Smokeless tobacco control in 180 countries across the globe: call to action for full implementation of WHO FCTC measures

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Smokeless tobacco is consumed by 356 million people globally and is a leading cause of head and neck cancers. However, global efforts to control smokeless tobacco use trail behind the progress made in curbing cigarette consumption. In this Policy Review, we describe the extent of the policy implementation gap in smokeless tobacco control, discuss key reasons on why it exists, and make recommendations on how to bridge this gap. Although 180 countries have agreed that the WHO Framework Convention on Tobacco Control is the best approach to control the demand and supply of smokeless tobacco, only 138 (77%) Parties define smokeless tobacco in their statutes. Only 34 (19%) Parties tax or report taxing smokeless tobacco products, six (3%) measure content and emissions of smokeless tobacco products, and 41 (23%) mandate pictorial health warnings on these products. Although awareness of the harms related to smokeless tobacco is growing in many parts of the world, few Parties collect or present data on smokeless tobacco use under global or national surveillance mechanisms (eg, Global Tobacco Surveillance System and WHO STEPwise). Only 16 (9%) Parties have implemented a comprehensive ban on smokeless tobacco advertisement, promotion, and sponsorships. Globally, a smaller proportion of smokeless tobacco users are advised to quit the use of smokeless tobacco products compared to tobacco users. Use of smokeless tobacco is becoming a global cause of concern, requiring a greater commitment on the full implementation of the WHO Framework Convention on Tobacco Control measures.

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Introduction

Use of smokeless tobacco products presents a very complex global public health challenge. Worldwide, 356 million people use smokeless tobacco in a variety of forms.[1] Of these 356 million users, nearly 82% are located in southeast Asia;[1] however, the burden is not limited to this region alone. 29 of the 180 Parties to the WHO Framework Convention on Tobacco Control (FCTC) report 10% or more prevalence of smokeless tobacco use among men, women, or both. An increasing number of countries are encountering the problem, especially among young people (13–15 years of age).[2,3] Smokeless tobacco products are scientifically established as being highly addictive, similar to cigarettes and other combustible tobacco products. Many contain more than 30 carcinogens in high concentrations, and their use in the oral cavity can lead to adverse health outcomes, including oral, pharyngeal, oesophageal, and pancreatic cancer.[4] Smokeless tobacco is also associated with a two to four times increase in the risk for cardiovascular deaths and stillbirths.[5] The diverse varieties of smokeless tobacco products manufactured, marketed, and used in different parts of the world present further challenges in effective global recommendations for the regulation of these products. In several countries, smokeless tobacco is used alongside other products, especially those that contain a large amount of alkaloids, such as products containing slaked lime and areca fruit, which has been classified a Group-1 carcinogen.[6]

The WHO FCTC[7] remains the primary international tool for tobacco control and applies equally to all tobacco products, including smokeless tobacco products. However, several Parties to the FCTC consider smokeless tobacco use as a regional concern limited to the South-East Asia Region alone, and some commentators and health experts have portrayed smokeless tobacco as a less harmful alternative to smoking.[4,8–10] Although the all-cause mortality attributable to smokeless tobacco products might be lower than that of cigarettes, it is still substantial, accounting for more than 650 000 deaths annually.[11] A wide variety of smokeless tobacco products are used around the world. Not every smokeless tobacco product carries the same health risks. The popularity of different products differs in different geographic regions. The overall burden of smokeless tobacco products, therefore, varies from country to country. For example, smokeless tobacco-specific disease burden is much higher in southeast Asia than in the USA.[12] The difference is particularly stark between high-income countries and low to middle-income countries.[1] The myriad ways in which smokeless tobacco can be used make effective global recommendations for regulation of smokeless tobacco products a difficult task. This issue is compounded by a scarcity of data, research, and a lack of a robust evidence base, slowing down policy progress on smokeless tobacco prevention and control. Little information and updates on smokeless tobacco indicators are available from the WHO FCTC Convention Secretariat's Global Progress Report on implementation of the FCTC,[13–16] WHO Report on the Global Tobacco Epidemic,[17–19] and the WHO FCTC Global Knowledge Hub on Smokeless Tobacco.[20,21] Moreover, information from several countries on smokeless tobacco control measures is inadequate or not available.

