

Assessment of compliance to packaging laws in Pakistan by local and international tobacco manufacturing companies

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Abstract

Background: Tobacco control law is one of the most effective means of controlling the widespread use of tobacco. However, enforcement of this law in Pakistan is weak.

Aim: To analyse compliance to cigarette packaging laws by tobacco brands in Pakistan.

Methods: This cross-sectional study was conducted in August and September 2022. We collected data on tobacco packaging of 100 cigarette brands from 24 outlets selling cigarettes in different parts of Karachi, Pakistan. To assess compliance, we scored the products on a scale of 0–5, based on regulations issued by the Ministry of National Health Services, Regulations and Coordinations.

Results: Fifty-five of the 100 assessed brands were manufactured locally and 45 were imported. Only 28% of the brands fully complied to the packaging law. Although 54.5% of the brands had a 4/5 score for the presence of pictorial warnings on the packaging, the sizes of pictorial warnings did not cover up to 60.0% of the total package area in most cases. More than 85.0% of the brands severely lacked the placement of a small health warning on the side of the box, and 5 products did not have this warning at all.

Conclusion: Adherence to tobacco packaging law in Pakistan is poor, as majority of the brands lacked at least one component of the regulations. Pakistani authorities need to strengthen monitoring and enforcement of the law to ensure compliance by tobacco manufacturing companies.

Keywords: Tobacco, cigarette, packaging law, compliance, Pakistan

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Introduction

Tobacco smoking is one of the leading causes of preventable deaths, especially among underprivileged populations (1). An estimated 1.3 billion of the world's population are smokers, of which 800 million live in developing countries (2). WHO estimates that around 6.4 million people lose their lives each year due to tobacco smoking, and the economic loss amounts to billions of dollars (3). Pakistan alone has more than 22 million tobacco consumers, with about 100 900 premature deaths in the country every year from tobacco consumption (4).

A variety of interventions have been adopted to reduce tobacco use in Pakistan, including the prohibition of tobacco promotions and advertisements (5), mass-reach health communication campaigns aimed at changing the attitude and behaviours towards tobacco use (6), an increase in the retail price of tobacco products (7), and comprehensive smoke-free policies that prohibit smoking in all indoor and public areas (8). Another cost-effective means of conveying information on the health risks associated with tobacco use is the placement of warning labels on tobacco packaging (9). Research has shown that tobacco promotion can cause an increase in consumption, discourage quitting and encouraging relapses (10), thus the importance of regulating consumption.

Although the incidence of smoking is decreasing in high-income countries (11), the numbers in developing countries have continued to increase (12). Because of strict regulations, cigarette control, and high taxes in the developed countries, the tobacco industry has been progressively dedicating more resources to broaden its market presence in underdeveloped and emerging nations, which may explain this growing trend (13). Aggressive marketing strategies can be blamed for the increase in consumption (14).

Pakistan recently raised the excise duty on cigarettes by over 200%, causing smokers to shift towards more affordable, untaxed, locally produced tobacco products and smuggled cigarettes. Representatives of the Pakistan Tobacco Company have indicated that the quantities of duty-not-paid cigarettes and smuggled cigarettes have surged by 32.5% and 67%, respectively, since January 2023. As a result, the illicit sector now accounts for more than 42.5% of Pakistan's entire tobacco market (15). This is one of the major reasons this study focuses only on cigarettes.

Cigarette packaging has a significant impact on sales (16) and manufacturers are obligated by law to prominently advertise the health risks because doing so has been shown to be effective in educating consumers about the dangers of smoking (17). Pakistani laws mandate

that this warning must be stated in Urdu and English, take up at least 60% of the outer cover of the box, and include both image and text (18). However, manufacturers sometimes manipulate their sales by evading these rules and hiding the health warning strategically, such as by using translucent colours for the notice, making it difficult to see immediately.

Literature on compliance with tobacco control laws in Pakistan by cigarette brands is extremely limited. One study explored the non-compliant packaging of smokeless tobacco products (19), and another evaluated the general implementation of tobacco control laws in the country (20). However, to date, no study has been conducted to assess compliance to packaging laws specific for cigarette products. This study, therefore, analysed the packaging of cigarette brands and their compliance to the packaging law in Pakistan. The aim was to provide useful information to regulatory bodies to effectively gain control over the tobacco market and penalise or get rid of illicit and non-compliant products.

