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Abstract

Background: The tobacco control scale (TCS) score is used widely in European countries to evaluate the adoption of anti-tobacco policies by countries, however, data on the adoption of tobacco control programmes in the Eastern Mediterranean Region (EMR) are limited to a 2009 survey.

Aim: To compare the TCS score for measuring national tobacco control programmes in the EMR countries in 2009 and 2021.

Methods: This cross-sectional survey compared data from 21 EMR countries on 6 major

indicators, including the price of cigarettes, tobacco smoke-free public places, national budget for tobacco control activities, ban on tobacco advertising, health warning labels on tobacco packets, and support for treatment of tobacco dependence. The TCS scores at the country level in 2009 were extracted from a previous study. We then calculated the TCS score in 2021 for the same countries using the WHO report on the global tobacco epidemic 2021 and the World Bank data for 2020.

Results: The average TCS score (standard deviation) for EMR countries increased from 29.7 (16.8) in 2009 to 40.7 (17.3) in 2021. The highest TCS score (83.0) was reported in Islamic Republic of Iran, followed by Yemen (72.8) and Lebanon (62.0). Five countries (Djibouti, Syrian Arab Republic, Tunisia, Bahrain, and Oman) scored less than 30. Health warning labels, smoke-free public places, and tobacco control budgets as a percentage of Gross Domestic Product per capita had all increased, but tobacco prices and cessation treatments did not improve over the past decade.

Conclusion: Tobacco control policies have been implemented and improved in most EMR countries, but there is room for further improvement. Tobacco pricing and taxation, national tobacco control program budgets, and cessation treatments require more attention.

Keywords: Tobacco, tobacco control scale, tobacco advertising, cigarette, smoke-free, Eastern Mediterranean Region

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Introduction

Tobacco smoking is a significant public health issue globally, causing millions of deaths annually and imposing a massive financial burden on healthcare systems (1,2). The problem is particularly acute in the Middle East, where the popularity of traditional tobacco products like water-pipes and the prevalence of new tobacco products, such as e-cigarettes, have intensified the tobacco epidemic (3,4). In response, several initiatives, including the World Health Organization Framework Convention on Tobacco Control, have been established to combat the problem in the Eastern Mediterranean Region (EMR) (5). However, emergencies such as civil wars, economic crises and political reforms have reduced the priority given to tobacco control programmes for decision-makers in some EMR countries (6,7).

Despite the political and economic challenges, most EMR countries have adopted regional strategies to reduce tobacco use, and according to the WHO report 2019, 70% of people in the EMR are protected by at least 2 MPOWER measures (8,9). However, to ensure effective implementation of tobacco control policies, national action plans and routine evaluation of tobacco control programmes are essential (5). The tobacco control scale (TCS) score is a valuable tool for evaluating the adoption of anti-tobacco policies, including tobacco price and affordability, tobacco advertisement bans, smoke-free public places, health warning labels on cigarette packets, smoking cessation treatment availability, and national tobacco control budgets (10).

Although the TCS is widely used in European countries, data on the adoption of tobacco control programmes in the EMR are limited to a 2009 survey (11). This study aimed to update the previous report and highlight the adoption of tobacco control programmes in the EMR at the national and regional levels over the past decade.

Material and methods

We performed a cross-sectional study to compare the adoption of tobacco control policies in 21 EMR countries in 2009 and 2021. We used the TCS score designed by Jossens and Raw as the proxy for the tobacco control programme (10). The TCS questionnaire consists of 50 items that assess 6 major indicators of tobacco control policies, including the prices of cigarettes, tobacco smoke-free public places, the national budget for tobacco control activities, a ban on tobacco advertising, health warning labels on tobacco packets, and support for the treatment of tobacco dependence. The TCS score ranges from 0 to 100, and the questionnaire was validated in European countries in 2005 (10). The TCS score at the country level in 2009 was extracted from a previously published study (11). We also calculated the TCS score in 2021 for the same countries using data from the WHO report on the global tobacco epidemic 2021 (1), World Bank data (2020) (12) and the same approach as Heydari et al (11). We described calculation and maximum score of each indicator as follows:

Price of cigarette (Max score = 30): The researchers extracted the prices of a packet of 20 Marlboro® brand cigarettes and 20 most popular local brand cigarettes, then divided the prices by the Gross Domestic Product (GDP) per capita (Price of 20 cigarettes/GDP per capita × 10 000). The country with the highest price ratio received 15, followed by 14, 13, 12, etc.

