Establishing Priorities for the Effective Implementation of Tobacco Control Program at National and Subnational Level in India: A Delphi Study

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Abstract

Background: India faces unique challenges in tobacco control, with 266.8 million adults using tobacco. Despite these challenges, the country has made progress with the National Tobacco Control Program (NTCP). Effective execution of these policies is crucial to combat the growing tobacco epidemic. This study aims to establish consensus on national and subnational NTCP priorities using a modified Delphi technique. **Methods:** A three-stage modified Delphi process involved 21 experts from government, nongovernmental organizations, and academia. In the first stage, experts identified key tobacco control priorities. In the second stage, they rated these priorities on a Likert scale (0–4), and the top 10 were determined using a weighted mean. The final stage included an in-depth discussion and ranking of these top priorities by the expert panel. **Results:** In the initial round, experts proposed 20 national and 17 subnational priorities, which were then rated and ranked to achieve consensus on the top 10 for each level. The top three national priorities identified were amending the National Tobacco Control Legislation (COTPA), monitoring NTCP implementation, and protecting health policy from tobacco industry interference. The top three subnational priorities were: enforcing COTPA and the e-cigarette ban (PECA), engaging civil society in tobacco control efforts, and promoting tobacco-free schools and villages. **Conclusions:** While national policies and legislation are vital for strengthening the overall tobacco control framework, effective implementation and enforcement at both national and subnational levels are essential for curbing the tobacco menace in India.

Key words: Delphi technique, national priorities National Tobacco Control Program, subnational priorities, tobacco control policies, tobacco epidemic

Introduction

One of the greatest risks to public health is the tobacco pandemic, which causes around 8 million preventable deaths each year, as per the World Health Organization (WHO).[1] Nearly 80% of all tobacco-related deaths occur in middle- and low-income countries.[1] In India, in addition to smoked forms of tobacco, there are various smokeless forms that are commonly used, complicating well-understood tobacco control strategies and priorities in the country.[2] Annually, India accounts for one-sixth of the tobacco-related deaths worldwide.[3] 266.8 million adults in India used tobacco in some capacity[4] which results in 1.35 million deaths and 24.48 million years of disability-adjusted life expectancy each year.[5] According to the National Non-Communicable Disease Monitoring Survey, 2017–2018, daily tobacco use was prevalent in 32.8% of adults (18–69 years) and 3.1% of adolescents (15–17 years). Despite witnessing a reduction of 8.1 million adult tobacco users between Global Adult Tobacco

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Survey (GATS-1) (2009–2010) and GATS-2 (2015–2016),[2] and a reduction of 42% of tobacco use among 13–15-year-old school-age children over the past decade as per Global Youth Tobacco Survey-4 (2019), the diversity of tobacco products, less reduction in prevalence of many of them, and introduction of novel nicotine and tobacco products (Electronic non-nicotine delivery systems (ENDS), Heat-not-burn products (HNBs)) has been a matter of concern in India.[2]

India has taken the lead in the fight against tobacco worldwide demonstrating the country's commitment to control the tobacco epidemic. Besides ratification of the WHO Framework Convention on Tobacco Control (WHO-FCTC) in 2004,[6] the Indian government passed a number of laws and implemented extensive tobacco control policies in response to mounting evidence of tobacco's dangerous and harmful effects. These initiatives include raising the size of health warning labels on all tobacco products – including smokeless tobacco (SLT) from 40% to 85% in 2016,[7] enactment and implementation of PECA (The prohibition of electronic cigarettes [production, manufacture, import, export, transport, sale, distribution, storage and advertisement]) Act, 2019,[8] strengthening the Juvenile Justice Act to impose stricter penalties for selling tobacco to minors.[9] Simultaneously, the Food Safety and Standards (Prohibition and Restrictions on Sales) Regulations, 2011, enforced under the Food Safety and Standards Act, 2006, prohibit the incorporation of tobacco and nicotine in food products. Consequently, Gutkha is banned under these regulations, with corresponding restrictions on its advertising.[10]

The National Tobacco Control Program (NTCP) was developed by the Indian government in the year 2007–2008, with the following objectives: (i) increase public awareness of the negative health effects of tobacco use; (ii) decrease the production and supply of tobacco products; (iii) ensure effective implementation of the provisions under "The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, COTPA 2003", (iv) help people quit using tobacco, and (v) make it easier to put WHO Framework Convention of Tobacco Control's tobacco preventive and control strategies into practice.[9] In addition to the enactment of COTPA which provides a legal framework for regulating tobacco products, the establishment of the NTCP underscores the government's commitment to addressing the complex and emerging challenges posed by tobacco use in India comprehensively.