Methodology

This cross-sectional study collected data by identifying small general stores and paan/tobacco kiosks in various areas of Defense Housing Authority, Clifton and Korangi in Karachi, Pakistan. Karachi is a major metropolitan hub of Pakistan, housing over 17 million people; around 1.6 million of these people resided in the study area (21). We visited 24 outlets to determine what tobacco products were being sold and whether they were manufactured locally or imported. Before examining products in a shop, we explained the study and its purpose to the owner and gave them opportunity to consent. As an incentive, we gave Rs. 200 to the shopkeepers for their cooperation.

We aimed to have a high sample size that would allow us to reach saturation. We included all local and imported cigarette products, flavoured and non-flavoured, that were still in production and excluded any brand that was no longer in production or unpopular; mainly products that were not available in more than 2 outlets. We also excluded cigars and other smokeless tobacco products.

Data for this study was collected in August and September 2022. We used a checklist to identify and document the items to ensure data standardization. We took photographs of the front, back and sides of every product and then studied the photographs. We noted data relating to the packaging of the products such as the size, location, language, and content of the pictorial warning to determine whether the packaging complied with the tobacco control law or not.

To assess compliance, we developed a scoring system of 0–5 which defined the legal requirements for tobacco product packaging in Pakistan. The scoring system was based on regulations issued by the Ministry of National Health Services, Regulations and Coordinations, which specifies the 5 major guidelines brands must adhere to when designing their packaging (22,23,24). Each package received one point for each standard it complied with, up

to a maximum of 5, and the lowest was zero if it failed to meet a single standard. These criteria are: (i) has a pictorial warning, (ii) has text warning, (iii) has warning in Urdu in the front, (iv) has warning in English at the back, and (v) the warning must occupy 60% of the packaging.

The Ethical Review Committee of Fatima Jinnah Dental College gave ethical approval for this study.

Results

We collected 100 brands of cigarette, out of which 55 were manufactured locally and 45 were imported (Table 1). From the entire sample, only 28.0% of the brands fully complied with all the Ministry of Health protocol, with a mean of 0.28 ± 0.08 . Only 41.8% (mean 0.41 ± 0.13) of the locally manufactured brands met every criterion for packaging and these included mostly international products being manufactured locally. Although 54.5% of the brands had a score of 4/5, their packaging was lacking in the required size of pictorial warnings, which is 60.0% of the total area of the package (Figures 3A and 3B). The brand K2 had the lowest score of only 3 because it had no pictorial warning, and the size of the text warning was not very legible.

There was a lot of variation among the imported brands; only 11.1% had all the requirements (Figures 4A and 4B). These included most of the Dunhill, Marlboro and L&M variants. Although Marlboro Gold and Marlboro Vista had a score of 5, one variant, Marlboro Light, had a score of 0 because it failed to meet any of the requirements. This shows discrepancies in packaging within the same brand. More than 85.0% of the brands were severely lacking, as they fulfilled only 1 out of the 5 packaging requirements, including a small health warning on the side of the box.

Five products failed to meet a single requirement.

Discussion

To the best of our knowledge, this is the only study that has been conducted to assess packaging of cigarette brands in Pakistan. Although most of the local brands complied with the law, the imported ones did not. These brands abide by the local rules in their countries of origin but failed to do so in Pakistan.

Article 11 of the WHO *Framework Convention on Tobacco Control* (FCTC) stipulates obligations for the packaging and labelling of tobacco products. Pakistan has adopted most of these stipulations, including the prohibition on the display of nicotine, tar and carbon monoxide levels on the packaging and the display of descriptors such as light and mild, as both parameters can be somewhat misleading (25). Some of the brands included in this study used these labels for their products, therefore, it is important for the regulatory authorities in Pakistan to implement this portion of the law as well.