In this Policy Review, we document the global status of smokeless tobacco use and control to identify gaps in and priorities for effective global smokeless tobacco control to meet the obligations under the WHO FCTC. We focus primarily on experience from and implications for

	Number of Parties
Article 2 (f)	
Smokeless tobacco defined as tobacco products	125 (69%)
Smokeless tobacco separately defined	13 (7%)
No definition of smokeless tobacco product	13 (7%)
Information not available	29 (16%)
Article 6	
Data on price and taxation of smokeless tobacco	34 (19%)
Two-point data on smokeless tobacco taxation	11 (6%)
Data on price elasticity and affordability of smokeless tobacco products	2 (1%)
Articles 9 and 10	
Ban the display of quantitative information on emission yields	31 (17%)
Mandate the display of qualitative information	21 (12%)
Data on pH and free nicotine in different smokeless tobacco products	6 (3%)
Article 11	
Pictorial health warnings on smokeless tobacco products	41 (23%)
Pictorial health warnings >50% of pack size	14 (8%)
Text warnings >50% of pack size	5 (3%)
Article 12	
Anti-tobacco mass media campaign	65 (36%)
Data on adults who believe that using smokeless tobacco causes serious illness	19 (11%)
Data on adults who noticed information about the dangers of using smokeless tobacco	1 (1%)
Data on smokeless tobacco users who noticed health warnings on smokeless tobacco packages	1 (1%)
Tobacco use prevention is included in the school curriculum	30 (17%)
Training to prevent tobacco use among young people	30 (17%)
Non-classroom programmes or activities to teach tobacco use prevention to students	29 (16%)
Access to teaching and learning materials about preventing tobacco use among young people	28 (16%)
Article 13	
Ban on promotion on national TV and radio	131 (73%)
Ban on promotion in local magazines and newspapers	121 (67%)
Ban on billboard and outdoor advertising	123 (68%)
Ban on advertising at point of sale	78 (43%)
Ban on free distribution in mail or through other means	103 (57%)
Ban on promotional discounts	84 (47%)
Ban on tobacco brands (product placement) in TV or films	97 (54%)
Ban on tobacco products in TV or films	35 (19%)
Complete ban on sponsorship	47 (26%)
Fines for violations of bans on promotion and sponsorship	114 (63%)
Article 14	
Quitline available	50 (28%)
Nicotine replacement therapy available	101 (56%)
Nicotine replacement therapy available as essential medicine	38 (21%)
Cessation support available in health facilities	96 (53%)
Cessation support available in hospitals	83 (46%)
Cessation support available in offices of health professionals	71 (39%)
Cessation support available in the community	60 (33%)
Article 16	
Warning boards at point of sale	75 (42%)
Ban on direct access to tobacco products at point of sale	44 (24%)
Ban on tobacco products in the form of sweets, toys, candies, etc	71 (39%)
Prohibition of vending machines that contain tobacco products	94 (52%)
Ban on free distribution of tobacco products to minors	72 (40%)
Ban on sale of loose smokeless tobacco products	18 (10%)
Penalty against sellers for violations	113 (63%)
Article 20	
Smokeless tobacco use prevalence	
Data on smokeless tobacco use among adults	137 (76%)
Data on recent smokeless tobacco use among adults	55 (31%)
Data on smokeless tobacco use among adolescents	131 (73%)
Data on recent smokeless tobacco use among adolescents	70 (39%)
Prevalence of smokeless tobacco use of more than 10% among adults	29 (16%)
Prevalence of smokeless tobacco use of more than 10% among adolescents	29 (16%)
Data on smokeless tobacco-attributable major diseases risk factors	10 (6%)

All values are n (%).

Table: **Parties with data on WHO Framework Convention on Tobacco Control smokeless tobacco indicators**

countries that are Parties to the WHO FCTC agreement, although some evidence on smokeless tobacco control strategies refers to countries that are non-Party countries (eg, the USA).

Data collection

An assessment of comparable indicators for cigarettes and smokeless tobacco products was done to gauge the global progress in smokeless tobacco control policies, while identifying the gaps, opportunities, and challenges in the implementation of various provisions of the WHO FCTC.

Published data were drawn from different sources such as the Global WHO FCTC Implementation Progress Reports 2012,[13] 2014,[14] 2016,[15] and 2018,[16] WHO reports on the global tobacco epidemic 2013,[17] 2015,[18] and 2017,[19] WHO-NCI Monograph,[22] and Global Tobacco Surveillance System Data,[23] which includes results of different rounds of the Global Adult Tobacco Survey, the Global Youth Tobacco Survey, the Global Health Professions Student Survey, and the Global School Personnel Survey. Additionally, other official data sources at the country, regional, and global levels, including smokeless tobacco control reports, survey reports, monographs,[4,24] tobacco control legislation and regulations[25]

that were available in English were reviewed. Data regarding countries from the European Community (representing a group of countries from the EU that have already been included in the 180 Parties) and from countries who are not Party to the WHO FCTC were excluded.

