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Original Article

Does capacity building on tobacco control change perception and knowledge among public health professionals? A case study from Puducherry, India

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ABSTRACT

Background: The medical and public health personnel, especially in low- and middle-income countries, are not adequately equipped with the necessary knowledge and skills required to curb the menace of tobacco epidemic. Therefore, this study aims to assess the effectiveness of a tobacco control workshop conducted for doctors, postgraduate medical and master of public health students with a view to possibly integrate tobacco course in medical and public health curricula.

Methodology: The contents of the workshop were finalized after an extensive review by a panel of experts in the field of tobacco control in India. The participants of the workshop were provided training in a learner-centered mode by an expert panel of facilitators from varied backgrounds with ample of experience and expertise in the field of tobacco control. At the end of 5-day long workshop, the participant's knowledge, attitude, practice with respect to tobacco control, and contents and comfort of the workshop were assessed using a retro-pre questionnaire.

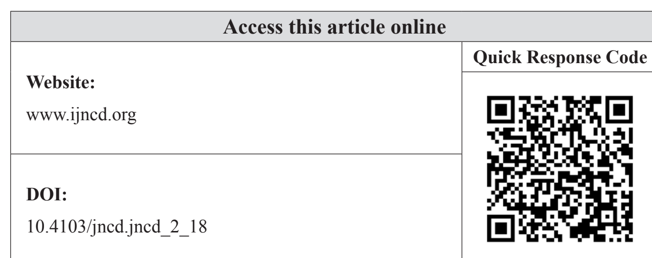
Results: There was statistically significant improvement in the knowledge, attitude, and practice domains related to tobacco control. Around 40%–55% participants were able to appreciate that health-care personnel have a definite role in curbing the menace of tobacco epidemic. Around one-third of the participants felt that they would be able to enquire about tobacco use as part of history taking, counsel using 5A's strategy, and advice to quit tobacco. Nearly 80% participants appreciated the appropriateness of the contents of the workshop and almost all were satisfied with faculty–participants interaction and methods of delivering various concepts for tobacco control.

Conclusion: Use of hands-on training with practical sessions, backed by structured modules can help in improving knowledge, attitude, and skills of the health professionals toward tobacco control.

Keywords: Capacity building, health professionals, medical curricula, tobacco control

Introduction

Tobacco use has emerged as an epidemic globally. Although the prevalence of tobacco use has reduced in most developing countries, the absolute numbers of tobacco users globally have increased.[1] It is projected that tobacco-attributed death will increase from 5.4 million in 2005 to 6.4 million in 2015 and will be responsible for 10% of all global adult mortality.[2] India is the second largest producer and consumer of tobacco.[1] One of the strategies to address the outcomes of tobacco use in India is improving the understanding on harms of tobacco use and cessation assistance facilitated by health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professionals.[3] Health-care professionals in India have limited knowledge and therefore contribute little toward tobacco control.[4] According to the Global Adult Tobacco Survey India (GATS 2009–2010), only 46% of smokers and 27% of smokeless tobacco users who visited health-care providers were advised to quit tobacco.[5] Although 80% of doctors record history of tobacco use, only 50% and <33% advice to quit and offer assistance toward quitting.[6] In a study among resident doctors, only one-third reported receiving adequate training to help smokers quit and 80% wanted to receive training to help smokers quit tobacco.[7] Another study reported that nearly 80% of doctors did not record the history of tobacco use and nearly two-third of doctors felt a need for training on tobacco cessation.[8]

