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Research Article

Are Tobacco Companies in Nigeria Complying With Health Warning Label Regulations on Cigarettes and Other Tobacco Products?

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Background: Nigeria has approved 50% coverage of text and images of pictorial health warning labels (PHWLs) on packages of cigarettes and other tobacco products such as cigars, smokeless tobacco, and loose tobacco. While there is knowledge on the extent to which LMICs like Nigeria adopt the WHO Framework Convention of Tobacco Control (FCTC), there is a need to examine the compliance with adopted packaging and labeling policies to generate knowledge for strengthening existing policies and efforts at enforcement. We assessed agreement with FCTC regulations as well as compliance with Nigerian requirements which are not adequate and do not effectively capture all FCTC requirements to identify the gaps being explored by these companies in an environment of poor regulation in Lagos, Nigeria.

Methods: This descriptive study was conducted in Lagos State, Nigeria, from October 2022 to January 2023. A multistage random sampling method was utilized. Four local government areas (LGAs) with a combined population of 16 million, accounting for 70% of the population in Lagos, Nigeria were selected while three points-of-sale were randomly picked from two selected wards in each LGA. Empty discarded packs of cigarettes and other tobacco products were collected from these outlets. The pack dimensions were measured and assessed for PHWLs, health warning manipulations, and cessation assistance. Findings were assessed for compliance with the FCTC and national legislation. For each compliance feature, we calculated the frequencies and percentages of the packs that were compliant.

Results: 704 packs: 434 packs of 22 cigarette brands and 270 packs of 17 different tobacco products including cigars, snuff and loose tobacco were included in the study. Of 434 cigarette packs assessed, 50.3% were compliant with 9 indicators measured. These ranged from 48.8% to 55.5% for individual brands. For cessation assistance, image variability and image manipulation, compliance was 0% across all cigarette packs. Out of 270 tobacco product packs assessed, 10.6% were compliant with the 9 indicators assessed. Of the 12 multinational parent companies and product distributors assessed, the overall level of compliance among them was 24.9%. Level of compliance was noted to very low for companies involved in marketing other tobacco products, ranging from 0% to 20% but moderate for those marketing cigarettes, ranging from 37% to 55.5%. Companies that had no presence or subsidiaries in Nigeria but only exported their products were highly non-compliant.

Conclusions: Tobacco companies had low compliance with PHWL on cigarettes and negligible compliance on other tobacco products like cigars, and loose and smokeless tobacco. The government should expand and strictly enforce all regulations applying to health warnings, especially on non-cigarette tobacco products and closely monitor companies that merely export their products to the country.

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Introduction

The use of tobacco in its combustible and noncombustible forms is a primary contributor to the global burden of diseases and a public health problem with severe health and economic consequences[1]. The economic cost of tobacco-related morbidity and mortality was approximately 1.8% of the world's annual gross domestic product in 2012[2][3]. Globally, 21% of adults are current smokers approximately half of whom will die from a tobacco-related illness, representing about 8.8% of the global mortality in year 2000[4]. Thus yearly, tobacco kills 8 million people around the world, including 1.2 million nonsmokers who are exposed to secondhand smoke[5]. More than 80% of the world's smokers live in low- and middle-income countries. Thus, tobacco use is a leading reason for inequalities in health and mortality in Sub-Saharan Africa, Nigeria inclusive.

Even though the overall prevalence of cigarette use in Nigeria has declined, one in four adolescents and young people in Nigeria still smoke[6] and vulnerable populations like people living with HIV[7] and certain key occupations like truck and commercial drivers have an unusually high prevalence of tobacco and cigarette use[8]. The yearly financial burden of cigarette smoking in Nigeria is ₦ 634 billion (488 million US dollars), while 5% or 29,000 annual deaths and 800,000 disability-adjusted life years (DALYs) are attributable to smoking in the country[9]. Cigarette smoking costs Nigeria ₦526.45 billion (approx. USD 1.7 billion) annually in direct treatment, which is equivalent to 0.36% of GDP and 9.63% of the country's annual healthcare budget. This burden is mainly attributable to COPD (63%), stroke events (12%), and cardiovascular diseases (6%)[9].