Tobacco smoke-free public places (Max score = 22): The score of legislation for tobacco smoke-free public places, including workplaces, cafes, restaurants, and other public places, was multiplied by the degree of enforcement of these regulations in a specific country. If the enforcement factor for a given country was more than 8, the country received the highest score in that subdomain. If there was a partial commitment, the country was categorized as having meaningful restrictions but with enforcement scores less than 8. If the enforcement score was zero, the country was categorized in the group of having legislation but not enforced. We assigned a score of 0 to all countries that had no legislation in any subdomains of the smoke-free public places policy.

National budget for tobacco control (Max score = 15): The national budget allocated for tobacco control was divided by the GDP per capita at the national level. The country with the highest ratio was awarded 15 points, followed by 14 for the next country, and so on.

Ban on tobacco advertisement (Max score = 13): The overall score for each EMR country regarding a ban on tobacco advertisement on television, outdoor advertising, print media, indirect advertising, point of sale advertising, cinema advertising, sponsorship, internet advertising, and radio advertising was multiplied by the degree of enforcement of this legislation in that country.

Health warning labels on tobacco products (Max score = 10): EMR countries were scored regarding this policy based on the size, rotation, colour, and picture of warning labels on tobacco products.

Support for the treatment of tobacco dependence (Max score = 10): Countries were scored based on the availability of nicotine substitutes, Bupropion, tobacco cessation primary care, smoking hospitals, smoking cessation support available from health professionals, and tobacco cessation communities.

Statistical analysis

Statistical analysis was performed using Microsoft Excel (Ver 2016). The TCS score for each country in EMR in 2021 was calculated as the sum of their scores in the 6 investigated policies. The scores for each policy were also calculated for each country and compared to their scores in 2009. No further statistical analysis was reported in the methods section.

Results

The average TCS score (SD) for the EMR countries in 2009 was 29.7 (16.8) and it increased to 40.7 (17.3) in 2021 (Table 1). The highest TCS score was observed in the Islamic Republic of Iran (83.0), followed by Yemen (72.8) and Lebanon (62.0). The TCS score was less than 30 in 5 countries, including Tunisia (16.0), Djibouti (18.0), Syrian Arab Republic (18.0), Bahrain (26.6), and Oman (29.0). TCS score declined in 6 countries, including Tunisia (43.2 in 2009 versus 16.0 in 2021), Syrian Arab Republic (48.0 in 2009 versus 18.0 in 2021), Djibouti (25.7 in 2009 versus 18.0 in 2021), Egypt (51.7 in 2009 versus 47.0 in 2021), and Kuwait (37.0 in 2009 versus 30.0 in 2021) while it increased in the other countries. The greatest improvement in TCS score was observed in Lebanon, where the overall TCS score increased by 44.0 points and reached 62.0 in 2021. Libya, Somalia, Yemen, Saudi Arabia, and United Arabic Emirates followed (Table 1) (Figure 1).

We also separately compared the 6 tobacco control policy indicators in all 21 countries in the EMR. The average price of a packet of cigarettes increased from US$ 1.7 in 2009 to US$ 4.6 in 2021, with Yemen, Somalia, Lebanon, and Sudan having the highest prices. However, high-income countries such as Qatar, Kuwait, Bahrain, UAE, and Saudi Arabia had the lowest prices per GDP. (Supplementary Table 1) (Table 1).

The adoption of smoke-free public places policy increased from an average score of 2.7 in 2009 to 6.6 in 2021, with Iran having the highest score, followed by Saudi Arabia, Lebanon, Libya, Yemen, and Pakistan. In 6 counties, including Bahrain, Oman, Qatar, Somalia, Sudan, and Tunisia, the score for this policy was zero in 2021, indicating no legislation in this regard (Supplementary Table 2) (Table 1).

The average tobacco control budgets for the EMR countries increased from US$ 3659.5 in 2009 to US$ 4829.8 in 2021. Islamic Republic of Iran had the highest budget per GDP for tobacco control, followed by Saudi Arabia and Yemen. Tobacco control budgets were increased in all other countries in 2021 compared with 2009 except in the Syrian Arab Republic and Djibouti. For 7 countries, including Afghanistan, Bahrain, Iraq, Libya, Morocco, Somalia, Tunisia, and

UAE, there was no information on tobacco control budgets in 2021 and 2009 (Supplementary Table 3) (Table 1).