Effective tobacco control initiatives are essential to minimizing this negative impact of the tobacco production and consumption. Currently, there is a lack of a road map for tackling significant health, economic, social, and environmental challenges posed by tobacco use, so establishing priorities for the effective implementation of tobacco control programs at both national and subnational levels is essential. We aimed to build consensus on tobacco control priorities at the national and subnational levels through a diversified multistakeholder engagement strategy that is the Delphi technique. Delphi is a methodological forecasting process for gathering, exchanging, and forming knowledgeable opinions on a certain subject.[11]

What this manuscript will add:
- Provides expert consensus of experts from diverse fields on national and subnational tobacco control priorities in India's NTCP
- Identifies the amendment and enforcement of crucial laws such as COTPA and PECA as pivotal elements in the efforts to combat tobacco use
- The consensus priorities highlight the areas that need to be focused on for future effective NTCP implementation in India. COTPA amendment, effective monitoring of NTCP, and effective policy on Tobacco vendor licensing (TVL) were prioritized at both levels.

MATERIALS AND METHODS

Study settings and participants
A 3-day, national-level workshop on effective implementation of NTCP and documentation of best practices for tobacco control in India was held in January 2023 under the aegis of the Resource Centre for Tobacco Control – Department of Community Medicine (DCM) and School of Public Health (SPH), Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh in collaboration with the International Union Against Tuberculosis and Lung Diseases. PGIMER founded in 1962 has been designated as a "Institute of National Importance." The DCM was formally established in 1977 which evolved into a full-fledged SPH in 2007.[12]

The delegates of the national workshop constituted the experts from government (program managers), nongovernmental organizations (NGOs), and academic institutes which had engaged and supported tobacco control in the country.

Ethical approval
Before the study, ethical approval was obtained from the Institutional Ethics Committee (IEC) at PGIMER, Chandigarh with the number IEC-11/2017-750.

Study technique: The Delphi method
The Delphi method, an approach widely used in the literature to identify research priorities across a wide range of topics,[11] is a formal consensus strategy for gathering and evaluating the opinions of an expert group with expertise and experience in a particular field. The modified Delphi approach used in this study began with a discussion on the purpose of the overall study. The whole exercise consisted of three rounds. The first round of the Delphi technique used a qualitative approach to enlist the priorities at the national and subnational levels on two distinct cue cards distributed to the experts. The experts were asked to enlist a minimum of three and a maximum of six national and subnational priorities. All the priorities enlisted by the participants were consolidated into various themes. A final list of thematic priorities was determined at the national level and subnational level.

During the second round of the Delphi technique, thematic priorities emerging in round 1 were rated on a Likert scale from 0 to 4 not important (0), less important (1), slightly important (2), important (3), and very important (4).

In the third round of the Delphi technique, the top 10 thematic priorities, which were scored important (3) or very important (4) in earlier round, were exhibited to the experts for an open discussion to arrive at a consensus. A summary of the modified Delphi methodology used in the study is presented in Figure 1.

Data analysis

In the first round of thematic analysis, responses were collected and grouped into common themes. The MS Excel weighted mean method was used to evaluate the expert ratings provided on the Likert scale in the second round. The priorities were later scored in the third round using the sum-product formula in MS Excel. The priorities were then put in a clear order of importance being arranged and ranked in accordance with their scores.