A descriptive analysis was done to examine the prevalence, trends, and policy progress in advancing smokeless tobacco control across Parties. This Policy Review focuses on evaluating the implementation and effects of smokeless tobacco control measures in the 180 Parties to the WHO Framework Convention on Tobacco Control. The analysis, in describing the evidence for specific smokeless tobacco interventions and policies is not limited by country; however, in describing progress on implementing these interventions and policies, it is limited to the 180 countries that are Party to FCTC. Overall data on smokeless tobacco policy implementation with regard to specific Articles of the WHO FCTC (ie, Article 2 [f], 6, 9, 10, 11, 12, 13, 14, 16, and 20) were reviewed with a specific search strategy and terms and inclusion and exclusion criteria (appendix p 1).

Findings

Indicators used for the analysis of the status of smokeless tobacco policy implementation corresponding to different Articles of WHO FCTC and the number of Parties with available data on these indicators are summarised in the table.

Global attention towards prevention and control of smokeless tobacco came with the implementation of the WHO FCTC and the decision of the Conference of Parties to request a comprehensive report from WHO based on the experience of the Parties on smokeless tobacco prevention and control.[26] Documents and reports on smokeless tobacco were considered by the Conference of Parties at its fourth,[27] fifth,[28] and sixth[29] sessions. All these reports highlighted the existence of myriad varieties and characteristics of smokeless tobacco products globally and the inherent challenges in their regulation—smokeless tobacco products are largely produced in traditional and informal markets. One of the key recommendations from these reports was the application of tobacco control policy interventions for cigarettes and for other smoking forms of tobacco to be applied to smokeless tobacco products as well.[29] Comprehensive implementation of the WHO FCTC for regulation of all tobacco products was also considered vital to the regulation of smokeless tobacco products.[29]

A total of 138 (77%) of the 180 Parties define smokeless tobacco under their domestic tobacco control law (table; appendix p 3). The global policy implementation of the WHO FCTC measures for smokeless tobacco prevention and control has remained inadequate and varied, even in countries with a high smokeless tobacco burden.[30] This analysis highlights the wide gap in the global implementation of smokeless tobacco control policies when compared with smoking control policies.

Price and tax measures (Article 6)

Only 34 (19%) Parties have reported some data on smokeless tobacco price or taxes and only 11 (6%) Parties have two-point in time data (table; appendix p 19).[18,19] In 17 (50%) of these 34 countries, the price of a 20-gram smokeless tobacco product is less than US$1, in comparison to the global average price of a 20-cigarette pack of $4·87 (adjusted for purchasing power). This is also true when compared to the average price of cigarettes (20-cigarette pack) in low-income countries ($3·03) and lower middle-income countries ($4·31). The underlying assumption of the comparison between smokeless tobacco products and cigarettes is that one cigarette contains approximately 1 gram of tobacco. Although a gram of smokeless tobacco and a cigarette might not be strictly equivalent in terms of nicotine intake, the price difference in obtaining a standard pack of each product shows the substantial difference in affordability between the two types of product.

See Online for appendix

The relatively low price of smokeless tobacco products compared with cigarettes is attributable to the fact that taxes applied to smokeless tobacco products are generally lower than taxes for cigarettes.[22] Although the WHO Technical Manual on Tobacco Tax Administration recommends tobacco excise taxes should account for at least 70% of the retail prices of tobacco products,[31] only four (2%) Parties had a total tax incidence (including excise and other taxes) at or above 70% of retail prices (appendix p 19). In other words, taxation as a tool to regulate smokeless tobacco use is highly underused among most Party states, even where the adoption of higher taxes is feasible.

Low levels of smokeless tobacco tax and prices with moderate increases contribute to the growing affordability of smokeless tobacco products and undermine the effectiveness of tax and price policies in reducing smokeless tobacco consumption. Studies from India and Bangladesh[32,33] (two of the Parties with the largest smokeless tobacco burden) show that smokeless tobacco products are becoming more affordable in India and have maintained the same level of affordability in Bangladesh, despite tax and price increases. Evidence from these countries suggests that tax and price increases for smokeless tobacco products have not been adequate to counteract the effects of inflation and income growth.[34]

Unlike the evaluation of the effectiveness of tax and price increases in reducing cigarette demand, the documentation of the effectiveness of smokeless tobacco taxation and pricing is inadequate. Only a handful of studies have assessed the price sensitivity of demand for tobacco products that are not cigarettes. One study from India[35] and another from Bangladesh[36] show that increasing the price of smokeless tobacco products reduces smokeless tobacco consumption significantly.