In a study conducted in Pakistan in 2016, only 62% of 37 brands displayed pictorial warnings (20). Our study showed a similar pattern, only 61% of 100 brands had any

Table 1. Tobacco product brands assessed and their scores

| Locally manufactured | Score | Imported | Score |
|---|-------|--|-------|
| Red and White (King size filter) | | Dunhill Signature Blend (Smooth flow filter) | |
| Morven Gold | | Dunhill Gold Leaf special blend (Smooth flow filter) | |
| Parliament Red (Original recessed filter) | | Marlboro Gold (Firm filter) | |
| Kisan (King size filter) | | Marlboro Vista forest mint | |
| Gold Leaf Classic | | L&M Blue | |
| Melburn (Virginia filters King size) | | | |
| Capstan Original | | | |
| Capstan Filter | | | |
| Embassy filter | | | |
| Diplomat | | | |
| Chance | 5 | | 5 |
| Gold cup | | | |
| 77 | | | |
| Bridge | | | |
| Gold street classic | | | |
| Gold flake | | | |
| Gold mark | | | |
| Gold street | | | |
| Hero | | | |
| Hiway | | | |
| Jump | | | |
| Smoker | | | |
| Three cuts | | | |
| Royal | | Tradition | |
| Wonder | | | |
| Ok | | | |
| Tander | | | |
| Visa | | | |
| C-Pack | | | |
| Badsha | | | |
| Bond | | | |
| Boss | | | |
| Café | | | |
| Cash | | | |
| Cricket | | | |
| Express | 4 | | 4 |
| Grace | | | |
| Kick | | | |
| Lazer | | | |
| Market | | | |
| Next | | | |
| Olympic | | | |
| Omega international | | | |
| Oris | | | |
| Platinum | | | |
| President | | | |
| Press | | | |
| Prime international | | | |
| Ranger | | | |
| Relax | | | |
| Shuangxi | | | |
| Romantic | | | |
| Town | | | |
| Wills king | | | |
| K2 | 3 | L&M Red Label by Marlboro | 3 |
| - | | Pine lights super slim | |
| | | 555 | |
| | 2 | David off classic | 2 |
| | | Pride | |
| | | Prince | |
| | | Raison | |
| | | Rothmans | |
| | | Senator | |

Table 1. Tobacco product brands assessed and their scores (concluded)

| Locally manufactured | Score | Imported | Score |
|----------------------|-------|--|-------|
| - | | Hi-Lite special mild (Finest quality filter) Camel Blue Elegance Lights max Elegance Full Flavour max Benson & Hedges (Special Filter) Mazaya French Tobacco (Natural watermelon with Mint molasses) Mazaya Cappuccino Molasses (Natural watermelon with Mint molasses) Oscar blue Exclusive blend Mond Queen edition Milano X-merge Blueberry Silk cut extra mild Mild seven original Mild seven lights Esse lights A&B | |
| | 1 | Mac Business club Grand mark Napoli Paran West Ashima Desert gold GB Sobranie | 1 |
| - | 0 | Dunhill International Top Mountain Blue Marlboro Light Black devil Pine Lights (Low tar and nicotine) | 0 |

form of pictorial warning. This shows that over the past few years, there has been little or no improvement in the enforcement of tobacco control laws. Pictorial warnings are very important for starting or enhancing behavioural change in smoker-linked quitting, as shown by a study in Mexico (26). It is essential to apply these laws so as to reduce tobacco consumption in Pakistan. Tight monitoring should be conducted to ensure compliance to the guidelines and specifications for cigarette packs and health warnings by all tobacco companies operating within the country.

A case study in Mauritius demonstrated how even a small nation was successful in adopting advanced tobacco control legislation on packaging and labelling (27). As of 2013, Mauritius had the largest warning label size (65%) in Africa. Although SRO 22(KE)/2015 stipulated that health warning size in Pakistan should be increased to 85% of the outer packaging cover, it was never implemented (28).

In another study conducted in 8 former Soviet Union countries, health warnings constituted 98% of the packets analysed (29). All countries except Azerbaijan met the 30% minimum size of warning set by the FCTC. The pictorial warnings used were 'general', rather than 'specific'. Pakistan has fared a little better as pictorial warnings used covered more than 50% of the package cover, with specific pictures showing some of the hazards of long-term smoking.

Antitobacco regulation must be strictly enforced since, in addition to the health benefits for smokers like lower risk of heart and lung disease, it has been shown to protect young kids from second-hand smoke exposure (30). Full implementation of the tobacco control law can play a major role in decreasing the number of tobacco-associated deaths in Pakistan.