RESULTS

All the delegates who participated in 3-day, national-level workshops on the effective implementation of NTCP and documentation of best practices for tobacco control in India, were participants of the current study. They were primarily male, ranging in age from their early 30s to their late 70s with a mean age of 45.61 years. Their roles and professions were extremely diverse, with titles such as President, Director, Programme Manager, Executive Director, and Professor reflecting a blend of technical proficiency and leadership. These experts were from NGOs, governmental organizations, or academic institutions, and have been actively involved in

tobacco control initiatives for a variety of times, ranging from 5 to 56 years. Table 1 provides the demographic characteristics of the delegate panel.

During Delphi round 1, open-ended questions were used to identify a comprehensive list of 57 priorities at the subnational level and 61 priorities at the national level. These priorities were then grouped into 20 thematic areas at the national level and 17 thematic areas at the subnational level by combining some of the priorities that have a common interest. In round 2 and 3, participants ranked them, and an open discussion was held. Figure 2a represents the ranking of tobacco control priorities at the national level by the delegate panel and Figure 2b represents the ranking of tobacco control priorities at subnational level.

At the national level, the order of priorities (in descending order) includes amending COTPA, implementing effective monitoring of NTCP, enforcing policies against tobacco industry (TI) Interference, fostering collaboration with NGOs, ensuring the implementation of Tobacco-Free Educational Institutions (ToFEI), taking a focused approach to combat SLT use, regulating tobacco vendor licensing, addressing over-the-top (OTT) content, implementing uniform tobacco tax increases, and introducing plain packaging.

Conversely, at the subnational level, priorities differ, focusing on the enforcement of COTPA and PECA, engaging civil society, enhancing the monitoring of NTCP, promoting tobacco-free schools, implementing policies for tobacco vendor licensing, enforcing bans on SLT rigorously, adhering to WHO-FCTC Article 5.3, enhancing capacity through training, and strengthening tobacco cessation efforts. Annexures 1 and 2 represent the grading of NTCP priorities at national and subnational levels.
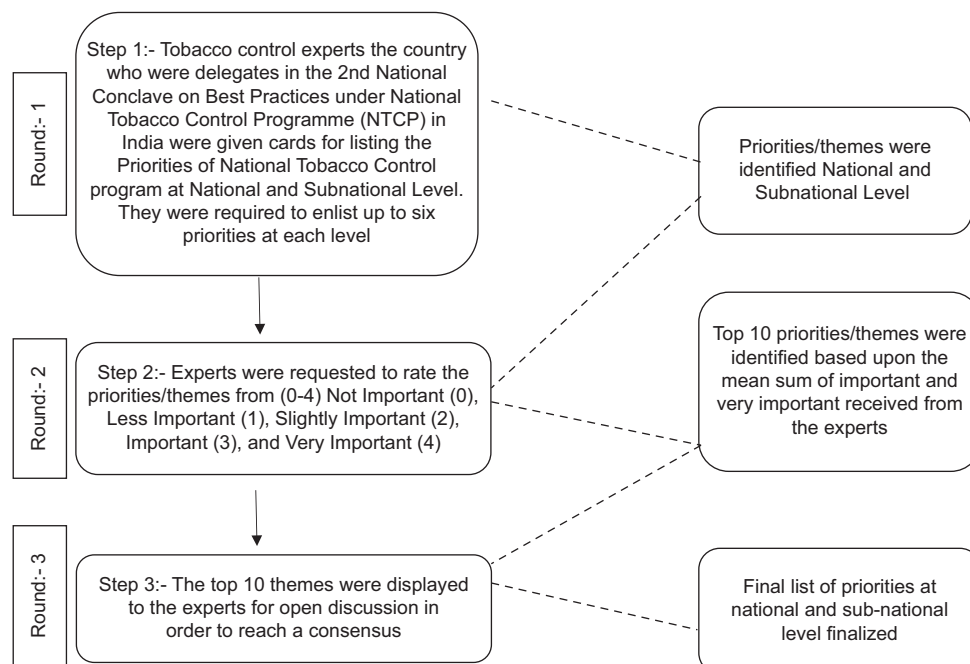