These studies also show that the demand for smokeless tobacco is price inelastic—in other words, increases in the prices of these products, through taxation, for example, would result in reductions in consumption at proportions smaller than the increase in price, while simultaneously increasing revenue from smokeless tobacco taxation. A meta-analysis[37] of the available estimates of price elasticity of demand for non-cigarette products suggested that a 10% increase in smokeless tobacco price will result in a 2·1% reduction in smokeless tobacco consumption, confirming the price inelasticity of smokeless tobacco demand. These findings align with the evidence that is available for cigarette tax and price policies.

The evidence on the substitutability of smokeless tobacco and combustible tobacco products is even more scarce. Only one study[36] from Bangladesh shows positive cross-price elasticity of demand for smokeless tobacco products and cigarettes, suggesting that increases in the price of cigarettes without concomitant increases in the price of smokeless tobacco products can induce switching from cigarette smoking to smokeless tobacco use and increase smokeless tobacco consumption. In other words, tax and price policy cannot be effective in reducing overall tobacco consumption when it is designed and implemented for only one tobacco product in isolation from other, potentially substitutable, tobacco products.

Given the small amount of evidence on the price sensitivity and affordability of smokeless tobacco products, research in other countries that have a high smokeless tobacco burden is needed to generate comprehensive and robust global or regional estimates of price elasticity and affordability of smokeless tobacco products. Additionally, no evidence on the unintended consequences of tax and price increases (eg, tax avoidance and evasion) and the measures to address these concerns exists. Such efforts will augment effective use of price and tax measures under the WHO FCTC and help in reducing the consumption of smokeless tobacco products, while generating more tax revenues.

Regulation of content and emissions and their disclosures (Articles 9 and 10)

Implementation of Articles 9 and 10 of the FCTC has also remained wanting, as several Parties have not been able to do any kind of testing of the chemicals in both tobacco and smokeless tobacco products. Even the tests that are done pertain mainly to cigarettes, with only six Parties testing smokeless tobacco products (table). With regard to smokeless tobacco product regulation, the WHO Study Group on Tobacco Products Regulation recommended comprehensive regulatory control by an independent, scientific government agency to reduce the appeal of and addiction to smokeless tobacco products (eg, eliminate flavours and control pH), and recognised the need for regulation of the levels of toxicants in smokeless tobacco products—for example, set an upper limit for tobacco-specific nitrosamines, N-nitrosonornicotine plus 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone, and benzo[a]pyrene, monitor levels of arsenic, cadmium, and lead, and regulate addition of non-tobacco ingredients (eg, areca nut) into smokeless tobacco products.[38–41] The Conference of Parties of the WHO FCTC, at its seventh session,[42] called for the finalisation of standard operating procedures for measuring nicotine and tobacco-specific nitrosamines and advice on the applicability of the WHO Tobacco Laboratory Network standard operating procedures to measure humectants and ammonia in smokeless tobacco, and highlighted the need for identification of any available technical approaches to reduce toxicants in smokeless tobacco.

Regulation of the chemical composition of smokeless tobacco products has been done by only six (13%) of the Parties, and even then, not all kinds of available smokeless tobacco products have been analysed (appendix p 29).[40] With respect to smokeless tobacco product regulation, 31 (17%) Parties prohibit any quantitative display of its contents, whereas 21 (12%) Parties have mandated display of qualitative information on the constituents and emissions of smokeless tobacco products on its packaging (table).

Packaging and labelling of tobacco products (Article 11)

Tobacco product packaging and labelling have been considered effective tobacco control measures and were among the provisions of FCTC to be implemented within 3 years of the FCTC coming into force. Although the process is slow, the progress in implementing effective and stronger health warnings on tobacco products in the majority of Parties has focused on cigarettes. Global research on package warnings is also largely based on cigarettes and little has been done on other tobacco products, including smokeless tobacco;[43] however, the evidence that does exist suggests that the effectiveness of health warnings applies to these products as well.[44,45]

Nine Parties have adopted plain packaging of tobacco products and 16 others are considering the same;[46] however, the inconsistency in the implementation of the health warnings on smokeless tobacco products compared with cigarettes is high for many Parties. Only 14 (8%) Parties mandate pictorial health warnings larger than 50% of the pack size on smokeless tobacco products (table), whereas 67 (37%) Parties require the same for cigarettes.[46,47] Pictorial health warnings are also implemented by a small number of Parties on smokeless tobacco (41 [23%] of the Parties), whereas 66% of Parties implement them for cigarettes (appendix p 43).

