Controlling the use of Tobacco for Sustainable Development: A Focus on India and South Africa

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ABSTRACT
The use of tobacco containing products is a global health and economic burden adversely affecting sustainable development, particularly in the developing world. This article focuses on the impact of population growth, aging, gender, culture, and the ascendancy of transnational tobacco companies on the tobacco epidemic in India and South Africa. There is a distinctive manifestation of the tobacco epidemic in India and South Africa based on the stated impacting factors. Successful implementation and execution of tobacco control policies are required to promote sustainable human development. These must act in conjunction with strengthened World Health Organization tobacco control measures and improved understandings of tobacco industry strategies, as well as take population attitudes and practices towards tobacco consumption into consideration. One of the most effective contributions to controlling the tobacco epidemic is seen in health promotion initiatives.

Key words: Tobacco, Health, Health Promotion, Sustainable Development Goals, Tobacco control polices.

INTRODUCTION
Tobacco use has become a global epidemic, with dire consequences on health and development.¹² It is estimated that the number of tobacco smokers will increase to 1.6 billion within the next 25 years. It is also estimated that there are close to 1 billion male and 0.25 billion female tobacco smokers globally, with 99,000 young individuals starting to smoke their first tobacco product annually. It is indicated that the majority of this youth group are children under the age of ten, residing in low- and middle-income countries (LMICs). This epidemic is shifting from high-income countries to LMICs with the industry’s activities specifically targeted at youth and women.³ It is reported that nearly 80% of the world’s 1 billion smokers reside in LMICs and it is within these countries that tobacco-related illnesses are most common.³ Reports suggest that one of the reasons transnational tobacco companies aim their marketing at women and children is to compensate for those who quit or die due to tobacco related diseases. Tobacco use poses one of the leading preventable public health threats in the world.⁴

This manuscript focuses on tobacco use prevalence and its influence on the Sustainable Development Goals (SDGs) under existing tobacco control policies and legislation in India and South Africa. The literature is based on policy measures set out by the World Health Organization (WHO) which includes the Framework Convention on Tobacco Control policies and the MPOWER measures.

TOBACCO USE PREVELANCE
Certain factors which influence the use of tobacco include age, gender, culture and economic characteristics. Smoking tobacco in men and women is historically most common in high-income countries (HICs) in higher socio-economic groups, but is now shifting towards lower socio-economic
groups and LMICs. The major contributor to this shift is the expansion of transnational tobacco companies marketing 70% of their cigarettes in Asia, Africa, Eastern Europe and Latin America.\textsuperscript{5,6} Global statistics indicate that tobacco use is more widespread amongst men than women, and that age-standardized smoking prevalence is gradually decreasing across all continents. High levels of smoking can be associated with those below 20 years of age, and evidence states that health warnings tend to be ignored by those who are starting to smoke.\textsuperscript{3} There is a gradual decline in tobacco users in some HICs and upper middle-income countries (UMICs), but a disturbingly high increase amongst LMICs, resulting in a global increase in the consumption of tobacco products. Rapid population growth can also have an effect on tobacco use, further influencing the youth and women, and strengthening the tobacco industries’ economic hold on them, especially in South Africa, with a projected population of 60 million by 2030 (Table 1).

The United Nations predicts that by 2050 the population over 60 years of age will account for approximately half of the world population.\textsuperscript{5,9} This geriatric population is projected to increase for both India and South Africa by 2030 (Table 1), leading to increasing demand for healthcare due to a higher prevalence of non-communicable diseases (NCDs). This will have negative implications on the proposed healthcare budget for the government as well as on the health expenditure of patients.