Nigeria exerts significant economic and political influence within Africa and it is a major market for the tobacco industry. British American Tobacco (BAT) is the leading player in Nigeria's tobacco sector, owning 60% of the Nigerian Tobacco Company (NTC), which itself commands around 80% of the local market. Other registered competitors in Nigeria include International Tobacco Company Limited, holding a 16.5% share, Black Horse Tobacco Limited with 3%, and International Tobacco Company (ITC), a subsidiary of Philip Morris International, with 1.1%. Various other companies together account for approximately 0.8% of the market share. The tobacco industry in Nigeria has effectively used lobbying and front groups to obstruct and undermine Nigeria's tobacco control measures, particularly the Tobacco Smoking (Control) Decree 20 of 1990 and the subsequent efforts to update the country's tobacco control laws[10].

Many approaches have been utilized to confront this menace and preventive evidence-based policies are more cost-effective than medical and surgical treatments in those who already have a tobacco-related illness. One such policy introduced by the World Health Organization (WHO) is the Framework Convention on Tobacco Control which identified six practical, inexpensive, and attainable measures known as MPOWER. One of the key recommendations of the WHO report on the global tobacco epidemic is the fundamental right of smokers to be informed about the health consequences, addictive nature, potential for disability, and premature death associated with tobacco consumption and exposure to tobacco smoke. Article 11 in the Framework Convention on Tobacco Control (FCTC) stipulates that at least 50% of the principal display area of both sides of cigarette packs and other categories of tobacco products should exhibit rotated messages and warnings as well as pictures that spell out the dangers associated with tobacco use and exposure to tobacco smoke in the dominant language(s) of the country[11].

Cigarette Health Warning Labels (HWL) have become a crucial component of integrated public health campaigns designed to enlighten and influence smokers about the harmful hazards associated with the habit. Health warnings on cigarette packages provide smokers with widespread access to information on the risks of smoking. This health promotion approach is particularly effective because, unlike other products in which the packaging is thrown away after opening it, cigarette packs are usually retained by smokers until all cigarette sticks are smoked, allowing repeated exposure to the messages. The warnings on the packs are thus a simple and cost-effective way of communicating the risks associated with tobacco use. Additionally, cigarette packs in some countries include smoking cessation resources, such as a quitline number and/or a cessation website that the smoker can contact.[12] Thus, the HWL on cigarette packets makes cigarettes less appealing to the smoker, and are associated with more quit attempts or reduction in the number of cigarettes smoked[13].

The effectiveness of the HWL is however limited by its size, design, position, clarity, specificity, and the habituation of smokers to monotonous messages. The types of health warnings also differ significantly across jurisdictions, ranging from explicit illustrations of tumors and other cancer-related lesions on Canadian packages to ambiguous text warnings in other countries. As of 2021, Nigeria, which has a moderate to high use of tobacco products[14][15][16] was one of the countries that had developed and approved 50% coverage of the images of pictorial health warning labels (PHWLs) and accompanying text to be used for printing on packages of cigarettes and other tobacco products such as cigars, waterpipe, smokeless tobacco, and loose tobacco[17]. In Nigeria, the regulatory framework for health warning labels (HWLs) on tobacco products is primarily established by the National Tobacco Control Act

of 2015 and the National Tobacco Control Regulations of 2019. These regulations mandate that combined pictorial and text health warnings must cover 50% of both the front and back surfaces of all tobacco product packages. Additionally, a text-only warning is required on one of the lateral sides of the package. The law also prohibits misleading descriptors such as "low tar," "light," "ultra-light," "mild," "extra," and "ultra" on packaging. Notably, beginning in June 2024, the required coverage for pictorial health warnings will increase to 60% of the front and back surfaces of tobacco packages.[17] Currently, three health warnings have been prescribed, with one warning to appear at a time for a period of up to 24 months. It also states that a text-only health warning must also be displayed on one of the lateral sides of the package. Beginning in June 2024, it stipulates that picture health warnings must be displayed on 60% of the front and back of packages[17].

