

Tobacco-free Generation: A Review for Tobacco Endgame

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Abstract

The early initiation of tobacco use by the youth is the basis to advocate for the tobacco-free generation (TFG). The basis is to prevent the sale and supply of tobacco to individuals born after a certain year or after a specified year. This cohort approach on educating the generations to be tobacco-free was first conceived by an Australian Mathematician Jon Berrick. This is based on the concept of rite of passage that connects smoking to adulthood and encourages youth approaching that age of smoking. Education and awareness would certainly empower the younger generation to never ever use tobacco. The TFG models have been replicated in Singapore within the set time-bound goals. An integrated and common risk approach with effective compliance and enforcement remains the single best approach in prevention, so is the concept of TFG which also works well with other tobacco control measures through its optimal integration. With this background, we aim to review the concept of TFG toward the endgame of tobacco among the youth to eliminate this existing epidemic. Furthermore, it hopes to provide a deeper understanding about the best practices in the implementation, enforcement, and various challenges associated with compliance of this proposal in various regions of the world toward the endgame.

Keywords: Tobacco control, tobacco endgame, tobacco-free generation

Submitted: 12-Jan-2024; **Accepted:** 05-Jul-2024; **Published:** 12-Oct-2024

INTRODUCTION

Tobacco use is a global public health epidemic. Tobacco kills up to half of its users and more than 8 million people annually- 7 million due to direct tobacco use and 1.2 million due to exposure to secondhand smoke.^[1] Globally, tobacco is a risk factor for six of the eight leading causes of death.^[2] The high prevalence of tobacco use has seriously affected the length and quality of life. One of the serious problems to this epidemic is due to the early initiation of tobacco use among children and young adults.^[3] Nicotine in tobacco is highly addictive and early initiation due to any reason leads to its daily and addictive use.^[4] Most addictions to tobacco develop before the age of 21 years, so the variability in intensity and likelihood of addiction is dependent on the age of its initiation.^[5] This increased vulnerability among the youth has led to the socioeconomic burden of this public health problem. In India, between the Global Adult Tobacco Survey round 1 and round 2 (at a gap of 6 years), the mean age of initiation has advanced by a year from 17.9 years to 18.9 years.^[6] According to the fourth round of the Global Youth Tobacco Survey for India (GYTS 4; 2018–2019) conducted in 13–15-year-old

school-going students among 8.5% of current tobacco users, the median age of initiation of cigarette is 11.5 years and smokeless tobacco use is 9.9%.^[7] The affordability of cigarettes in the South-East Asia Region (SEAR) has not changed much and continues to be purchased as singlestick. More than 10% of 13–15-year-old adolescents use tobacco in 8 out of 11 countries in SEAR and more than half of all the daily smokers aged 20–34 years reported to have initiated it before 20 years of age.^[8] Studies report early initiation of tobacco use with the continuation of habit to adulthood, quit attempt failures, relapse, craving, and underestimation of the addictiveness of nicotine by the youth.^[4,5,9] Further, the misconception of considering quitting as easy among youths is a potential threat to the ongoing process of tobacco cessation.

Targeting youth has been the focus of tobacco industry, and young tobacco users are their lifetime customers considered as

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Access this article online

Quick Response Code:



Website:
<https://journals.lww.com/DMRS>

DOI:
10.4103/dmr.dmr_2_24

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How to cite this article: Gurung D, Bhardwaj VK, Fotedar S. Tobacco-free generation: A review for tobacco endgame. Dent Med Res 2024;12:1-5.