Awareness, education, and communication (Article 12)

One of the core guiding principles of the FCTC under Article 4.1 is that "every person should be informed of the health consequences, addictive nature and mortal threat posed by tobacco consumption and exposure to tobacco smoke".[7] Although more than two-thirds of the Parties report the implementation of Article 12 and use its

guidelines for creating awareness, much of the efforts focus on cigarettes or exposure to tobacco smoke. Nearly two-thirds of the Parties did a national mass media campaign against tobacco smoking, but only 65 (47%) of the 138 Parties that define smokeless tobacco have implemented the same for smokeless tobacco (table).[19] Only two Parties dedicated national mass media coverage to smokeless tobacco control and just one had it evaluated.[47] The Global Tobacco Surveillance System captures data through four surveys across key tobacco control measures. These surveys have been done in more than 150 countries. However, they fail to capture key data on anti-smokeless tobacco information, education, and awareness, with many Parties not including the smokeless tobacco optional questions during their national surveys (table; appendix p 54). So far, this information is only available for India and Bangladesh (appendix p 54). Minimal efforts have been made towards the dissemination of awareness, education, and communication on smokeless tobacco. Several studies from high smokeless tobacco burden Parties in the South-East Asia Region[48–54] suggest a need for such an effort, including measures specifically targeted to vulnerable populations. However, both electronic and print media have been widely used in the region for disseminating information on the health hazards of tobacco use in general. This media coverage and various tobacco control events, initiatives, and research, and evidence on tobacco use, including smokeless tobacco, has helped in mass communication of the ill effects of tobacco use.

Advertisement, promotion, and sponsorship (Article 13)

A comprehensive ban on tobacco advertisement, promotion, and sponsorship helps in reducing tobacco use, especially among young people and other vulnerable sections of the population. Anything less than a comprehensive ban provides an opportunity for the tobacco industry to aggressively market their products. A tobacco advertisement, promotion, and sponsorship ban is one of the time-bound obligations for the Parties requiring them to undertake measures necessary to implement the ban within 5 years of ratification.

Although Parties have implemented bans on various kinds of advertising and promotion campaigns for smokeless tobacco and cigarettes, exposure to the advertisement, promotion, and sponsorship of smokeless tobacco products remains higher than cigarettes.[24] Analysis of the country reports on the implementation of the FCTC suggests that 16 (9%) of the 180 Parties have a comprehensive ban on tobacco advertisement, promotion, and sponsorship for smokeless tobacco products (appendix p 88). Advertisements at the point of sale (banned in only 43% of the Parties), in international print and electronic media, and cross-border advertisements, including internet sales and promotions, remain the biggest global challenges.[55] Only 47 (26%) of the Parties have a complete ban on sponsorship (table). Evidence suggests that exposure to smokeless tobacco advertisements among young people in high smokeless tobacco burden Parties, such as India, is still very high. According to the Global Youth Tobacco Survey done in India, about 70% of students saw advertisements for smokeless tobacco products on billboards, and 50% reported the appearance of smokeless tobacco on television or in films.[24] Furthermore, evidence suggests that smokeless tobacco advertising is more likely to influence consumption in women than in men.[56]

Treatment of smokeless tobacco dependence and cessation (Article 14)

According to the WHO Report on the Global Tobacco Epidemic 2017, only a third of the global population has opportunities to access an effective tobacco cessation programme. Considerable variation also exists in access to behavioural support offered by health professionals, with smokeless tobacco users having relatively poorer access than smokers, especially in countries like India,[57] Bangladesh, Kenya, Pakistan, Thailand, and Uganda.[58] The percentage of smokers who were advised to quit by a health-care provider was higher than that of smokeless tobacco users in these countries.[58]

Although nicotine replacement therapy as an option for tobacco cessation is available in more than 50% of the Parties, access to the therapy is inadequate owing to several factors, such as cost.[59] Only 38 (21%) of the Parties include it in their essential medicines list (table). Evidence shows that standard pharmacotherapy used for smokers is not equally successful in smokeless tobacco users.[4] Comprehensive nicotine replacement therapy and cessation support is available in just three Parties (appendix p 96). A small amount of evidence that nicotine replacement therapies are effective in enhancing short-term treatment success exists, but they have been shown to reduce withdrawal symptoms and craving during smokeless tobacco abstinence. In one study,[4] varenicline was shown to demonstrate efficacy with snus users, but its side-effects, availability, and cost have remained a concern.

