for addressing TB and tobacco use comorbidity; to identify the tobacco users among registered TB patients and provide “Brief Advice” for tobacco cessation to motivate them to quit tobacco use; to screen for active TB symptoms in tobacco users registered at Tobacco Cessation Centres (TCCs), NCD clinics, and National Tobacco Quit-line/mCessation initiatives; to strengthen the long-term outcomes among cured TB patients (who use tobacco in any form) through initiatives planned under NTCP (Quitline, mCessation initiatives, etc); and to enhance the effectiveness of tobacco cessation services by expanding the outreach to susceptible population.

The implementation strategy for effective coordination between the two programs includes:

1. Establish joint coordination mechanism at national, state, district, and subdistrict levels
2. Implement brief advice for tobacco cessation in RNTCP
3. Screen active “TB Symptoms” among registered tobacco users in NTCP and train program/field staff in TB/tobacco activities
4. Develop collaborative awareness campaigns and IEC activities along with conduction of joint supervision and M and E.

Opportunities and Challenges for Revised National Tuberculosis Control Program-National Tobacco Control Programme Integration

There are several opportunities for integration of RNTCP and NTCP which are as follows:

- Creating a supportive environment: A supportive and enabling environment should be created, wherein health professionals shall feel it is their responsibility for joint TB and tobacco control. For it, they should be trained and facilitated for adoption of new procedures. Besides, smoke-free TB care facilities should be established which protect patients and communities from tobacco smoke
- Policy development and planning: There should be a joint endeavor for:
 - Developing technical and operational policies for TB-tobacco integration

- Laying down guidelines for joint planning and monitoring
- Building the institutional capacity necessary to ensure sustainability of the joint activities of the RNTCP and the NTCP
- Integrate capacity building programs: Training on joint activities of the RNTCP and the NTCP should be established, integrating reciprocal elements in training curriculum and training materials, thereby facilitating capacity building of health-care professionals in both programs at all health-care levels. The clear and ample evidence on association with TB and tobacco should give them confidence to advice patients to quit tobacco use, remain a tobacco quitter, and avoid exposure to second-hand smoke. Joint training modules should be developed which shall not only include joint planning, implementation, and M and E mechanisms but also management of these comorbidities. In similar fashion, teachers’ training modules should be prepared for increasing awareness among children and young adults
- Joint supervision and monitoring of TB-tobacco activities: There should be standardized integrated indicators for both programs in routine Health Management Information System at various levels of health-care facility. Further, monitoring and supervision of joint TB and tobacco control activities should be included in the supervisory checklist of both TB and Tobacco Control Programmes at all health units delivering diagnostic and treatment services to TB patients and tobacco users.^[28] TCC and National Tobacco Quitline should support in identifying TB relapse cases, as there is increased risk of relapse of TB among tobacco users
- Delivering “Brief Advice” for tobacco cessation services among TB patients: Every TB patient registered should be enquired about status of tobacco use and exposure to second-hand smoke. Thereafter, a brief advice about harms of active and second-hand smoke should be provided to TB patients, repeatedly throughout their care, which has been amply documented to improve cessation rates. Those who wish to quit will be provided with detailed and sustained behavioral counseling through repeated follow-ups along with nicotine replacement therapy. The health professionals should offer the tobacco user with the techniques to break their dependence and how to remain a nontobacco user after quitting. If they do not quit, they should be advised not to smoke in the presence of others. The smoke-free home

concept should also be promoted, especially where TB patient is undergoing treatment and care, for better prognosis. After having quit and cured from TB, the patient should be warned about risks of recurrence from disease if he (she) starts tobacco use

- Involvement of NTCP in TB Case Finding: For enhanced case finding of TB patients through NTCP, it has been recommended to regularly screen four symptoms of active TB also known as “TB Symptoms Complex (that includes cough that has persisted for >2 weeks, fever of >2 weeks, and experiencing of significant weight loss and night sweat)” among tobacco users registered at the District TCC, along with utilization of National Tobacco Quitline/mCessation services in TB control program
- Partnerships with other governmental and nongovernmental organizations working for the common cause: The state health ministries should plan to introduce a coordination pathway with other stakeholders from both the RNTCP and the NTCP to introduce joint activities for developing common health promotion materials, workforce training, initiating a mechanism to monitor tobacco control activities among respiratory patients, and analyze the impact of joint efforts
- Develop effective Coordination Mechanism between RNTCP and NTCP at national, state, and district levels in the following ways:^[29]
 - National level: The existing mechanisms at the national level under both RNTCP and NTCP can be used for providing overall guidance and necessary coordination for addressing TB and tobacco comorbidity; providing guidance to states for implementing the TB-tobacco collaborative activities; and suggest strategies for roll-out and scale-up of activities aimed at minimizing mortality and morbidity associated with TB-tobacco comorbidity
 - State level: Under NTCP, in the State Level Coordination Committee framework, the State TB Officer and the Director of State Training and Demonstration Centre of the TB program should be included for effective collaboration between the two programs. Similarly, State Tobacco Control Program officer should be included in TB State Task Force meetings to ensure implementation of joint collaborative activities. DOTS care providers may be provided trainings on “Brief Advice” to TB patients who are tobacco users
 - District level: District TB Officer should be included as a member in the existing District Level

Coordination Committee of NTCP and vice-versa. This will facilitate the coordination of activities at district and subdistrict levels and they should work together to strengthen the coordination between RNTCP and NTCP staff in the district apart from addressing issues related to training of key program staff and general health-care staff. This integrated approach is destined to improve TB treatment outcome among smokers and promote smoking cessation among all TB patients.

The end-TB strategy provides an opportunity for greater alignment of efforts to fight both epidemics. About 6 million new and relapse TB cases are notified by RNTCPs every year; and even if merely 20% of these cases use tobacco products, RNTCPs could reach >1 million tobacco users per year. Thus, integration with RNTCPs could significantly improve access to tobacco cessation interventions using “Brief advice” approach based on 5 As and 5 Rs or ABC approach (Ask, Brief Advise, and Cessation support). “Health-in-all-policies” approach should be adopted and actions should focus on social determinants of health, including tobacco control, which is a direct risk factor for TB. Smoke-free TB care facilities could also protect patients and communities from tobacco smoke and improve outcome of patients with TB. After integration of diabetes into TB care, TB-tobacco integration will certainly go a long way in guiding management of other chronic comorbidities among TB patients.

Apart from the opportunities identified, slow and delayed uptake of evidence-based global TB and tobacco policies, lack of leadership and political commitment, lesser resources for roll-out of national policies and evidence-based practices, limited coordination among various stakeholders working in TB and tobacco control programs in the region, and limited capacity of TB program staff in tobacco cessation services and in TB management are some of the key challenges identified in integrating TB and tobacco policies/programs. There is also a dearth of community awareness about TB-tobacco linkage and realization that advocacy efforts by the tobacco control community alone are not sufficient to address the issue.

Conclusion

Both tobacco and TB are major public health problems in India, and if seen together, they are responsible for huge loss in terms of disability-adjusted life years, direct and

indirect costs, and mortality. Convergence of the two independent national programs may lead to a synergistic effect in decreasing the burden of both the problems. If tobacco control activities are successfully implemented at primary care services through the stop-TB strategy, this integration can gradually be extended to other national programs such as reproductive, maternal, newborn, child, and adolescent health; National Program for Control of Diabetes Cardiovascular diseases and Stroke; and National Mental Health Program, until these activities reach all beneficiaries attending health units for any type of curative or preventive care.

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Conflicts of interest

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