The WHO's Framework Convention on Tobacco Control (FCTC) provides a guideline for control of tobacco use and Article 12 emphasizes the need for "education, communication, training and public awareness-raising." India enacted the Cigarettes and Other Tobacco Products Act (COTPA) in 2003 with a vision to control tobacco usage in the country. India also became one of the earliest countries to ratify the FCTC in 2004. With the growing necessity to control tobacco use and its consequences, the National Tobacco Control Programme (NTCP) was launched by the Government of India in a phased manner. Started in 42 districts of 21 states, it is envisioned to scale-up covering all States and Union Territories of India.[9] NTCP has specified tailor-made training for academician, health/medical personnel, students, and others stakeholders for various tobacco control activities at the state level. Despite the enactment of tobacco control laws, compliance to various provisions varied across different parts of India due to variation in strict implementation and compliance to the laws.[10-12]

Tobacco control requires a multidisciplinary approach, in which health personnel plays the central part. However, lack of knowledge and skills about tobacco control and tobacco use by health professional themselves prevent their effective role in tobacco control.[13] Health personnel can contribute enormously to implement various provisions under tobacco control laws, create awareness, advocate for strict enforcement, and generate evidence through better management of hospital registries including tobacco prevalence in regular health surveys.[8,10] Therefore, systematic efforts at strengthening the public health professionals in the required skills by sensitizing the medical undergraduates and faculty on tobacco control are of utmost importance.[13,14] A study involving five medical colleges to adopt a fully integrated tobacco curriculum into undergraduate studies found a positive evaluation of the curriculum by faculty as well as students.[15] To do this, pedagogic changes are needed and sensitization workshops are required for the health personnel on various aspect of tobacco control for practicing health professionals.

Current tobacco control does not feature adequately in medical curriculum in India.[15] Tobacco is taught as a part of noncommunicable diseases (NCDs). In a worldwide survey, only 27% of medical schools reported a specific module on tobacco use. The most important barrier in majority of medical schools in developing countries to introduce tobacco module in medical curriculum was lack of staff resources to teach.[16] Tobacco control modules among institutions offering Masters in Public Health (MPH) courses is either nonexistence or in preparatory phase.[17] Lack of expertise in tobacco control topics is the most common hurdle faced by institutions in adopting tobacco control course. Many studies across the world have also recommended adequate practical training of health personnel and students in curbing the menace of tobacco use.[18-24] Yadav *et al*. (2014)[17] and Schmelz *et al*. (2010)[22] also emphasized on training of trainers, especially the medical faculty who lack adequate training and skills in tobacco control. With the emergence of tobacco epidemic in low- and middle-income countries, the need for tobacco control training program is needed to uproot the epidemic.[25] In India, the teaching schedule on tobacco in most institutions offering MPH course and in almost all medical institutions is limited only to forms of tobacco use, health effects of tobacco use and general advice on tobacco quit.[17]

This study was conducted to assess the effectiveness of the workshop on tobacco control in changing the knowledge and perception and influencing practice among the health professionals.

Methodology

Setting

The medical education in India aims at development of community health professionals which includes doctors and public health personnel in delivering promotive, preventive, curative, and rehabilitative health services to the community. Since NCDs are rapidly increasing in India, it is important to address the common risk factors such as tobacco use, alcohol consumption, physical inactivity, and unhealthy diet. Tobacco control which is one of the items in the "best buys" for control of NCDs is not given separate focus in medical curriculum except few medical colleges in India. There are about 31

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institutes offering MPH courses in India. The Public Health Foundation of India – New Delhi, PGIMER-Chandigarh, Sree Chitra Thirunal Institute of Medical Science and Technology-Trivandrum, Annamalai University-Tamil Nadu, and Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER)-Puducherry are few institutions providing courses on tobacco control. JIPMER, Puducherry, one of the pioneers in medical education, has started the MPH course in 2014. In this regard, a training program was conducted to build capacity in tobacco control among public health and medical professionals in Puducherry, India.

Workshop duration

The "Workshop on Tobacco Control" was conducted during the months of June–July 2015 for a period of 5 days consecutively at JIPMER, Puducherry, in collaboration with The Union, South-East Asia office, New Delhi and School of Public Health, PGIMER, Chandigarh.