With the use of technology for the provision of tobacco cessation support, 24 (13%) Parties now provide mobile-based cessation support. A study of more than 12 000 registered users of mCessation facilities in India,[19] showed that about 7% of smokers and smokeless tobacco users quit after 6 months of enrolment.[19] Globally, unlike smoking cessation, access to interventions for smokeless tobacco cessation is scarce[60] and training among the majority of health professionals and school teachers is inadequate.[23] Available e-learning modules on tobacco cessation for health professionals are also deficient.

Protection of minors from exposure to smokeless tobacco (Article 16)

The FCTC envisions the protection of the health of present and future generations from the ill effects of tobacco use by banning its sale to minors. In 2005, when

FCTC came into force, the number of Parties that had prohibited sale of tobacco products to minors was 31, but by 2016 this increased to 141. Minors have generally been defined as people below the age of 18 years, but a cutoff age of 16 years (4 Parties), 20 years (2 Parties), and 21 years (5 Parties) has also been used in some cases.[20]

Article 16 of the FCTC recommends that Parties include in their policies to protect minors the following key provisions: (1) placement of warning boards at the point of sale; (2) prohibition of directly accessible tobacco product displays; (3) a ban on tobacco products in the form of sweets, toys, candies, etc; and (4) prohibition of vending machines. However, only 13% of Parties have implemented these four key provisions under their domestic laws (appendix p 113). Direct access to tobacco products at the point of sale (74% of Parties) and sale of loose cigarettes or smokeless tobacco products (90% of Parties) remain the key concern areas (table). The sale of loose tobacco products also interferes with tobacco product packaging and labelling regulations.

Research, surveillance, and exchange of information on smokeless tobacco (Article 20)

Clear-cut evidence of smokeless tobacco use among adults in 137 countries exists; however, data are insufficient to measure changes over time at the global level, because data on smokeless tobacco use is available only for a small number of Parties for both adults (55 [31%]) and adolescents (70 [39%]; table). Several Parties collect comparable data on tobacco use in different cycles, but only 16 (9%) Parties were identified as having comparable datasets across all reporting cycles for adult smokeless tobacco use.[61] 90% of smokeless tobacco use burden is in low-income or lower-middle-income countries,[1] and 29 (16%) Parties have smokeless tobacco use prevalence of 10% or more among men, women, or both (appendix p 122).

With more than 80% of smokeless tobacco users in the South-East Asia Region, a clear shift in the product preference from smoking to smokeless tobacco has been noted. Smokeless tobacco use among adult men has been increasing in Bangladesh, India, and Nepal.[62] Data from the Myanmar WHO STEPWise Survey indicates highest prevalence of smokeless tobacco use among men (62·2%), while for women prevalence is also substantial (24·1%).[63]

The implementation of Article 20 provisions for smokeless tobacco has progressed in the past few years. The first substantial development was the consideration of smokeless tobacco as a global epidemic by the world leaders at the Conference of Parties at its 6th session (COP6) held in Russia in 2014.[29] Subsequent to the decision of COP6, the Convention Secretariat strengthened the reporting system to focus on the use of smokeless tobacco products.[64] The second substantial development was the establishment of the WHO FCTC Global Knowledge Hub on Smokeless Tobacco in India, a Party with one of the largest tobacco burdens, in 2016.[21,30]

Discussion

Parties' implementation of FCTC provisions on smokeless tobacco products and their promotion, trade, and use trails behind in comparison to cigarettes. Continued and increased measures against smoking are important, but additional attention towards smokeless tobacco is needed. FCTC provisions need to be applied and implemented fully to all types of tobacco products. To be fully compliant with the requirements of the FCTC, Parties could consider the approaches suggested in this section to strengthen their implementation of smokeless tobacco control policies.

Defining smokeless tobacco

Article 1 (f) of the WHO FCTC defines tobacco products as "products entirely or partly made of the leaf tobacco as raw material which are manufactured to be used for smoking, sucking, chewing, or snuffing".[7] The definition includes smokeless tobacco products and should be used by Parties in defining tobacco products in their national legislation, regulations, and policies. Additionally, because Article 2.1 encourages Parties to implement measures beyond those required by the FCTC, national laws could define tobacco products comprehensively and contextually to cover all products, including novel products, in use within their jurisdictions.

Price and tax measures

FCTC Article 6 Guidelines recommend measures to progressively increase taxes on all tobacco products, including smokeless tobacco products. Any tax increase introduced for cigarettes and other smoked tobacco products should also be applied to smokeless tobacco products to avoid substitution. Tax and price increases for smokeless tobacco products should be indexed to rates of inflation and income growth to arrest the growing affordability of smokeless tobacco products. Parties should also consider measures to strengthen tax administration and prevent tax evasion, provided under Article 6 Guidelines.