**Demographics**

Increases in the size of a population can be regarded as a contributing factor to economic development as they enhance the demand for goods and services, and increase the supply of workforce, in turn encouraging an increase in production, employment and income. The African Region has over 30% of its population between the ages of 10 and 24, with these figures predicted to remain consistent over the next 15 years. The prominence of youth in the population and the importance of improving health behaviours and services for adolescents require much more attention in many countries if it has to result in demographic dividend.\textsuperscript{10} Even in India and South Africa, a larger proportion of population belongs to the age group of 15 to 69 years, the ‘most productive age group’, which is predicted to increase further (Table 1). This demonstrates that if the available human resource is used efficiently, in a non-exploitative and non-capitalistic way by all parties involved, it will result in sustainable development. However, ill health is a key factor that disrupts this critical growth and development cycle, and contributes to the drop in life expectancy,\textsuperscript{10,11} especially healthy life expectancy. A study reports that tobacco smoking habits reduce the life expectancy of smokers by 12 years.\textsuperscript{5}

**Tobacco use prevalence in India and South Africa**

In India and South Africa, smoking initiation typically occurs during the late teenage years and the early twenties, and has a much higher prevalence amongst males than females.\textsuperscript{12,13} In South Africa, it is reported that females who lost their mothers before they had turned 15 years of age are more likely to start smoking than those who had not. Males and females who currently drink alcohol once or twice a week are also more likely to start smoking than those who do not.\textsuperscript{14} The tobacco market within South Africa consists of 7.7 million tobacco users.\textsuperscript{15} Smoking tobacco is the most common method of tobacco consumption amongst South Africans.\textsuperscript{16} The use of other tobacco products is significantly higher in rural, informal settings (83.2%) than in urban, formal settings (56.2%).\textsuperscript{16} Furthermore, current smokers in informal urban settings smoke 6.5 cigarettes per day as opposed to the national average of 7.4 cigarettes per day. The report indicates that previous exposure to environmental tobacco smoke (ETS), also known as passive smoking, has an influence on the likelihood of future tobacco use. Around 17.7% of the population is exposed to ETS on a daily basis in their home environment. The contribution of ETS is significantly higher for males than for females, especially for Coloured males, and this

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2010</th>
<th>2015</th>
<th>2030</th>
<th>2010</th>
<th>2015</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-14</td>
<td>30.89</td>
<td>28.79</td>
<td>23.90</td>
<td>30.93</td>
<td>29.25</td>
<td>25.40</td>
</tr>
<tr>
<td>15-29</td>
<td>27.57</td>
<td>27.03</td>
<td>24.24</td>
<td>29.65</td>
<td>29.16</td>
<td>25.80</td>
</tr>
<tr>
<td>30-69</td>
<td>38.43</td>
<td>40.77</td>
<td>46.64</td>
<td>36.07</td>
<td>38.42</td>
<td>44.52</td>
</tr>
<tr>
<td>70 and above</td>
<td>3.10</td>
<td>3.41</td>
<td>5.22</td>
<td>3.34</td>
<td>3.18</td>
<td>4.30</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>(in millions)</td>
<td>1230.99</td>
<td>1311.05</td>
<td>1527.66</td>
<td>51.62</td>
<td>54.49</td>
<td>60.03</td>
</tr>
</tbody>
</table>

*Source: The United Nations, 2015.* 7
Table 2: summarises the progress made by India and South Africa based on the WHO FCTC, MPOWER policies.

<table>
<thead>
<tr>
<th>Year</th>
<th>Report</th>
<th>MPOWER Measures</th>
<th>Outcomes</th>
<th>INDIA</th>
<th>SOUTH AFRICA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current Cigarette smoking</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current Smokeless tobacco use</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% Adult</td>
<td>Current Cigarette smoking</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Protecting people from tobacco smoke</td>
<td>Public places with smoke free legislation (2014)</td>
<td>Health care facilities, Educational facilities, Universities, Government facilities, indoor offices and workplaces, restaurants, café, pubs and bars and public transport</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Offering help to quit tobacco use</td>
<td>Treatment of tobacco dependence (2014)</td>
<td>Medical treatment available</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Smoking cessation programmes available in:</td>
<td>YES in hospitals, healthcare clinics or other primary care facilities, office of a health professional</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warning about the dangers of tobacco</td>
<td>Health Warnings on tobacco packages</td>
<td>Does the law mandate that health warnings appear on tobacco packages?</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mass media campaign</td>
<td>Anti-tobacco mass media campaigns between 1 July 2012 and 30 June 2014 (for a duration of at least three weeks)</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enforcing bans on TAPS</td>
<td>Direct tobacco advertising</td>
<td>YES in most</td>
<td>YES in most</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tobacco promotion and sponsorship</td>
<td>YES in most</td>
<td>YES in most</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Raising tobacco taxes</td>
<td>Tobacco taxation policy and prices (2014)</td>
<td>Price of lowest cost brand of cigarettes 20 pack (tax inclusive retail sales price)</td>
<td>INR 38.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total taxes on most sold brand cigarettes</td>
<td>60.39%</td>
</tr>
</tbody>
</table>