Figure 1: Modified Delphi approach used in the study

Expert	Sex	Age	Position	Occupation	Organization	Year of association with tobacco control
E01	Male	62	President	Doctor	NGO	12
E02	Male	45	Executive director	Social activist	NGO	9
E03	Male	41	Senior program manager	Public health expert	NGO	13
E04	Male	70	Director	Director	NGO	10
E05	Male	78	Director	Scientist	NGO	56
E06	Male	50	Executive director	Social work	NGO	12
E07	Female	31	State program manager	State program manager	NGO	9
E08	Female	32	Manager networking and partnerships TC	NGO	NGO	5+
E09	Male	57	President	Social marketing	NGO	22
E10	Male	47	SNO/SPO	Public health professional	Government implementation	15
E11	Female	34	Project associate	Health professional	NGO	8
E12	Male	34	Technical advisor	Technical advisor	NGO	11
E13	Female	35	Director programs	Public health professional	NGO	11
E14	Male	52	SNO NTCP	Government	Government implementation	12
E15	Male	42	State coordinator	Doctor/public health expert	NGO	6
E16	Male	46	State health consultant	Health	Government implementation	5
E17	Male	59+	Deputy regional director	Public health	NGO	16
E18	Male	49	Executive director	Professional social development	NGO	6
E19	Male	70	President	Public health tobacco cessation	Academic	20
E20	Male	48	Professor	Doctor	Academic	12
E21	Male	35	Project coordinator	Management	Academic	5

Table 1: Delegate - panel demographic data

NGO: Nongovernmental organization, NTCP: National Tobacco Control Program, SNO: State Nodal Officer, SPO: State Programme Officer, TC: Tobacco Control
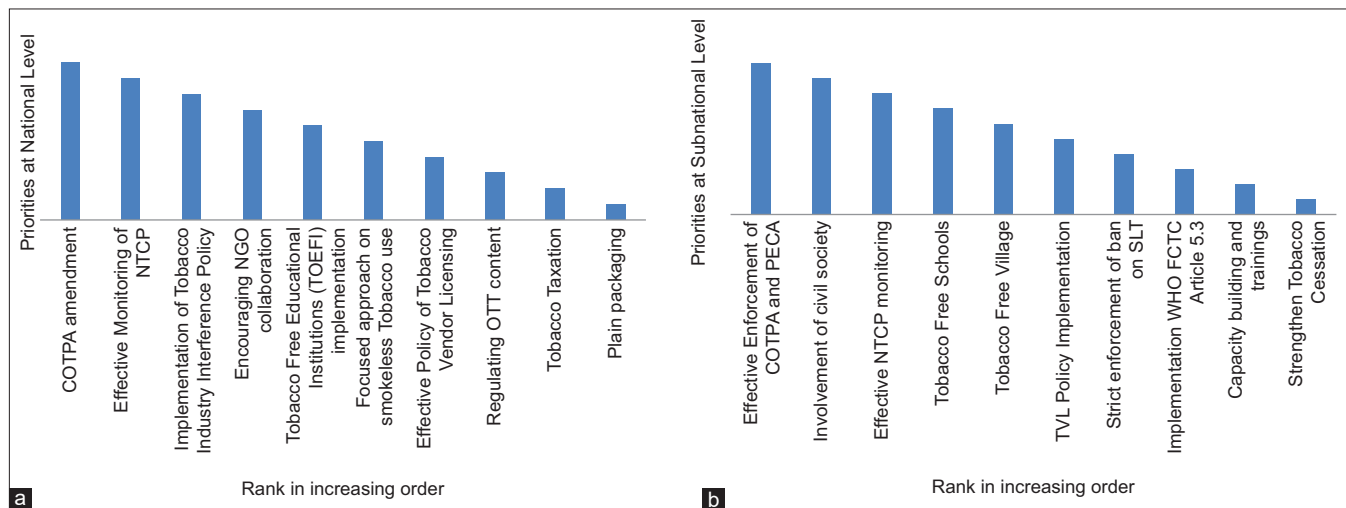

Figure 2: (a) Ranking of National Tobacco Control Program (NTCP) Priorities at the National Level based upon Delphi technique, (b) Ranking of Priorities of NTCP at Sub-National Level based upon Delphi technique

Discussion

This study aimed at establishing a consensus on the top 10 list of tobacco control priorities at the national and subnational level through a modified Delphi process in India, we used a modified Delphi process to determine these priorities, crucial for the effective implementation of the tobacco control program. As per the findings from the current exercise, COTPA amendment at the national level and effective enforcement of COTPA and PECA at subnational level were ranked highest priority.