Regulation of content and emissions of smokeless tobacco products and their disclosures

Development or improvement of the capacity to test and measure the contents of smokeless tobacco products is needed in all regions. Efforts should be intensified to develop and verify or validate standard operating procedures for testing key contents of smokeless tobacco products and consensus should be reached on methods that could be used globally. Parties, especially in southeast Asia, could make use of the tobacco testing laboratories recently established in India to also test the content and emissions of smokeless tobacco products.[65] Future work to review practices in addressing the toxic effects, addictiveness, and attractiveness of smokeless tobacco products should be intensified. This work could also inform further development of Articles 9 and 10.

Encouraging international collaboration among research groups to do such research and coordination is highly desirable, especially in view of the diversity of smokeless tobacco products.

Packaging and labelling of tobacco products

Article 11 of the FCTC requires Parties to implement large pictorial warnings on tobacco products. Appropriate warnings should be developed for smokeless tobacco products that include messages that are relevant to smokeless tobacco products already available on the market, as should regulations that prescribe minimal dimensions to make health warnings visible and effective and mandate health warnings (both graphic and text) at points of sale, as well as an inventory of smokeless tobacco-specific health warnings that should be added to the WHO FCTC Health Warnings Database.[66] The size of the pictorial warning should be the same size as that specified for cigarettes.

Awareness, education, and communication

An inventory of smokeless tobacco-targeted media campaigns, educational programmes, and other culturally relevant interventions should be produced and disseminated broadly. Smokeless tobacco-specific campaigns should be created, including on social and mass media. These could include health spots in movies and TV programmes, locally relevant communication programmes, and tailor-made education and communication programmes to bring about changes in norms, beliefs, and behaviours related to smokeless tobacco products. An additional objective of smokeless tobacco-specific educational material should be to dispel myths surrounding the so-called benefits of smokeless tobacco use (eg, smokeless tobacco products are good for pain relief of tooth aches or help in curbing hunger). Evaluation of such interventions for their effectiveness as outlined in the Article 12 Guidelines is needed.

Advertising, promotion, and sponsorship

Comprehensive measures required under FCTC Article 13 and its Guidelines should be put in place to ban all forms of tobacco-related advertising, promotion, and sponsorship. Additionally, resources on best practices available from the Parties should be shared and used. Cross-border advertising needs to be addressed in any national legislation, regulation, and policy and international cooperation should be strengthened (eg, through the Expert Group on cross-border advertising established at COP7).[67]

Treatment of smokeless tobacco dependence and promoting cessation

The scope of any brief advice, mobile-based health advice initiative, and quitline programmes need to be broadened to include and promote smokeless tobacco cessation in line with FCTC Article 14 Guidelines. Countries' health systems should be more responsive in addressing smokeless tobacco use. To this end, sensitising and training health-care professionals, including dentists, to inquire about smokeless tobacco use and provide advice on how to quit is needed. Additionally, efforts should be made to integrate smokeless tobacco cessation into relevant health programmes and services, including tuberculosis and HIV/AIDS control, oral health, reproductive health, substance abuse, and non-communicable diseases. Research groups in high prevalence countries should conduct further research to assess the effectiveness of smokeless tobacco cessation interventions.

Protection of minors from exposure to smokeless tobacco

The sales of smokeless tobacco products to and by minors and their sale in small single use packs or sachets should be prohibited. Such provisions required under FCTC Article 16 should be included in any national tobacco control legislation, regulation, and policy as well as other relevant legislation, including those on child and juvenile protection. High and deterrent penalties should be imposed for selling smokeless tobacco to minors.

Research, surveillance, and exchange of Information on smokeless tobacco

Research on smokeless tobacco use and policies, including their enforcement, should be strengthened in all jurisdictions. Surveys repeated at regular intervals to track population-level trends in prevalence and the health, economic, social, and environmental consequences of smokeless tobacco use should be implemented and integrated, where appropriate, with any relevant regular surveys, studies, and research programmes. International initiatives, such as those under the Global Tobacco Surveillance System or WHO STEPwise approach, should be used to gather smokeless tobacco-related data. Information on smokeless tobacco use and policies should be regularly provided in the FCTC reporting instruments in accordance with Article 21 of the FCTC. Given the diversity of smokeless tobacco products and their manufacturers, regular supply chain studies should be considered. Customs and excise officers, specifically, should also receive information on smokeless tobacco products to raise awareness of the fact that smokeless tobacco products should be treated the same as tobacco products, and should be included in any monitoring of illicit tobacco trade.[68]