Source: Compiled from World Health Organization, 2014. NDA (No Data Available).
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India has a very high percentage of youth and adults consuming smokeless tobacco and a lower percentage for cigarette smoking in comparison to South Africa (Table 3). India has more traditional ways of consuming tobacco, such as the use of a hookah, more prevalent in rural than in urban areas, which are slowly being phased out by the use of bidis and cigarettes. For many years, tobacco has been consumed by wrapping it inside a betel leaf, which is then placed inside the mouth or chewed. In Southern India, the most common form of tobacco consumption is the use of a bidi, which contains 0.15-0.25g sun-dried flaked tobacco rolled into a conical shape in a dried piece of Temburni leaf. Bidi is 7-8 times more common in India than the conventional cigarette and is used more prevalently by men than women. Smoking of tobacco in most parts of India, with the exception of Punjab, Maharashtra and Sikkim, is reported as prevalent in one quarter to a half of adult men above the age of 15. Female smoking is prevalent in states such as Jammu, Kashmir and Bihar. In India, the use of tobacco amongst poor underprivileged communities is a major concern exacerbated by lower educational levels, socio-economic status, having a father who used tobacco, and the province of residence. The health risks consequential to the use of tobacco are to some extent associated with the method of consumption.

### HEALTH CONSEQUENCES OF TOBACCO USE

Tobacco use affects almost every organ in the body, resulting in various types of cancers, respiratory and cardiovascular diseases, diabetes, certain eye disorders, weakening of the immune system, rheumatoid arthritis, and erectile dysfunction. Tobacco is one of the largest contributing risk factors of non-communicable diseases (NCDs). There are nearly six million global NCD mortality incidences every year, with more than 10 per cent of these deaths occurring amongst non-smokers, including children who are being exposed to second-hand smoke. Passive smoking is hazardous to infants and children and causes various health problems, such as reduced lung function. In this context, prolonged, and frequent secondhand smoking may be a contributing factor to males having a higher tobacco consumption rate than females. The fact is that the proportion of those smokers from rural formal settings who reported trying to quit their smoking habits (34.7%) was significantly lower than those from urban formal (49.9%) and urban informal (56.9%) settings.

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done on bidi smoke, the overall toxicity as measured by tar, nicotine, ammonia, carbon dioxide, hydrogen cyanide, other volatile phenols and carcinogenic hydrocarbons and radioactive uranium, is higher in bidis than in cigarettes. The study also reported that bidi smoking results in higher intake of carbon monoxide, nicotine and tar, due to the porosity of *Diospyros melanoxylon* leaves.\textsuperscript{33,34}

A South African survey revealed a particular increase in ‘roll-your-own cigarette’ (RYO) practices amongst the indigenous and lower socio-economic community, despite the decrease in the prevalence of cigarette smoking due to the implementation of comprehensive tobacco control legislation and ‘sin tax’ in particular.\textsuperscript{35}

According to a monitoring and evaluation report produced by the Southern Africa Resilience Innovation Lab, School of Health Systems and Public Health, RYO cigarettes pose a greater health risk than factory produced cigarettes due to a difference in weight, diameter, packing density and porosity of the wrapping paper.\textsuperscript{36} Studies report that RYO cigarettes require more puffs, and the smoker therefore inhales more smoke per cigarette for a longer period of time, exposing themselves to a wider range of carcinogens and other harmful substances.