Participants' profile

The 59 participants included 8 assistant professors (community medicine and pulmonary medicine), 2 medical officers from State TB Office, Puducherry, 1 medical social worker, 1 PGDPHM student, 22 MPH students, and 25 residents. Of the 59 participants, 35 were male and 24 were female.

Facilitators

A total of 11 facilitators enabled and enhanced the learning of participants on various aspects of tobacco control. Of the 11, four were from external organizations (The Union-New Delhi, PGIMER-Chandigarh, and Mary Anne Charitable Trust, a civil society organization based in Chennai and has been involved in tobacco control). The resource persons for the workshop were from varying backgrounds such as academics (community medicine, psychiatry, and general medicine), nongovernmental organizations and policy level, and have been working on various tobacco control activities.

Workshop contents

All the "must know" concepts on tobacco control were deliberated on after extensive review by an expert panel within India. The topics included epidemiology of tobacco use, socioeconomic and health impact of tobacco use, counseling and cessation, behavioral change communication, legislation related to tobacco use, role of health professional and nonhealth sectors including civil societies in tobacco control, economics, and endgame strategy for tobacco control [Table 1]. Objective of the workshop was to enable the participants to learn various aspects of tobacco control so as to routinely practice in their day-to-day practice.

Overview of course format

The workshop was conducted in learner-centered mode. The teaching–learning methods included lecture discussion, video demonstration, and field experience sharing by resource person. Practicals and hands-on training were facilitated in many topics such as monitoring through field visits, counseling skills through group activities, operational research (OR) proposal developments, and short-field survey and discussion of findings. The participants were divided into six groups which were followed throughout the workshop for various activities and proposal development.

Cessation training was done using the 5A's strategy and matching advice to readiness using the 5 Rs (Relevance, Risk, Reward, Roadblocks, and Repetition). Additional measures to motivate patients to quit tobacco and overcome physical, psychological, and social challenges were imparted using videos and case scenarios. Participants from various medical colleges presented briefly on the research activities carried out on tobacco use in Puducherry region in different settings such as schools, workplace, hospitals, and community settings. This helped to sensitize the actual burden in the community that they face in their everyday practice.

A field trip was organized for the participants where they conducted a short project on assessment of compliance indicators to the existing tobacco control legislation. The

Table 1: Outline of topics covered during the workshop

Day	Topic
1	Epidemiology of tobacco use
	Health and socioeconomic impacts of tobacco use
	NCD and tobacco: Risk factor approach
	Tobacco control policies and legislation
2	National Tobacco Control Program
	Monitoring tobacco use
	Tobacco cessation
	Role of health professional in tobacco control
3	Role of civil society in tobacco control
	BCC and community participation in tobacco control
	OR in tobacco control
	OR proposal development
4	Stopping tobacco industry interference in tobacco control
	Multisectoral approach in tobacco control
	Economics of tobacco control
	Observation from the field
5	Endgame strategies for tobacco control
	Review of OR proposal developed

OR - Operation research, BCC - Behavioral change communication

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groups presented their findings from the field regarding the current status of implementation of Anti-Tobacco legislation in Puducherry.

Capacity building of the participants on conducting OR on tobacco control was another important component in the workshop. The participants were divided into six groups and each group was assigned one mentor to facilitate the process. Proposals were developed on topics such as tobacco use in different populations, implementation status of various sections of COTPA in the region, awareness about COTPA among staff in a tertiary care institution, and training status on COTPA among enforcing officers. In addition proposals were developed to study the various approaches by health-care providers in achieving tobacco cessation and assess quit rate among individuals who receive counseling. At the end of the workshop, nearly half of the participants perceived that OR on tobacco control is both vital and feasible. One-third of the participants were confident of independently formulating a research hypothesis and analyze data from OR on tobacco use.