Conclusion and recommendations

Given that smokeless tobacco use is a global problem, particularly in southeast Asia, and on the basis of the aforementioned findings on global smokeless tobacco policy, we conclude that the Parties to the FCTC require a comprehensive approach in the implementation of its provisions to address the challenges identified for smokeless tobacco control. The following key

Search strategy and selection criteria

PubMed was searched with the following terms: "Smokeless tobacco[Title] AND ((((((((((((((Chew[Title/Abstract]) OR Chewing[Title/Abstract]) OR Snuff[Title/Abstract]) OR Sniffing[Title/Abstract]) OR Suck[Title/Abstract]) OR Sucking[Title/Abstract]) OR Inhale[Title/Abstract]) OR Inhaling[Title/Abstract]) OR smell[Title/Abstract]) OR smelling[Title/Abstract]) OR Dipping[Title/Abstract]) OR Oral[Title/Abstract]) OR Oral use[Title/Abstract]) OR Nasal[Title/Abstract]) OR Nasal use[Title/Abstract] AND Definition[Title/Abstract]". Further extensive web searches were done to identify domestic legislation, regulations, and decrees on tobacco control for each of the 180 Parties to the WHO Framework Convention on Tobacco Control. These documents were screened to analyse the terms defining, including, or mentioning smokeless tobacco products or smokeless tobacco use. Only documentation that was available in English was screened and included in the analysis.

recommendations should be taken up as a priority to inform the work of the Parties, non-Parties, and other global, regional, national, and subnational stakeholders to prevent and control smokeless tobacco use globally. First, all forms of tobacco products should be explicitly included under the legal definition for comprehensive regulation of traditional or novel smoking and smokeless tobacco products. Second, taxation of all kinds of tobacco products without any exemptions should be considered, and at a rate uniform with other comparable products and adjusted to inflation and income growth. Third, standard operating procedures for testing key contents of smokeless tobacco products and comprehensive guidelines for Articles 9 and 10, with special reference to smokeless tobacco for adoption by COP9, should be developed, verified, and validated. Fourth, multiple messages relevant to smokeless tobacco products should be identified for pictorial warnings (eg, substantially increased risks associated with oral cancer should be made visible) and packaging should be standardised so that health warnings on smokeless tobacco products are clearly visible. Fifth, locally relevant, tailor-made comprehensive educational campaigns should be developed and implemented to dispel myths related to smokeless tobacco use among specific target populations to change tobacco use behaviour. Sixth, comprehensive tobacco-related advertising, promotion, and sponsorship bans for smokeless tobacco, including cross-border bans, should be implemented. Seventh, health professionals should be trained to provide behavioural interventions specifically for smokeless tobacco cessation, and their capacity to implement cessation interventions should be improved. Eighth, sale of smokeless tobacco products to and use by minors should be prevented while implementing the comprehensive provisions under Article 16. Finally, smokeless tobacco use patterns and trends should be monitored, as well as its effects on health, economic, social and environmental aspects, for implementing comprehensive smokeless tobacco control policies globally.

Contributors

RM, AY, DNS, MP, and PCG developed the concept and design of the study. RM, AY, and DNS planned and supervised data collection and management, and all authors contributed to data analysis, interpretation of results, the discussion, and the conclusions. RM, AY, DNS, MP, and PCG drafted and revised the introduction and data collection sections, DNS and AY the regulation of smokeless tobacco section, AY, RMJ, and NN the price and tax measures (Article 6) section, DNS and DKH the regulation of content and emissions and their disclosures (Articles 9 and 10) section, RM and DNS the packaging and labelling of tobacco products (Article 11) section, AY and DNS the awareness, education, and communication (Article 12) section, OA-Y and SW the advertisement, promotion, and sponsorship (Article 13) section, DNS and DKH the treatment for smokeless tobacco dependence and cessation (Article 14) section, SW, KSi, and PCG the protection of minors from exposure to smokeless tobacco (Article 16) section, and DNS, SW, KSt, and PCG the research, surveillance, and exchange of information on smokeless tobacco (Article 20) section. All authors provided technical input on data analysis and interpretation of results for their respective sections. RM, AY, DNS, MP, and PCG revised the manuscript critically for intellectual content. All the authors approved the final version of the manuscript and are accountable for the accuracy and integrity of any part of the work.

Declaration of interests

We declare no competing interests.

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