The ban on advertisement policy had a significant improvement, with the average score increasing from 4.6 in 2009 to 7.7 in 2021. Lebanon reported the maximum score for this policy. Islamic Republic of Iran (12.0), Libya (12.0), Qatar (12.0), Afghanistan (12.0), Iraq (11.5), Syrian Arab Republic (11.0), and Egypt (11.0) were the other countries with a high score on this policy. Kuwait, Saudi Arabia, Djibouti, and Sudan had the weakest performance in this regard (Supplementary Table 4) (Table 1).

There was a dramatic improvement in the health warning labels policy, with the average score increasing from 2.1 in 2009 to 7.1 in 2021. Eleven countries, including Bahrain, Djibouti, Egypt, Islamic Republic of Iran, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, UAE, and Yemen, adopted this policy entirely in 2021. Somalia, Afghanistan, Morocco, Syria Arab Republic, Tunisia, and Sudan had the worst performance. We observed improvements in this policy adoption in all EMR countries in 2021 except in the Syrian Arab Republic and Somalia (Supplementary Table 5) (Table 1).

Tobacco cessation treatment was the only policy with a downward trend during the study period, where the policy score decreased from 3.1 in 2009 to 2.6 in 2021. Iran, Saudi Arabia, UAE, and Tunisia were the leading countries on this policy, attaining almost half the maximum score. Djibouti, Egypt, Somalia, and the Syrian Arab Republic scored zero. The highest reduction was observed in Syrian Arab Republic, where the policy score decreased to 9 and reached zero. Saudi Arabia had the most considerable improvement in this policy adoption. Iraq, Libya, Pakistan, UAE, and Yemen were the other countries with minor improvements (Supplementary Table 6) (Table 1).

Discussion

This study aimed to compare the TCS score as a measure of national tobacco control programmes in EMR countries in 2009 and 2021. We tried to highlight changes in the adoption of tobacco control policies on national and regional scales over the last decade and found considerable improvements in the adoption of tobacco control policies in the region. Lebanon, Somalia, Libya, UAE, Yemen, and Saudi Arabia had the most significant improvements in this regard. Tunisia, Syrian Arab Republic, Djibouti, Kuwait, and Egypt showed the worst performance, with decreased TCS scores over the study period. These findings are supported by a previous study that evaluated the trend of the MPOWER package score in EMR countries (13). The TCS score for 6 countries, including Pakistan, Lebanon, Jordan, Yemen, Saudi Arabia, and Iran, was over 50 in 2021, while only Islamic Republic of Iran had over 50 in the

2009 survey, indicating significant improvements in the adoption of anti-tobacco policies. However, there was a considerable gap compared to the reported values from European countries, where 22 countries scored over 50 points in 2019 (14). When compared with the latest TCS score report in Europe, we found that the TCS score in EMR countries was mostly comparable to eastern European countries like Ukraine (46), Bulgaria (44), Serbia (38), and Bosnia & Herzegovina (25) (15).

The most significant improvement was in health warning labels on cigarette packets; most countries in the region implemented them thoroughly. It is a fast and cheap policy for governments and has no cost to taxpayers (16). It imposes all direct and indirect costs on tobacco producers, and fewer monitoring procedures are required (16). Hillamo et al have argued that low- and middle-income countries with limited capacity are more likely to implement health warning labels (17). After South East Asia, the EMR is ranked as the second region in health warnings on cigarette packs (18).

Tobacco control budgets were the other policies that showed considerable improvements overall. In 8 of the 21 investigated countries, there was no information about anti-tobacco programme budgets, and in some of them, like Egypt, Lebanon and Sudan, the allocated financial resources were too little. A comparison of the allocated budgets for tobacco control in EMR and Europe showed a significant difference (14). The tobacco control budget in USA had reached US$ 720 in 2021 and it was significantly higher than the allocated national budgets for tobacco control in the EMR countries (19). Less development and lower health expenditure due to lower GDP, along with issues such as civil wars in some Middle Eastern countries, are possibly the main reasons that countries avoided spending more money on anti-tobacco activities (5). It is worth noting that such emergencies and political instability provided a unique opportunity for the tobacco industry to increase the illicit trade of tobacco and to oppose tobacco control policies (20).

Ban on tobacco advertisement and smoke-free public places had significant improvements, although compliance was low. In many countries, there were comprehensive rules and regulations regarding the ban on tobacco advertisements and tobacco smoking was already prohibited in public places (13). However, in most of the investigated countries, action on these rules is mostly lacking. The tobacco industry's new tactics, such as using influencers and social media should also be considered as tobacco industry interference to violate this rule. They have tried to influence the policymaking process by funding research and policy forums in some EMR countries such as Pakistan (21). According to the WHO report on the global tobacco epidemic 2021, compliance with tobacco smoke-free public places policy was zero in 10 countries, including Bahrain, Djibouti, Jordan, Kuwait, Oman, Qatar, Somalia, Sudan, Syrian Arab Republic, and Tunisia. Tobacco smoke-free public places were only written words (1), and in some pioneer countries like Islamic Republic of Iran, these rules were easily violated, and

cigarettes and water-pipe are smoked in public places such as cafés or family gatherings (22).