Evaluation of the course

The workshop was conducted as a training program on tobacco control. We included all the participants after obtaining verbal informed consent. We used a retro-pre questionnaire to record the self-assessed knowledge, attitude, and skills gained during the workshop. A popular method, retro-pre technique is quick, avoids response shift bias and thus can be used to assess the perceived change after a program better than the traditional pre-post technique.[26-28] This anonymous self-administered questionnaire was applied to the participants on the last day of the workshop. The questionnaire was developed and reviewed by experts keeping in view the objectives and scope of the workshop. The questionnaire had three domains “knowledge” (17 items in a scale of 1–10), “Attitude” (10 items in a five-point Likert scale), and “Practice” (5 items in a four-point Likert scale). In addition, information on feedback was collected on the training program like engagement during workshop.

Statistical analysis

The data were entered in MS Office and descriptive analysis was done using SPSS Version 16.0 (SPSS Inc, Released 2007, Chicago, US). The data were expressed as percentages and median interquartile range (IQR). Wilcoxon signed-rank test was applied to find out any significant change in score before and after the workshop.

Results

The response rate for evaluation of the workshop in retro-pre method was 81.4% (48/59).

There was a significant change in knowledge scores before and after the workshop (change in score of 77, $P < 0.05$) [Table 2]. Participants reported improved knowledge in topics such as tobacco legislation and cessation, stopping tobacco industry interference in tobacco control, economics, and endgame strategy. Similarly, there was a significant change in median scores of attitude domain (change in score of 11, $P < 0.05$; before – 37 [IQR: 34–40], after – 48 [IQR: 45–49.75]) [Table 3]. Around 40%–55% participants were able to appreciate that implementations of different section of COTPA are feasible, that health-care personnel have a definite role in monitoring of COTPA, and that OR in tobacco control is vital and feasible [Table 3]. Practice domain showed a significant improvement of 4 points (before – 11 [IQR: 8–13], after – 15 [IQR: 13–17]; $P < 0.05$) at the end of the workshop. Around one-third of participants felt that they would be able to enquire about tobacco use as part of history taking, counsel using 5A’s strategy, and advice to quit tobacco [Table 4].

Table 2: Change in knowledge score among participants on tobacco control after the workshop (*n*=47)*

Item	Score (median and IQR)#	
	Before	After
Epidemiology of tobacco use	4 (3-5)	8 (8-9)
Health consequences and socioeconomic impact of tobacco use	5 (3-6)	9 (8-10)
NCD and tobacco: Risk factor approach	5 (4-7)	8 (7-9)
Tobacco control legislation	3 (2-5)	9 (8-10)
National tobacco control program	4 (2-6)	8 (8-9)
Monitor tobacco use	3 (2-5)	8 (7-9)
Tobacco cessation	3 (2-5)	9 (8-9)
Role of health professional on tobacco use	4 (2-6)	8 (8-9)
Role of community in tobacco control	3 (2-5)	8 (7-9)
Role of civil society in tobacco control	3 (2-5)	8 (7-9)
BCC and community participation in tobacco control	4 (2-5)	8 (6-9)
Operational research in tobacco control	3 (2-5)	8 (7-9)
Multisectoral approach in tobacco control	4 (2-5)	8 (6-9)
Stopping tobacco industry interference in tobacco control	2 (1-3)	9 (8-9)
OR proposal development	3 (2-5)	8 (7-9)
Economics of tobacco control	2 (1-3)	8 (6-9)
Endgame strategies in tobacco control	2 (1-4)	8 (6-9)
Overall	62 (42-79)	139 (124-153)

*Out of total 48 participants, one did not attempt knowledge component of the questionnaire, #*P* value was<0.05 for all the items and overall. BCC - Behavioral change communication, OR - Operation research, IQR - Interquartile range

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Table 3: Change in attitude among participants on tobacco control after the workshop (*n*=48)