replacement users. Young adults and youth want to gel in with their peers and are, therefore, vulnerable to the appealing social and environmental influences to tobacco use. Tobacco industries have used direct or indirect tactics, trying to intentionally normalize tobacco use and promote its addictive substance. Another area where tobacco industries have capitalized is on changing social attitudes toward young women by promoting tobacco use as a symbol of liberalization and freedom from gender stereotypes. Harnessing women's aspirations in the name of equality, glamour, fashion, and success and using them as reference points to build a strong association with the emerging cultural context are such exemplified tactics of tobacco industry.^[10-12] Further scientific evidence suggest that there is a greater expression of the main enzyme CYP2A6 oxidative enzymes in females with upregulation of CYP1A1 allele.^[13] This upregulation is translated into increased metabolism of nicotine products leading to faster addiction. Females have more behavioral dependence than pharmacological dependence found in men.^[14,15] Such variability is also attributable to differences in the metabolism of nicotine which is the function of genetic polymorphism.^[16]

The impact of early initiation of tobacco use could also be well understood by the neurobiology of nicotine addiction. Addiction has been conceptualized into three-stage recurring cycle of binge/intoxication mediated by basal ganglia producing feeling of pleasure, withdrawal/negative effect mediated by extended amygdala producing flight/fight, and preoccupation/anticipation mediated by prefrontal cortex concerned with executive function producing craving. Nicotinic receptors are present on the cell bodies of dopaminergic neurons from the ventral tegmental area and on their endings in the nucleus accumbens. Nicotine has a role in modulating the release of many neurotransmitters through presynaptic nicotinic receptors.^[17] Gogtay *et al.*^[18] have reported that the prefrontal cortex matures at a later age after 20 years and early usage of nicotine impairs the development of the prefrontal cortex. This functioning is associated with an impaired ability to exercise control over smoking in later life. Hence, the younger the age, the greater the likelihood of neurological vulnerability to nicotine initiation and addiction.^[12,19] Therefore, this early initiation of tobacco use by the youth is the basis for tobacco-free generation (TFG).

The concept of TFG is based on the supply reduction measure of tobacco control that prevents the sale and supply of tobacco to individuals born after a certain year or after a specified year.^[20] This cohort approach is based on transforming, educating, and activating the generations to be tobacco-free. This idea, first conceived by Australian Mathematician Jon Berrick, is based on the concept of rite of passage that connects smoking to adulthood and encourages youth approaching that age of smoking. This generation smoking ban evolved as TFG.^[20] With this background, we aim to review the TFG toward tobacco endgame among the youth to prevent this public health epidemic. Further, this

review would provide a deep understanding about the best practices in the implementation, enforcement, and various challenges associated with compliance of this proposal in various regions of the world in the best common interest of tobacco endgame.

REVIEW OF LITERATURE

Khoo *et al.*^[21] reported that a group from Singapore published the proposal in 2010, suggesting that minimum age legislation about tobacco sale to be denied to their citizen, "a person below the age of 18 years or a citizen born on or after January 1, 2000." Since then, there has been significant social advocacy for the TFG movement, which involves engaging children. This initiative has garnered considerable public attention and support from human rights advocates. As a result, smoking rates decreased from 13% in 2013 to 11.8% in 2017.^[20,22]

In Balanga city of the Philippines, the city government initiated a TFG campaign as a part of reform initiative to eliminate tobacco smoking among those born after the year 2000. This campaign was widely extended to the university campus, and the youth were encouraged by their family members to lead a healthy life by avoiding addictive substances. This was well supported by the dedicated task force of the city penalizing the law violators. The concerted efforts of the city government through multistakeholder approach led to a significant decline of smoking prevalence among the youth from 32% in 2014 to 1.63% in 2015.^[23] This was the maiden implementation of TFG policy globally.

The proposal for Tobacco-Free Generation (TFG) garnered backing in the Tasmanian Legislative Council in 2012. Subsequently, the Public Health Amendment (Tobacco-Free Generation) Bill 2014 was submitted to the Tasmanian government.^[24,25] Further, the law ensures the supply of tobacco through licensed vendors and penalties for false identification. The main feature included the prevention of tobacco sales to persons born since the year 2000.