By enabling state officials to implement and uphold various burden measures, the enforcement of COTPA aims to prevent and reduce the tobacco consumption in India.[13] Over time, COTPA amendments have been necessary to address persistent violations and widespread tobacco use.[13] India continues to face a concerningly high tobacco use burden which emphasises a need for amendment of few provisions under COTPA at the national level coupled with its strict enforcement at the subnational level. India is one of the countries that has

completely prohibited the sale of e-cigarettes.[14] E-cigarettes are reportedly widely accessible from a variety of sources, including tobacconists, general stores, and online suppliers, despite these penalties.[15] Adolescents in the nation have been found to frequently use e-cigarettes; the Global Adult Tobacco Survey states that 4% of adolescents between the ages of 15 and 24 were aware of e-cigarettes,[4] highlighting the urgent need for effective enforcement of PECA to safeguard public health.

The current study pointed to effective monitoring of the NTCP as the second-highest priority at the national level and the third-highest priority at the subnational level for its successful implementation. It is evident that strong monitoring systems are essential to guarantee the efficacy of NTCPs at the national and subnational levels in low- and middle-income countries.[16] Effective monitoring has been a crucial component of sustaining the effectiveness of other health programs such as the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke toward the achievement of sustainable development goals targets.[17] As per the WHO, "the interests of the TI and public health policies around the globe are in fundamental and unreconcilable conflict" and it is certainly true for India as well.[18] The TI has been a significant barrier, undermining the nation's efforts to implement tobacco control laws, for instance, lobbied to weaken and postpone the decision to implement 85% pictorial health warnings in India.[19] Based on the current study findings, countering TI interference should be considered the third highest priority for the effective implementation of the tobacco control program in India. The current study findings also emphasized the importance of NGOs in the effective implementation of NTCP, thus ranking NGO collaboration as the fourth highest priority at the national level to enhance the effectiveness of tobacco control efforts in India. The collaborative efforts by NGOs have shown their effectiveness in enhancing advocacy for creating supportive environments, promoting educational initiatives focused on tobacco prevention and cessation, providing training and capacity building, and advocating for the adoption and implementation of tobacco-related legislation in Romania.[20] These collaborations not only promote knowledge sharing but also create an immersive experience, allowing stakeholders and policymakers to unite and bolster their collective efforts in advancing tobacco control within the country.

Considering that 40% of India's population is under 19 years of age and one-fifth of students aged 13–15 years initiate any form of tobacco products,[21] it underscores the importance of effective implementation of ToFEI guidelines for curbing this trend and fostering the healthy and safe environment for school children. ToFEI guidelines were introduced by the Ministry of Health and Family Welfare, emphasizing raising awareness and establishing tobacco-free schools.[22] The current study designated the effective implementation of ToFEI guidelines as the fourth priority at the subnational level and the sixth priority at the national level for effective implementation of NTCP.

Despite national and state-level prohibitions, SLT use remains widespread across India, as India experiences the largest burden of SLT in the world, with a prevalence of around 29.6% in men and 12.8% in women.[4] The current study highlights the significance of strict enforcement of the SLT bans at the state level and prioritizing SLT control, at both national and subnational levels.

According to the report on tobacco vendor licensing in India, all retailers and wholesalers must hold licenses displayed prominently at their premises and renewed annually.[23] This critical measure regulates tobacco product accessibility and availability of tobacco products to children and young people, protecting people from lifelong suffering caused by addiction and facilitating better enforcement of tobacco control laws.[23] The current study findings align with the need for an effective policy of tobacco vendor licensing, a priority both at the national and subnational level.