Items	Before			After		
	Disagree	No opinion	Agree	Disagree	No opinion	Agree
Health personnel at any level has a definite role in tobacco control	1 (2.1)	7 (14.6)	40 (83.3)	-	-	48 (100)
Activities for tobacco control are feasible in routine practice	6 (12.5)	13 (27.1)	29 (60.4)	1 (2.1)	3 (6.2)	44 (91.7)
Implementation of different section of COTPA are feasible	5 (10.4)	22 (45.8)	21 (43.8)	3 (6.2)	-	45 (93.7)
Health-care personnel are having definite role in COTPA implementation	2 (4.2)	12 (25)	34 (70.9)	1 (2.1)	1 (2.1)	46 (95.8)
Health-care personnel are having definite role in COTPA monitoring	3 (6.2)	19 (39.6)	26 (54.2)	1 (2.1)	1 (2.1)	46 (95.8)
Operational research in tobacco control is vital	-	28 (58.3)	20 (41.6)	1 (2.1)	1 (2.1)	46 (95.8)
Operational research in tobacco control is feasible	-	29 (60.4)	19 (39.5)	1 (2.1)	1 (2.1)	46 (95.8)
Inclusion of tobacco control chapters in MBBS and other allied health science is important for tobacco control	1 (2.1)	16 (33.3)	31 (74.6)	1 (2.1)	1 (2.1)	46 (95.8)
All health personnel should spent some time eliciting history from patients regarding tobacco use	-	8 (16.7)	40 (83.3)	1 (2.1)	1 (2.1)	46 (95.8)
I recommend tobacco control workshop for all health-care provider not just primary health-care provider	-	15 (31.2)	33 (68.7)	1 (2.1)	1 (2.1)	46 (95.8)

Number within parenthesis indicates percentage. COTPA - Cigarettes and Other Tobacco Products Act

Nearly 80% participants felt the content of the workshop just right for them [Figure 1]. Nearly 95% of the participants felt that they were fully engaged throughout the workshop. About 98% of the participants agreed and among them two-third strongly agreed that their knowledge/skill improved following the workshop on tobacco control. The feedback from participants showed that almost all were satisfied with faculty-participants interaction and methods of delivering concepts such as discussing from own field experiences, field visits, OR proposal, and overall organization of workshops. Few suggestions provided for improvement to include other departments as well and more practical exposures like demonstrating tobacco cessation counseling in a real tobacco users.

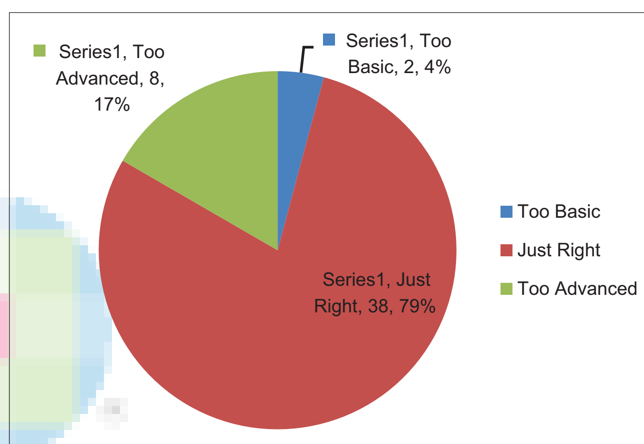

Figure 1: Appropriateness of the workshop as perceived by participants (*n* = 48)

Discussion

Amidst the growing tobacco epidemic, role of health professional may, not only be limited to creating awareness and providing counseling services but also in carrying out OR and generating evidence for policy modification. To begin with, many participants were not aware of the role of health professionals in tobacco control (17%) and feasibility in routine practice (40%). Many participants were unsure of the role of health professionals in COPTA implementation (30%) and monitoring (45%). However, after the workshop, more than 90% participants understood and agreed that health professionals definitely have an important role in different activities related to tobacco control and the same can be practiced in routine health care. Therefore, this training program was effective in improving the knowledge, attitude, and skills of the health professionals toward tobacco control.