Limitations of the study

One of the main limitations of this study is that it included brands available only within a 10 km radius. More variations may be found in different parts of Karachi and Pakistan. Although our assessment was based on regulations by the national government, a more standardized tool needs to be developed to assess compliance. While it is well documented that a significant proportion of Pakistan's cigarette market consists of smuggled goods (15), determining the legality of the products examined in this study is challenging. Conducting a thorough assessment of all products in the country and classifying them based on their legal status is a formidable task. However, this effort would significantly aid identification and classification of brand compliance and the creation of a platform for implementing control measures.

Figure 1 Compliant packaging of cigarette brand Capstan by Pall Mall (1A-back, 1B-front and 1C side)



Figure 2 Compliant packaging of cigarette brand Dunhill Gold Leaf Special Blend (2A-back, 2B-front and 2C-side)



Figure 3 Compliant packaging of cigarette brand Gold Mark (3A-back, 3B-front and 3C-side)



Figure 4 Non-compliant packaging cigarette brand Camel Lights (4A-back, 4B-front and 4C-side)

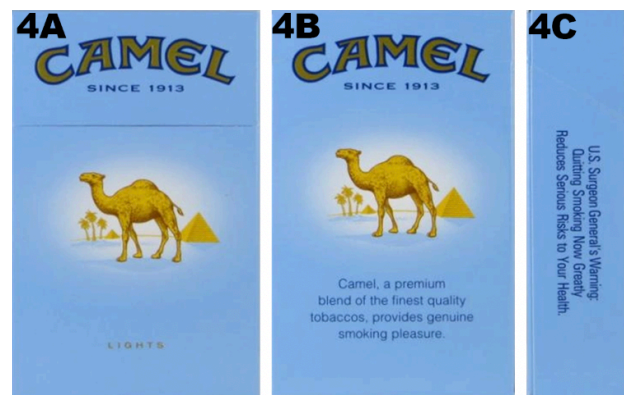


Figure 5 Non-compliant packaging of cigarette brand Pine Lights (5A-back, 5B-front and 5C-side)



Figures 1, 2 and 3 display the packaging of cigarette products Capstan by Pall Mall, Dunhill Gold Leaf Special Blend and Gold Mark, respectively, show the back (A), front (B) and sides (C) of each brand. All these products had 100% compliance with local packaging laws when assessed with the criteria. Distinctively, the non-compliant packaging of brands Camel and Pine Lights are shown in Figures 4 and 5.

Figure 3A Score of local brands

3A Score of local brands

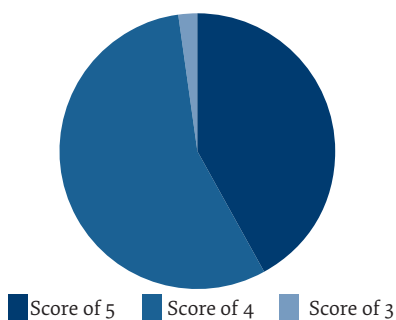


Figure 3B Score of imported brands

3B Score of imported brands

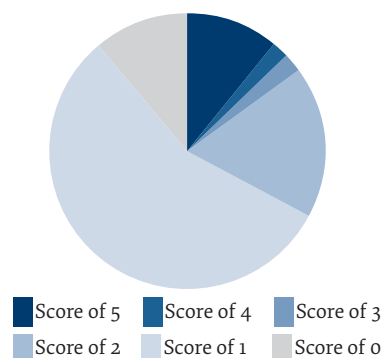


Figure 4A Compliance of local brands

4A Compliance of local brands

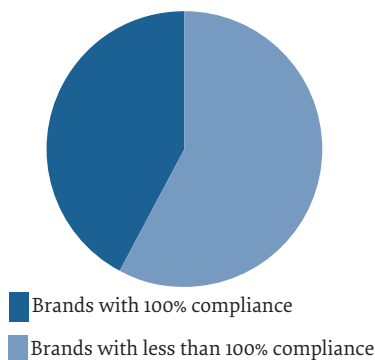
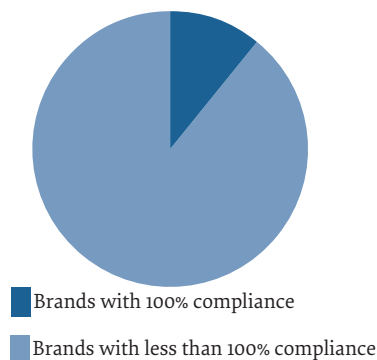