Support for the treatment of tobacco dependence was the only policy that experienced no improvement over the past decade and its average score decreased. The overall score for this scale was 3.1 in 2009 and it decreased to 2.6 in 2021. The reported score for treatment in the EMR was pretty low in comparison with European countries (23). According to the WHO tobacco report, most EMR countries did not report any data regarding tobacco cessation support. There were limited financial resources to cover the costs of such treatments (only 6 countries had full financial coverage) in most of the EMR countries, and access to hospitals or health professionals was limited (1). Establishing and developing tobacco dependence cessation centres requires financial resources and trained healthcare staff. Allocated budgets for tobacco control in the EMR countries were too little and did not allow countries and policymakers to establish such money and time-consuming interventions.

Poor development of community-based smoking cessation programmes should be noted as one of the other neglected parts of tobacco cessation services in the EMR countries (1) although there was enough evidence regarding the effectiveness of community-based approaches in tobacco control and tobacco cessation (24).

The most disappointing situation in tobacco control policies is the cigarette prices which have remained almost constant during the study period. Although increasing taxes and the prices of tobacco products is the most cost-effective way to reduce the tobacco use, especially among low-income groups and youth, cigarette price per GDP per capita had increased over the past decade in only five countries (Bahrain, Iran, Oman, Sudan, and Yemen). Cigarette prices in the EMR countries are lower than in high-income European countries and the USA (25). In such countries, an increase in cigarette price is due to increased cigarette taxation, whereas in some Middle Eastern countries such as the Islamic Republic of Iran, price increases were due to economic crises and declining GDP per capita.

As already indicated, higher cigarette prices are associated with decreased cigarette smoking (25). However, the experience of countries like Islamic Republic of Iran showed that implementation of tobacco taxation programmes was unsuccessful (11). In 2015 Islamic Republic of Iran implemented a 14.0% tobacco tax increase and the tax on the retail price of the most widely sold brands of cigarettes reached 20% (26). However, this was still lower than the 70% tax on the retail price of tobacco in developed countries. Inefficient formula for calculating tobacco tax, the inability of the tax administration to collect tobacco tax, and tobacco smuggling were the main reasons for the inefficient tobacco taxation policies in Islamic Republic of Iran (27).

Our findings illustrate a significant opportunity to increase the effectiveness of anti-tobacco activities in all EMR countries by applying more vigorous policies on the net prices of cigarettes and tobacco taxation. However, it is important to highlight the role of the tobacco industry in delaying taxation; there is some evidence regarding their efforts to postpone tobacco taxation increase in some Gulf Cooperation Council countries (28).

There are also several reports of political lobbying by the tobacco industry to make some EMR countries to send non-health professionals as representatives to the WHO Framework Convention on Tobacco Control (FCTC) Conference of Parities (29). The main purpose of the tobacco industry is to represent tobacco as a business with a huge financial impact and benefits rather than a health hazard (30). Corporate social responsibility is their leading strategy to contact senior officials in the EMR and it has been successful in several countries (30). However, there are promising examples from Islamic Republic of Iran and Saudi Arabia as the leading countries in the region adhering to the WHO FCTC Article 5.3 guideline that prohibits tobacco companies from participating in social responsibility activities or issued regulations restricting such communication between local officials and tobacco industry (31).

Strengths and limitations of the study

This study provides valuable information about the performance of EMR countries in adopting tobacco control policies during the past decade. Using a valid tool, it shows the strengths and limitations of anti-tobacco activities at national and regional levels. However, some limitations must be considered in interpreting our data. Incomplete data, especially data regarding national budgets and cigarette prices in some countries like Afghanistan, Syrian Arab Republic, Somalia, and Sudan was the main limitation of the study. Also, TCS could not measure the implementation of tobacco control policies in the real world and is only a proxy of tobacco control policy adoption in country legislation.

Conclusion

The adoption of tobacco control policies has improved over the past decade, however, there is still room for further improvements. Neglected policies in the tobacco control programmes of EMR countries include tobacco product prices and taxes, budget allocation for national tobacco control programmes, and treatment for tobacco cessation. Vigorous monitoring intervention is necessary regarding other MPOWER policies, such as prohibition of tobacco advertisements and establishment of smoke-free public places, that suffer from low compliance. Such interventions could lead to greater improvements in the implementation and effectiveness of tobacco control policies in the region.