### Tobacco Use and its Impact on Sustainable Development Goals 3

SDG 3.4 focusses on reducing mortality from NCDs, and SDG Target 3.a aims at strengthening the implementation of a framework convention on tobacco control elaborated in Table 3. The Global SDG target aims to reduce the use of tobacco by 30% by 2030, while Indian Health Target aims to reduce it by 15% by 2020 and by 30% by 2025 and South African Health Targets are set at 20% reduction by 2020.\textsuperscript{30,37,38} Every 1 in 4 Indians risk death before they reach the age of 70 years from NCDs such as heart and lung disease, cancer, stroke and diabetes.\textsuperscript{38}

Tobacco use has various adverse consequences on sustainable development goals affecting neonatal and maternal morbidity and mortality; communicable diseases; and road traffic accidents. Studies have shown that maternal tobacco smoking can cause a three-fold increased risk of Sudden Infant Death Syndrome (SIDS).\textsuperscript{39} Sleep-related obstructive apnoeic episodes and decreased lung function are also concerns associated with smoking tobacco. South Africa’s increasing burdens of tuberculosis (TB) and HIV/AIDS only aggravate the health impacts of smoking. According to the WHO, 99% of maternal and neonatal mortality occurs within the developing world. South Africa has high levels of maternal (132.9 per 100,000 in 2012-13) and child mortality (41 per 1,000 live births in 2015)\textsuperscript{40} and these are inseparably linked to NCDs as well as to their risk factors.\textsuperscript{41-43} Smoking also affects Sustainable Development Goal 3.6, which aims to halve the number of global deaths and injuries resulting from road traffic accidents by 2020. A study conducted on “Smoking while driving and its consequences on road safety” reports evidence that smoking while driving generates a significant risk to road safety, higher than that of mobile phone use.\textsuperscript{44}

### Tobacco and Poverty

The burden of disease that results from tobacco use places financial strain on the government’s health and development budgets as well as on individual household budgets. The World Bank reports that the percentage of South Africa’s population below the National Poverty Line in 2013 was 53.8%, with a Gross National Income (GNI) Per Capita of (2011 PPP$) 12,122 in 2014. According to the WHO, 80% of South Africa’s population depends on public healthcare services. Tobacco consumers contribute to poverty by using their income to buy tobacco products, which influences the loss of productivity, increased incidence of diseases, and death.\textsuperscript{45,46} South Africa has a very low economically active population that accounted for only 35% of the total population in 2010.\textsuperscript{47} In underprivileged households, large amounts of money are spent on the use of tobacco, which decreases the money that could be spent on essential needs such as food, shelter, sanitation, education, and healthcare. A lack of finances caused by tobacco expenditure could increase the rates of malnutrition, which is one of the leading causes of mortality in the underprivileged populations of South Africa. As this vicious cycle escalates, social, personal, and medical disadvantages will be a norm for those who spend most of their income indulging in a NCD risk factor.\textsuperscript{48}

In 2001, India’s 35-69 years population spent Rs 1.48 trillion (US$ 22.4 billion) on tobacco related diseases, with 16% of this expenditure going to direct medical costs and 84% to indirect morbidity costs. It is reported that 91% of the economic burden of total tobacco-consumption was as a result of male tobacco consumers. Overall, the economic burden of tobacco use was highest due to cardiovascular diseases. In the case of females, the burden of diseases due to tobacco consumption was highest for cancers (38%), followed by CVDs (18%), tuberculosis (17%) and respiratory diseases (1.4%).\textsuperscript{49}

According to the Indian Council of Medical Research, cancer, heart disease and COPD, which are all preventable non-communicable diseases, cost the country Rs 277.61 billion (US$ 4.18 billion). Thus it is evident that tobacco related diseases have enormous economic and health consequences within these two developing countries.
Health issues associated with being employed by the tobacco industry is another important aspect. In India, a large percentage of employees of the tobacco industry are women (60%), along with children (12-15%), who are mostly young girls. Cultivation of tobacco causes Green Tobacco Sickness (GTS) to those involved directly with the cultivation, greatly affecting children of poor households employed in tobacco farming to provide family income.\textsuperscript{3,50} Even though the tobacco industry improves short-term economic conditions through employment, the cost of tobacco use far outweighs the monetary gain, negating sustainable human development.