A medical curriculum audit found that medical colleges devoted little time to tobacco as a disease risk factor, and cessation skills were not covered in medical college classes nor demonstrated in the wards or during community medicine postings.[14] A fully integrated tobacco curriculum for medical colleges was developed as part of Quit Tobacco International project piloted in five colleges and is freely available online.[14] In a survey done on five medical colleges in Southern India, it was observed that faculty and students are receptive to introduction of tobacco control module in the medical curriculum. Government faculty, medical specialists, and faculty who already teach tobacco-related topics are likely to be early introducers of this new curriculum.[14]

Lowe *et al*. have reported significant improvement in knowledge among MPH student on various aspects of tobacco control after integration of tobacco course in MPH curricula which is similar to our study findings.[29] Schmelz *et al*. from the US also have reported significant improvement in skills in the form of counseling using

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Table 4: Change in practice among participants on tobacco control after the workshop (*n*=47)

Item	Before				After			
	Not confident	Somewhat confident	Very confident	Able to do independently	Not confident	Somewhat confident	Very confident	Able to do independently
Ask adults (>15 years) about tobacco use	16 (34)	24 (51.1)	4 (8.5)	3 (6.4)	-	7 (14.9)	22 (46.8)	18 (38.3)
Counsel a person/patient with tobacco use using 5A's strategy#	34 (72.3)	11 (23.4)	1 (2.1)	-	1 (2.1)	11 (23.4)	21 (44.7)	14 (29.8)
Formulate a research hypothesis and questions for OR in tobacco use	31 (65.9)	15 (31.9)	1 (2.10)	-	2 (4.3)	13 (27.7)	18 (38.3)	14 (29.8)
Analyze data from OR	31 (65.9)	16 (34)	3 (6.4)	1 (2.1)	3 (6.4)	17 (36.2)	11 (23.4)	16 (34)
Advice to quit tobacco using any strategy	28 (59.6)	17 (36.2)	2 (4.3)	-	3 (6.4)	9 (19.1)	21 (44.7)	14 (29.8)

#One participant did not attempt the before component. Number within parenthesis indicates percentage. OR - Operation research

5A's strategy and self-efficacy among medical profession students after an online tobacco cessation course.[22] Prochaska *et al.* reported a significant improvement in psychiatry residents' knowledge, attitude, skills, and counseling behavior after an evidence-based tobacco treatment curricula.[30]

As a part of Scholarship, Teaching, and Education Program for Tobacco Use Prevention (STEP UP), University of Washington (UW) has successfully completed UW Tobacco Studies Program (UW TSP). The STEP UP focuses on increasing the number of graduate students and faculty of public health who are specialized on tobacco control and integration of tobacco-related issues in public health curricula.[31] The UW TSP had recorded more than 90% candidate rating the content of the course very good or excellent similar to our findings.[32]

There are several strengths and limitations of this approach. Learner-centered mode of conducting workshop with various teaching–learning methods and sharing of real-life experience by facilitators helped the learner gain maximum. The panel of facilitators included varied stakeholders both academicians and nonacademics expert in the field of tobacco control. The questionnaire has been finalized by a panel of experts in the field, but pretesting was not possible as we had included all the participants. Moreover, the results presented here are findings of just one workshop; it is yet to be generalized by replicating the module in future and in similar settings elsewhere in the country.

It is essential to integrate this module on tobacco control in the undergraduate, MPH, and postgraduate training curricula in community medicine and other curricula of allied sciences in medical institutions. Similarly, the contents of the module can be limited to specific topics like tobacco control laws and policies (MPOWER/NTCP/FCTC) for capacity building of medical officers in the region.

Conclusion

This paper describes the relevance of a building capacity for tobacco control among public health and medical professionals in a developing country setting. Use of hands-on training with practical sessions, backed by structured modules can help in improving knowledge, attitude, and skills of the health professionals toward tobacco control.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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