Figure 4B Compliance of imported brands

4B Compliance of imported brands



Key for Figure 3: 1 point each was awarded to every brand on fulfillment of the following criteria: 1 - Has a pictorial warning; 2 - Has text warning; 3 - Warning in Urdu in the front; 4 - Warning in English at the back and 5 - Warning must occupy 60% of packaging

Conclusion

This is the first paper to analyse cigarette packaging of popular cigarette brands in Pakistan and assess compliance with FCTC and national regulations. The results show several areas of noncompliance and offer insightful data to inform tobacco control policies in the country. Pakistan has come a long way in introducing

regulations to control illicit sale of cigarette products, but there is little evidence of enforcement. Policies need to be strengthened, monitored and enforced to ensure that tobacco product packaging complies with FCTC and national laws.

Funding: None.

Competing interests: None declared.

Évaluation de la conformité aux lois sur le conditionnement des produits du tabac par les entreprises de fabrication locales et internationales au Pakistan

Résumé

Contexte : La législation relative à la lutte antitabac constitue l'un des moyens les plus efficaces d'en réduire la consommation généralisée. Toutefois, l'application de ces lois au Pakistan reste limitée.

Objectif : Analyser la conformité aux lois sur le conditionnement des cigarettes par les marques de tabac au Pakistan.

Méthodes : La présente étude transversale a été menée entre août et septembre 2022. Nous avons recueilli des données concernant le conditionnement de 100 marques de cigarettes présentes dans 24 points de distribution situés dans différentes zones de Karachi (Pakistan). Afin d'évaluer la conformité de ces produits, nous les avons notés sur une échelle de 0 à 5, selon les réglementations publiées par le ministère des Services nationaux de santé, de la Réglementation et de la Coordination.

Résultats : Sur les 100 marques de cigarettes évaluées, 55 étaient fabriquées localement et 45 étaient importées. Seuls 28 % des marques respectaient pleinement la législation. Bien que 54,5 % des marques aient obtenu un score de quatre sur cinq en raison de la présence de mises en garde illustrées sur le paquet, la taille de ces dernières n'atteignait généralement pas 60,0 % de la surface totale de l'emballage. Des mises en garde de petite taille ne figuraient pas sur le côté du paquet dans plus de 85,0 % des cas, et cinq produits n'en présentaient pas du tout.

Conclusion : L'observance de la législation sur le conditionnement des produits du tabac au Pakistan demeure insuffisante, la majorité des marques n'ayant pas respecté au moins un des critères de la réglementation. Les autorités pakistanaïses doivent renforcer la surveillance et l'application de la loi afin de garantir le respect de celle-ci par les fabricants de tabac.

تقييم امتثال شركات تصنيع التبغ المحلية والدولية لقوانين التغليف في باكستان

سيد حسين عسكري، عبد الأحد جمشيد، جل رخ عسكري، علي رضا شيخ

الخلاصة

الخلفية: يُعدُّ قانون مكافحة التبغ من الوسائل الأكثر فعالية لمكافحة تعاطي التبغ على نطاق واسع. ومع ذلك، فإن إنفاذ هذا القانون في باكستان ضعيف.

الهدف: هدفت هذه الدراسة إلى تحليل امتثال شركات التبغ في باكستان لقوانين تغليف السجائر.

طرق البحث: أُجريت هذه الدراسة المقطعية في أغسطس/ آب وسبتمبر/ أيلول 2022. وقد جمعنا بيانات عن أغلفة منتجات التبغ لما يبلغ 100 شركة للسجائر من 24 منفذًا لبيع السجائر في أنحاء مختلفة من كراتشي، باكستان. ولتقييم الامتثال، أعطينا للمنتجات درجات على مقياس من 0 إلى 5، بناءً على اللوائح الصادرة عن وزارة الخدمات الصحية الوطنية واللوائح والتنسيق.