**MEASURES TO CONTROL TOBACCO USE**

**Tobacco taxes**

Increasing the taxes charged on tobacco products is one of the most effective ways to reduce tobacco consumption and the effects thereof, and it could also generate revenue for a country.\textsuperscript{35} A ZAR1.00 (US$0.06780) increase in the price of cigarettes reduces the risk of smoking onset by 1.1%-2.8% in males, which is the highest tobacco consuming population in South Africa.\textsuperscript{14} The South African government utilizes the “sin tax” strategy to complement ad-marketing approaches towards tobacco products, by placing extreme tax increases on tobacco products over the years, from 1980 to present.\textsuperscript{52,53} However, tobacco is a habit creating item, with a highly inelastic demand, so raising tax on it may not affect the demand for the product. Increased prices also result in tobacco users resorting to low-cost brands, ‘rolling’ their own tobacco-containing products, and illicit trade, which in turn is increasingly detrimental to public health.\textsuperscript{32,33} It is reported that there was a substantial increase in the illicit trade of cigarettes in 2010, peaking in 2011.\textsuperscript{54} It is therefore essential not only to focus on cigarette prices but also on controlling alternative methods of tobacco consumption more effectively. If urgent actions are not taken, the economic and health burden of tobacco use could continue to push the families of millions of tobacco users towards poverty, and steadily decelerate the economic development of both South Africa and India.

**Tobacco industry and its approach to interfere with tobacco control**

The WHO Committee of Experts on Tobacco Industry Documents reports on tobacco industry tactics designed to interfere with tobacco control, which include: establishing unethical liaisons with WHO staff; use of their financial power as an influence over policies and the subsequent fine print; leveraging influence through other United Nations agencies; discrediting WHO or WHO officials; distorting WHO research; and use of media events to distract from tobacco control initiatives.\textsuperscript{35} Tobacco industry spends large amounts on advertising, as evinced by the fact that the South African tobacco industry spent nearly 240 million Rand (US$15.8 million) a year on advertising and promotions between 1996 and 1998. However, the tobacco industry claimed that these actions were merely to compete for market share, without any net influence on smoking.\textsuperscript{56} The tobacco industry lost a court case challenging the South African Government’s proposed amendments to the Tobacco Products Control Act 1993, basing their arguments largely on the economic consequences to South Africa in the form of loss of revenue and a projected loss of employment (approximately 15000 people).\textsuperscript{3} Various groups, such as the Freedom of Commercial Speech Trust, the South African Chamber of Business, and the Council of South Africa Banks, all lobbied against the proposed advertising bans. Other entities, such as the Food and Allied Workers Union, international experts, and sport and cultural recipients of tobacco sponsorships were all influenced to testify against the proposed 1993 Act.\textsuperscript{57} These are just some of the examples of the subversive tactics that the tobacco industry continues to resort to in its efforts to undermine tobacco control policies and initiatives.

However, the industry and its supporters overlook the real cost of production and consumption of tobacco affecting the health of the society. The profit motivated and short sighted analysis of control of tobacco does not consider the detrimental impact of increased availability and consumption of tobacco on the youth and its productive population, thereby ignoring the cost to sustainable human development.