Around the world, individuals aged 18–24 years, on an average, devote 39 min daily to video-on-demand services through streaming platforms such as Netflix, Hulu, and Amazon Prime.[24] On World No-Tobacco Day 2023, the Union Health Ministry released guidelines to regulate tobacco product depiction in online content.[25] This development is in accordance with the findings of the current study where in participants rated that finding on regulating OTT content should be a national priority for NTCP implementation in India. India is one of the 182 nations that have ratified the WHO-FCTC, which calls for a minimum 75% tax on the retail price of all tobacco products.[26] However, India taxes chewing tobacco at 63.8%, "bidis" at 22.7%, and cigarettes at 52.7%.[26] The current study reveals that closing the loopholes of tax avoidance and setting the appropriate taxation levels on tobacco products should be a priority at the national level to enhance the effectiveness of tobacco control programs in India.

India implemented graphic warnings on tobacco products in 2003, mandating health warning images to cover 40% of the front of all packages containing tobacco products.[27] The COTPA made these warnings mandatory as of May 31, 2009.[27] Later from April 1, 2016, India expanded the health warnings on all tobacco products to 85% of pack display area.[7] The current study also emphasizes the importance of plain packaging for decreasing glitz and allure among youth, which is important for the effective implementation of tobacco control program in India.

Civil society has been the driving force behind many of the successes in tobacco control that as witnessed in many countries including, Kazakhstan, Moldova, and Romania.[28] The Delphi panel in the current study suggests that involving civil societies in NTCP should be among the top priorities at the subnational level for the effective implementation of tobacco control programs in India. Their engagement can greatly enhance the impact and reach of such initiatives.

The community-led tobacco-free village programs in India have demonstrated the feasibility and sustainability of tobacco control initiatives in rural areas.[29] Key success factors included

community ownership, dedicated local leadership, collaboration with grassroots organizations, incentivization, and offering alternative income opportunities for tobacco vendors.[29] The study suggests extending the approach beyond tobacco-free villages to include cities, states, and the entire country. This emphasizes the need to prioritize establishing Tobacco-Free Villages at the subnational level for effective tobacco control program implementation.

According to Article 5.3 of the FCTC of the WHO, governments must take action to safeguard health policy from the financial and other vested interests of the TI.[30] syncing with the findings from the current study, the effective implementation of WHO-FCTC Article 5.3 is required for the effective implementation of tobacco control programs at the subnational level. By making this commitment, the TI's vested interests are kept out of tobacco control programs.

Strengths and limitations

This study has many strengths which include a broad nationwide representation of the experts across various domains, and the use of a modified Delphi technique consisting of three rounds employing both qualitative and quantitative approaches. However, the findings from our study are limited by the subjective opinions of the expert panel which may vary with the opinion of the other experts who were not included in the study or the same experts at different points of time.

CONCLUSIONS

Utilizing a modified Delphi technique, we identified the top ten priorities at both national and subnational levels for effective implementation of tobacco control program in India. Top three national priorities identified are the COTPA amendment, Effective monitoring of NTCP, and TI interference policy implementation, whereas effective enforcement of COTPA and PECA, involvement of civil society, and tobacco-free schools and villages initiatives are the top three priorities at the subnational level. We recommend that policymakers should focus on the priorities in the current context for effective implementation of tobacco control in India.

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Conflicts of interest

There are no conflicts of interest.

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Annexure 1: Grading of National Tobacco Control Program national level priorities by Delphi panel