النتائج: من أصل 100 شركة خضعت للتقييم، نُصِّغ منتجات 55 شركة محليًا وتُستورد منتجات 45 شركة من الخارج. وقد التزم 28٪ وحسب من الشركات التزامًا تامًا بقانون التغليف. وعلى الرغم من حصول 54.5٪ من الشركات على درجة 4-5 بشأن وضع تحذيرات مصورة على الغلاف، فإن حجم التحذيرات المصورة لم يغط ما يصل إلى 60.0٪ من إجمالي مساحة الغلاف في معظم الحالات. وكان ما يزيد على 85.0٪ من الشركات مقصرة بشدة فيما يتعلق بوضع تحذير صحي صغير على جانب العلبة، وكانت 5 منتجات بدون هذا التحذير على الإطلاق.

الاستنتاجات: يُعدُّ الالتزام بقانون تغليف التبغ ضعيفًا في باكستان، نظرًا لأن غالبية الشركات لا تطبق مكونًا واحدًا على الأقل من اللوائح. وعلى السلطات الباكستانية أن تعزز رصد القانون وإنفاذه لضمان امتثال شركات تصنيع التبغ.

References

1. Samet JM. Tobacco smoking: the leading cause of preventable disease worldwide. *Thorac Surg Clin.* 2013;23(2):103-112. doi:10.1016/j.thorsurg.2013.01.009.
2. Walt G. WHO's world health report 2003: Shaping the future depends on strengthening health systems. *Bmj British Medical Journal* 2004;328(7430):6. doi: 10.1136/bmj.328.7430.6.
3. Samim D, Méan M, Clair C, Marques-Vidal P. A 10-year observational study on the trends and determinants of smoking status. *PLoS One* 2018;13(7):e0200010. doi:10.1371/journal.pone.0200010.
4. Burki SJ, Pasha AG, Pasha HA, John R, Jha P, Baloch AA, et al (2013). The economics of tobacco and tobacco taxation in Pakistan. Paris: International Union Against Tuberculosis and Lung Disease. <https://extranet.who.int/fctcapps/fctcapps/fctc/kh/tobacco-taxation/e-library/economics-tobacco-tax-and-tobacco-taxation-pakistan-0>.
5. McNeill A, Gravely S, Hitchman SC, Bauld L, Hammond D, Hartmann-Boyce J. Tobacco packaging design for reducing tobacco use. *Cochrane Database Syst Rev.* 2017;4(4):CD011244. doi:10.1002/14651858.CD011244.pub2.
6. The Community Guide. Tobacco use: Mass-reach health communication interventions. Atlanta: The Community Guide. <https://www.thecommunityguide.org/findings/tobacco-use-and-secondhand-smoke-exposure-mass-reach-health-communication-interventions>.
7. The Community Guide. Tobacco use: Interventions to increase the unit price for tobacco products. Atlanta: The Community Guide. <https://www.thecommunityguide.org/findings/tobacco-use-interventions-increase-unit-price-tobacco>.
8. The Community Guide. Tobacco use: Smoke-free policies. Community Preventive Services Task Force. Atlanta: The Community Guide. <https://www.thecommunityguide.org/findings/tobacco-use-smoke-free-policies>.
9. Jung M. Implications of graphic cigarette warning labels on smoking behaviour: An international perspective. *J Cancer Prev.* 2016;21(1):21-25. doi:10.15430/JCP.2016.21.1.21.