**Tobacco policies and legislation**

In 1979, the WHO Expert Committee on Smoking Control proposed that the WHO use its international treaty establishing powers to draw up an international regulatory mechanism for tobacco control at the World Health Assembly. This action led to the establishment of the WHO Framework Convention on Tobacco Control (WHO FCTC) in 2005, which calls for international co-ordination of tobacco control, requiring signatory governments to impose a certain number of minimum tobacco control interventions in their respective countries. On 19 April 2005, South Africa confirmed the adoption of the WHO FCTC, and subsequently made it their vision to strive for a tobacco-free society. In February 2005, India initiated the implementation of the WHO FCTC policies.
The WHO FCTC states that monitoring provides policy-makers and public health authorities with important information on:

- The extent to which the tobacco epidemic is a concern in the country
- The identification of subgroups in need of tailored policies and programmes
- Public awareness and attitudes towards the tobacco epidemic, and the control thereof
- Possible changes with regard to tobacco use after the implementation of policies and programmes
- How government and society comply and enforce tobacco control policies
- Tobacco industry tactics utilized to interfere and hinder the implementation of tobacco control policies and programmes

In 2008 the WHO mobilized a global initiative to support the implementation of the WHO FCTC policy measures, especially by developing countries. The initiative was called MPOWER and comprised of the following 6 measures:

**M**: Monitoring tobacco use and prevention policies
**P**: Protecting people from tobacco smoke
**O**: Offering help to quit tobacco use
**W**: Warning about the dangers of tobacco
**E**: Enforcing bans on tobacco advertising, promotion and sponsorship
**R**: Raising tobacco taxes

As per Table 2, South Africa’s progress in the implementation of the WHO FCTC MPOWER contradicts reports presented by the country with regards to certain aspects such as the impact of legislation regarding public smoke-free places (Table 3). South Africa has improved in terms of tobacco regulation and policy implementation, especially after the commencement of the Tobacco Products Control Act 83 of 1993 on 1 February 1994, and its subsequent amendments (Table 3). It is encouraging to see that South Africa is making progress with education, communication, training, and public awareness of tobacco control initiatives, targeted at both children and adults. Not only did the 1993 Act address the use of tobacco in South Africa, it also afforded non-smokers the right to air that is unpolluted by tobacco smoke. Hence, regular updates on progress reports are essential for development, as the monitoring and evaluation (M, E) of programmes assist with problem solving. M, E allows one to review and assess the progress made towards set objectives, by identifying problems and strategies and making adjustments to plans.

**DISCUSSION**

It is essential to evaluate the effectiveness of the implementation of the MPOWER measures in the areas where tobacco use is on the rise, especially in LMICs, and to monitor systems which are currently classified as ‘weak’ according to the WHO. Regular anti-tobacco mass-media campaigns would assist greatly in the cessation and prevention of smoking, and ought to be a common practise. By prohibiting the sale of cigarettes in individual quantity (or “loose” cigarettes) or in small packets, smoking prevalence could be decreased, especially amongst the youth and lower socio-economic sections of the population.

Studies indicate that only a small number of people comprehend the specific health risks of tobacco use. This is indicative of the large gap in health related knowledge within the global population. Focus should not only be placed on disease treatment, but also on disease prevention, through supporting and strengthening public health promotion initiatives within the populations most affected, using a bottom-up approach. Disease prevention aids the reduction of costs that individuals, employees, medical facilities, insurance companies, and governments incur on medical treatment, as a consequence of NCDs resulting from tobacco use. Society requires public health promotion initiatives to take ownership and needs to live sustainably. Promoting tobacco control activities in schools may help to support WHO FCTC policies. India and South Africa need to focus on preventing the use of tobacco, mainly within the child, youth and female population, by resorting to appropriate education and awareness campaigns that would help to create a healthier population for sustainable development.

**CONCLUSION**

The tobacco epidemic diversely affects sustainable development, especially in the developing world, specifically SDGs 1-3, 5 and 8. As a result of different demographic factors, culture, beliefs, and the impact of tobacco companies, the manifestation of the tobacco epidemic within India and South Africa is variable with regard to its implications. The WHO and the United Nations suggest that these governments strengthen the implementation of the WHO MPOWER measures and that they also empower individuals to take ownership of their own health through health promotion initiatives.

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CONFLICT OF INTEREST
No conflict of interest.

ABBREVIATION USED

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