Priorities listed by all the experts	Not important - 0 (%)	Less important - 1 (%)	Slightly important - 2 (%)	Important - 3 (%)	Very important - 4 (%)	Weighted mean
Focused approach on smokeless tobacco use	0	0	4.76	38.1	57.14	1.53
Regulating OTT content	0	4.76	14.29	47.62	33.33	2.03
COTPA amendment	0	4.76	4.76	23.81	66.67	0.98
Implementation of tobacco industry interference policy	0	4.76	19.05	42.86	33.33	1.92
Effective monitoring of NTCP	0	0	9.52	52.38	38.1	2.15
Encouraging NGO collaboration at national level	0	4.76	9.52	61.9	23.81	2.51
Public awareness of ill effects of tobacco use through a mass media campaign	0	9.52	38.1	33.33	19.05	1.82
Effective policy of tobacco vendor licensing	0	9.52	9.52	28.57	52.38	1.23
Make tobacco-free generation	0	4.76	23.81	38.1	33.33	1.8
Media advocacy for tobacco control	0	0	52.38	38.1	9.52	2.21
TOEFI implementation	0	0	14.29	47.62	38.1	2.03
Effective implementation of ENDS Ban Act (PECA)	0	4.76	28.57	42.86	23.81	2.05
Strengthen tobacco cessation	4.76	9.52	9.52	42.86	33.33	1.78
Plain packaging	0	14.29	52.38	19.05	14.29	1.48
Promote operational research in NTCP	0	28.57	28.57	33.33	9.52	1.69
Raise tobacco taxes uniformly on all products	4.76	0	28.57	14.29	52.38	0.95
Regulating surrogate advertisement	4.76	4.76	23.81	38.1	28.57	1.8
Convergence of stakeholders from different departments at national level	0	4.76	19.05	38.1	38.1	1.73
Whole of government FCTC article 5.3 - national policy	0	4.76	9.52	52.38	33.33	2.15
Banning of Hookah through an ordinance by GOI	0	14.29	38.1	33.33	14.29	1.82

TFEOI: Tobacco-free Educational Institutions, PECA: Prohibition of Electronic Cigarettes Act, NTCP: National Tobacco Control Program, NGO: Nongovernmental organization, COTPA: Cigarettes and other Tobacco Products Act, FCTC: Framework convention on tobacco control, GOI: Government of India, ENDS: Electronic non-nicotine delivery dystems, OTT: Over the top

Annexure 2: Grading National Tobacco Control Program subnational level priorities by Delphi panel

Priorities listed by all the experts	Not important - 0 (%)	Less important - 1 (%)	Slightly important - 2 (%)	Important - 3 (%)	Very important - 4 (%)	Weighted mean
Sensitisation of stakeholders	0	0	9.52	42.86	47.62	0.71
Involvement of civil society in tobacco control	0	0	9.52	52.38	38.1	0.69
COTPA amendment	9.52	4.76	19.05	33.33	33.33	0.58
Effective information, education, and communication	0	9.52	38.1	33.33	19.05	0.55
Tobacco-free village	4.76	0	9.52	61.9	23.81	0.63
Tobacco-free schools	0	0	0	47.62	52.38	0.74
TVL policy implementation	0	0	4.76	52.38	42.86	0.71
WHO FCTC article 5.3 implementation	0	4.76	23.81	42.86	28.57	0.62
Hire all vacant human resources	0	19.05	4.76	33.33	42.86	0.63
Tobacco-free generation	0	14.29	23.81	33.33	28.57	0.58
Effective enforcement of COTPA and PECA	0	0	0	42.86	57.14	0.75
Strengthen tobacco cessation	0	9.52	4.76	38.1	47.62	0.68
Strict enforcement of the ban on SLT under FSSAI along with COTPA	0	0	4.76	52.38	42.86	0.71
Strict enforcement of ban on Hookah bars	0	0	33.33	57.14	9.52	0.58
Effective involvement of NGOs for trainings, media advocacy and IEC	0	4.76	19.05	52.38	23.81	0.62
Setting up of quitline helpline at state level	0	14.29	33.33	42.86	9.52	0.52
Capacity building and trainings	0	4.76	4.76	52.38	38.1	0.68

PECA: Prohibition of Electronic Cigarettes Act, NTCP: National Tobacco Control Program, NGO: Nongovernmental organization, COTPA: Cigarettes and Other Tobacco Products Act, IEC: Institutional Ethics Committee, FSSAI: Food Safety and Standards Authority of India, SLT: Smokeless tobacco, WHO: World Health Organization, FCTC: Framework convention on tobacco control, TVL: Tobacco vendor licensing