10. National Cancer Institute. The Role of the media in promoting and reducing tobacco use. Bethesda: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, 2008. Tobacco Control Monograph No 19. NIH Publication No. 07-6242. <https://cancercontrol.cancer.gov/brp/tcrb/monographs/monograph-19>.
11. Crofton J, Simpson D. Tobacco: a global threat. 1st ed. London: Macmillan, 2002.
12. Khan FM, Husain SJ, Laeeq A, Awais A, Hussain SF, Khan JA. Smoking prevalence, knowledge and attitudes among medical students in Karachi, Pakistan. *East Mediterr Health J*. 2005;11(5-6):952-958.
13. Alam AY, Iqbal A, Mohamud KB, Laporte RE, Ahmed A, Nishtar S. Investigating socio-economic-demographic determinants of tobacco use in Rawalpindi, Pakistan. *BMC Public Health* 2008;8:50. doi:10.1186/1471-2458-8-50.
14. Joossens L. From public health to international law: possible protocols for inclusion in the Framework Convention on Tobacco Control. *Bull World Health Organ*. 2000;78(7):930-937.
15. SPDC. Budget 2022-23 Revenue and Health Implications of Cigarette Tax Policy Options in Pakistan (Policy Note). *Tobacconomics*, 2022. <https://www.tobacconomics.org/research/budget-2022-23-revenue-and-health-implications-of-cigarette-tax-policy-options-in-pakistan/>.
16. Wakefield M, Morley C, Horan JK, Cummings KM. The cigarette pack as image: new evidence from tobacco industry documents. *Tob Control* 2002;11 Suppl 1(Suppl 1):I73-I80. doi:10.1136/tc.11.suppl_1.i73.
17. Hammond D, Fong GT, McNeill A, Borland R, Cummings KM. Effectiveness of cigarette warning labels in informing smokers about the risks of smoking: findings from the International Tobacco Control (ITC) Four Country Survey. *Tob Control*. 2006;15 Suppl 3(Suppl 3):iii19-iii25. doi:10.1136/tc.2005.012294.
18. Tobacco Control Laws. Legislation by Country: Pakistan. Washington DC: Tobacco Control Laws. <http://www.tobaccocontrolilaws.org/legislation/country/pakistan/laws>
19. Abdullah SM, Huque R, Siddiqi K, et al Non-compliant packaging and illicit smokeless tobacco in Bangladesh, India and Pakistan: findings of a pack analysis. *Tobacco Control* September 2022. doi: 10.1136/tc-2021-057228.
20. Khan JA, Amir Humza Sohail AM, Arif Maan MA. Tobacco control laws in Pakistan and their implementation: A pilot study in Karachi. *J Pak Med Assoc*. 2016;66(7):875-9.
21. World Population Review. Karachi Population. <https://worldpopulationreview.com/world-cities/karachi-population>.
22. Government of Pakistan Ministry of National Health Services, SRO (KE)/2019. https://assets.tobaccocontrolilaws.org/uploads/legislation/Pakistan/Pakistan-SRO-KE_2019-national.pdf.
23. Government of Pakistan Ministry of National Health Services, SRO 127(KE)/2017. https://assets.tobaccocontrolilaws.org/uploads/legislation/Pakistan/Pakistan-SRO-27KE_2017-national.pdf.
24. Government of Pakistan Ministry of National Health Services, SROs 22(KE)/2015 and 23(KE)/2015. https://assets.tobaccocontrolilaws.org/uploads/legislation/Pakistan/Pakistan-SRO-22KE_2015-85-warnings-national.pdf.
25. Gray N, Boyle P. Publishing tobacco tar measurements on packets. *BMJ*. 2004;329(7470):813-814. doi:10.1136/bmj.329.7470.813.
26. Mutti S, Hammond D, Reid JL, Thrasher JF. The efficacy of cigarette warning labels on health beliefs in the United States and Mexico. *J Health Commun*. 2013;18(10):1180-1192. doi:10.1080/10810730.2013.778368.
27. Best practices in implementation of article 11 of the WHO FCTC Case study Mauritius. <https://fctc.who.int/publications/m/item/best-practices-in-implementation-of-article-11-of-the-who-fctc>.
28. Awan MA. Statutory Notifications containing Rules and Orders Issued by all Ministries and Divisions of the Government of Pakistan and their Attached and Subordinate Officers and the Supreme Court of Pakistan. *The Gazette of Pakistan*. [http://www.tcc.gov.pk/downloads/New%20SRO%2022-23%20\(KE\)%202015.pdf](http://www.tcc.gov.pk/downloads/New%20SRO%2022-23%20(KE)%202015.pdf).
29. Mir H, Roberts B, Richardson E, Chow C, McKee M. Analysing compliance of cigarette packaging with the FCTC and national legislation in eight former Soviet countries. *Tob Control*. 2013;22(4):231-234. doi:10.1136/tobaccocontrol-2012-050567.
30. Akhtar PC, Currie DB, Currie CE, Haw SJ. Changes in child exposure to environmental tobacco smoke (CHETS) study after implementation of smoke-free legislation in Scotland: national cross sectional survey. *BMJ*. 2007;335(7619):545. doi:10.1136/bmj.39311.550197.AE.