New Zealand implemented the Tobacco-Free Generation (TFG) policy, which prohibits the sale of tobacco products to individuals born after 2008. This initiative reflects the understanding that there is no safe age to begin smoking.^[26] The denial continues till the year 2026. Similarly, the proposal of TFG received strong approval from doctors of the British Medical Association in 2014.^[27] Scotland's Tobacco-Free Generation (TFG) charter aims to establish a TFG by 2034. It focuses on creating smoke-free environments, providing effective education, safeguarding against harmful effects and vested commercial interests, and ensuring accessible support services.^[28] This charter was supported by over 400 various civil society organizations. Russia initiated this plan in 2014 banning the sale to all citizens born after 2014.^[29] It has been adopted in Brookline, Massachusetts, USA, with 2000 as cutoff, and has been effective in combination with tobacco vendor licensing (TVL).^[30-35]

Fujimori *et al.*^[36] reported that Hawaii and New York City (United States of America) have raised the legal age for

buying tobacco to 21 years on the basis that most nicotine addictions develop between 18 and 21 years.

A study conducted by Ong *et al.*^[37] was based on the WHO concept in prevention of replacement smokers on schoolchildren and reported that 96% of students were convinced that smoking is dangerous to individual health and 97% were determined not to become a replacement smoker. They concluded the implementation of the TFG social movement as a new educational approach for tobacco endgame strategy.

Berrick^[20] have reported peer influence and the desire to appear grown-up/look cool as the main reasons for early initiation of tobacco use. They have also highlighted that underage restriction laws have a rite of passage effect and signaling effect, providing easy legal access to tobacco products after overpassing this certain age restriction. Two main problems associated with the proposal of TFG are related to retailers' compliance and alternate supply.

The Surgeon General Report in 2014 is based on the 50th anniversary of their report since its inception in 1964 has emphasized on helping every smoker to quit and keeping young people away from initiating in the first place. This initiative is expected to significantly reduce premature deaths and lower direct medical costs linked to diseases caused by tobacco use. Further, the prevention of early initiation of tobacco use among youth and young adults would also prevent the occasional user from being regular users of tobacco.^[38]

Linnansaari *et al.*^[39] reported that strong national implementation of tobacco control has made Nordic countries the first countries in the world to implement point-of-sale display bans in Iceland, outdoor smoking bans in Sweden, ban on flavored electronic cigarettes in Finland, plain packaging in Norway, and plain packaging on electronic cigarettes in Denmark. Such best practices are the outcome of enduring collaboration, participation, networking, and strong national regulation. This is in line with the goal of creating a TFG in Europe by 2040 or reduction of prevalence of tobacco use with <5% by 2040.^[39] Similarly, many other countries commit to be tobacco-free such as Ireland and New Zealand by 2025, the United Kingdom (Scotland) by 2034, and Finland by 2040.^[12,40-43]

Tobacco-free Ireland is based on denormalizing tobacco use and normalizing nontobacco use. The concept of smoking is normal and socially desirable in adults is a long socioeconomic misconception that has misled casual sociocultural acceptance of tobacco use. Some denormalizing strategies used were plain packaging, countering tobacco industry interferences, smoke-free outdoors, smoke bans in cars, and regulating tobacco retail environment.^[12,44,45] In 2017, the TFG concept was introduced in the states of Punjab and Karnataka to protect the youth.^[46]

DISCUSSION

Globally, the proposal of TFG appears acceptable for formulating an effective policy. Integrating TFG with the

TVL(Tobacco Vendor License), the Cigarettes and Other Tobacco Products Act, the National Tobacco Control Policy, Tobacco Free Educational Institutions emerges as the optimal strategy for achieving the complete elimination of tobacco use and reaching zero prevalence among future generations. The main objective of TFG is protecting the younger generation from tobacco use and harm through focused cessation with life course approach.^[20] Its success shall depend on effective compliance, the key to best enforcement. Scattered or vertical approach of tobacco control is a potential challenge in the enforcement of tobacco laws. Any policy proposal turning into action is a gradual weighted process of evaluation. Therefore, a self-enforcement envision in implementing tobacco laws at the outset, being unreal in practice failed.^[20]