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Supplementary Tables

Étude comparative du score sur l'échelle de lutte antitabac dans les pays de la Région de la Méditerranée orientale

Résumé

Contexte : Le score sur l'échelle de lutte antitabac est un indicateur largement utilisé dans les pays européens pour évaluer la mise en œuvre de politiques dans ce domaine. Cependant, les données sur l'adoption de tels programmes dans les pays de la Région de la Méditerranée orientale se limitent à une enquête datant de 2009.

Objectif : Comparer les scores sur l'échelle de lutte antitabac afin d'évaluer les programmes nationaux dans les pays de la Région de la Méditerranée orientale en 2009 et 2021.

Méthodes : La présente enquête transversale a comparé les données provenant de 21 pays de la Région de la Méditerranée orientale pour six indicateurs principaux, dont le prix des cigarettes, les espaces publics non-fumeurs, le budget national consacré aux mesures de lutte antitabac, l'interdiction de la publicité en faveur du tabac, les mises en garde sanitaires illustrées sur les paquets de cigarettes et l'appui au traitement de la dépendance au tabac. Les scores sur l'échelle de lutte antitabac au niveau national pour l'année 2009 ont été extraits d'une précédente étude. Nous avons ensuite calculé le score sur l'année 2021 pour les mêmes pays en utilisant le rapport de l'OMS sur l'épidémie mondiale de tabagisme paru en 2021 et les données de la Banque mondiale pour 2020.

Résultats : En 2009, le score moyen sur l'échelle (écart type) dans les pays de la Région de la Méditerranée orientale a augmenté passant de 29,7 (16,8) en 2009 à 40,7 (17,3) en 2021. Le score le plus élevé a été signalé en République islamique d'Iran (83,0), suivi du Yémen (72,8) et du Liban (62,0). Il était inférieur à 30 dans cinq pays, à savoir Bahreïn, Djibouti, Oman, la République arabe syrienne et la Tunisie. Le nombre de mises en garde sanitaires au sein des espaces publics non-fumeurs et les budgets consacrés à la lutte antitabac en pourcentage du produit intérieur brut par habitant ont tous augmenté, alors qu'aucune amélioration n'a été constatée concernant l'augmentation des prix du tabac et les traitements du sevrage tabagique au cours de la dernière décennie.

Conclusion : Les politiques relatives à lutte antitabac ont été mises en œuvre et améliorées dans la plupart des pays de la Région de la Méditerranée orientale, mais des améliorations sont encore possibles. La tarification et la taxation du tabac, les budgets consacrés aux programmes nationaux de lutte antitabac et aux traitements du sevrage tabagique doivent faire l'objet de davantage d'attention.

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درجات مقياس مكافحة التبغ على المستوى القُطري في عام 2009 من دراسة سابقة . ثم حسبنا درجة مقياس مكافحة التبغ في عام 2021 للبلدان نفسها باستخدام تقرير منظمة الصحة العالمية عن وباء التبغ العالمي لعام 2021 وبيانات البنك الدولي لعام 2020.

: بلغ متوسط درجات مقياس مكافحة التبغ (الانحراف المعياري) في بلدان إقليم شرقالنتائ ج المتوسط 29.7 (16.8) في عام 2009. وارتفع إلى 40.7(17.3) في عام 2021. ورُصِدت أعلى درجة لمقياس مكافحة التبغ في إيران (83.0) ، يليها اليمن (72.8) و لبنان (62.0). وكانت الدرجة أقل من 30 في 5 بلدان، منها البحرين وجيبوتي وعُمان وسوريا وتونس . وزادت خلال هذه المدة الملصقات التحذيرية الصحية على عبوات السجائر والأماكن العامة الخالية من دخان التبغ وميزانية مكافحة التبغ لكل نصيب فردي من الناتج المحلي الإجمالي، في حين لم يحدث أي تحسُّن في زيادة أسعار التبغ وعلاج الإقلاع عن تعاطي التبغ على مدار العقد الماضي .

: لقد تم تطبيق وتحسن سياسات مكافحة التبغ في معظم بلدان اقليم شرق المتوسطالاستنتاجات ولكن هناك مجال لمزيد من التحسن . ان الأسعار والضرائب على التبغ وميزانيات برامج مكافحة التبغ وعلاجات التوقف عن التدخين تستحق مزيدا من الاهتمام

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