Many countries have moved ahead toward tobacco endgame with TFG laws as their set priority of tobacco harm reduction measures.^[46,47] The set target is achieving tobacco prevalence <5% or zero prevalence of tobacco use.^[12] Reduction in the availability and accessibility of tobacco products to vulnerable groups is a measure in supply reduction and is completely aligned with the supply reduction measures of the Framework Convention on Tobacco Control (FCTC).^[1] A review of the literature supports the success stories of case studies in various regions of the world best oriented to the tobacco endgame through TFG for the youth and young adults.^[21-23,25-27]

The potential challenges and threats to TFG laws have been reported by various studies. The rite of passage effect protects the younger vulnerable generation from tobacco harm, but signaling effect indirectly creates a desire of attainment of adulthood to initiate tobacco use.^[20] Reduction in supply is achieved but not the initiation of tobacco use. The access to younger generation is reduced but is not guaranteed as peer sharing and the influence of tobacco use by the older generation continues.

Several countries have established goals to achieve tobacco-free status within achievable timeframes, contingent upon their steadfast commitment to implementing the recommendations of the Framework Convention on Tobacco Control (FCTC).^[41-44] It has been reported that to achieve their goal on time, countries may have to increase the minimum age for buying tobacco products by 1 year, every year from the current 18 years.^[48] Further, countries such as New Zealand have raised the cutoff dates for TFG to 2009, Singapore to 2005, and Denmark to 2010, respectively, from the usual cutoff year of 2000.^[49-52] This cohort-based approach helps in harm reduction in a phased manner with sufficient leverage to the political commitment to healthy life despite its stern opposition by the old tobacco users and tobacco industries. This could also be well understood by the history of tobacco that has deep sociocultural roots in normalizing tobacco use. Hence, phasing this denormalization of tobacco use appears a more realistic approach. Furthermore, it will eliminate the much debatable point of a cutoff date that will be fixed on the basis of

a political commitment to healthy life. A threat actually to such proposals as eventually political commitment to healthy life of their citizens has overruled such recommendation.^[21,31] Further, such recommendations also get diluted despite advocacy and awareness campaigns executed during the nascent stages by the civil society organization through media to get public approval of TFG laws.

In the beginning of this discussion itself, compliance and enforcement have been emphasized as the important aspects for laws. The TFG too will have major compliance issues at the retail environment due to the lack of clarity about the laws such as licensing system of the TVL Act, ban on citizens with exemption to tourists, forged violators, family access of the older generation, and lack of fear among retailers about punishment for violation of laws.^[23] Therefore, for both TFG and TVL, the intention and motivation of retailers are essential in regulating tobacco retail environment.

Opposition to the TFG since 2000 has centered around concerns regarding human rights violations, including infringements on the rights to liberty and self-determination (as outlined in Article 3 of the Universal Declaration of Human Rights), as well as privacy or identity (in accordance with Article 12 of the UDHR). This contrasts with its urgency and alignment with fundamental rights such as the right to life, health (as per Article 3 of the UDHR), and a healthy environment.^[21,48] The tobacco industry has been the main culprit of TFG stating it as violation of human rights against denial to make free choices among the new generation and to instill the idea of inequality, resentment, low compliance, and black marketing among the younger generation. Therefore, to prevent the younger generation from being misled by the flawed and unethical propaganda of tobacco industries, integrating and engaging multiple stakeholders in tobacco control will be crucial for achieving the ultimate goal of tobacco endgame.

CONCLUSION

The TFG is an important step toward tobacco use endgame. Case studies from many countries provide a thorough insight into the TFG laws in terms of their strength, challenges, and opportunities to other countries committed to healthy life through the endgame of tobacco. Integrated and common risk approach with effective compliance and enforcement remains the single best approach in prevention, so is the case of the TFG law which also gels well with other tobacco control measures through such an approach. Education, awareness, and advocacy would certainly make the younger generation realize the need for its endgame in totality.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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