Nigeria's regulatory framework for health warning labels (HWLs) aligns with WHO FCTC Article 11 but has key limitations. While the law mandates 50% pictorial warnings, increasing to 60% in 2024, it falls short of the 75% or more recommended by FCTC for maximum impact. Additionally, rotation of warnings is unclear, unlike FCTC's requirement for periodic updates to maintain effectiveness. Although warnings appear on the front and back, FCTC encourages coverage on all sides, including the top and bottom. Nigeria also permits branded packaging, whereas FCTC promotes plain packaging to reduce product appeal. Enforcement remains a challenge, with poor compliance in warning size and placement. Even though Nigeria signed the WHO FCTC in 2004 and ratified it in 2005, committing to tobacco control. To align with FCTC obligations, it enacted the National Tobacco Control Act (NTCA) in 2015, regulating tobacco production, distribution, and consumption. However, NTCA implementation faced delays due to the requirement that regulations be approved by both houses of the National Assembly, allowing potential industry interference. The FCTC mandates periodic compliance reports, including on Article 11 (health warnings), but as of February 2025, Nigeria's latest submission status remains unclear, highlighting gaps in reporting. Moreover, Nigerian regulations are not all-inclusive, and no study in the country has assessed the implementation and compliance of tobacco companies with the PHWL on the packs of other tobacco products in light of FTCT regulations[18]. We thus aimed to assess the compliance of tobacco companies with Nigerian regulations as well as the level of agreement with FCTC regulations on cigarette packs and other tobacco products in Lagos, Nigeria.

Methods

This descriptive study was conducted in Lagos State, Nigeria, from October 2022 to January 2023. Ethical approval was obtained from the Health Research and Ethics Committee of the Lagos State University Teaching Hospital before commencing the study. There are thirty-six states in Nigeria apart from the federal capital territory Abuja, but Lagos State, in the Southwest geopolitical zone of Nigeria which has a population of over 20 million people is the commercial nerve center and a cultural melting pot of the diverse population of Nigerians of different cultures and backgrounds, making studies conducted in it more representative than in other regions in the country, hence its selection. The state is divided into administrative and political geographic units called local government areas (LGAs).

A multistage random sampling method was utilized. Mushin, Lagos Island, Ikeja, Agege, and Ikorodu LGAs were selected in the first stage while three points-of-sale were randomly picked from two randomly selected wards in each LGA. Ikeja is the capital of the state and its economic hub which has all socio-economic classes represented in the local government area. The Mushin LGA is located 10 km north of the Lagos central business district and is a densely populated mixed commercial and residential area with congested housing, and an estimated population of 1,312,517 according to the Lagos State 2006 census. Lagos Island is the commercial and business nerve center of Nigeria due to its endowed physical and human resources. Lagos Island has the highest degree of commercial, financial, and social influence on other parts of Nigeria. Ikorodu is the second largest LGA in Nigeria and it comprises mainly manufacturing, farming and trading activities. Agege has a land mass of about eighteen square kilometers (18km2) and was predominantly designed as a commercial center but most of the original settlers who were traders have made it a residential area.

In each of the selected wards, three points of sale were randomly chosen at public places where tobacco products were sold or consumed for empty-pack collection. Two calibrated research assistants collected the cigarette and related tobacco packs of representative brands from tobacco vendors at each point of sale. Training included a discussion of the purpose of the study, an overview of the study design, a detailed description of the procedures to be used for collecting or observing tobacco packs, and how to complete data collection forms. Empty and intact neatly discarded packs of cigarette and other tobacco products which were freely available were collected from the outlets with the permission of the vendors. A total of 434 cigarette packs were sampled and selected for inclusion in this study. These included products like Chesterfield by British American Tobacco, ESSE compact black by KT an G (Korea), Benson and Hedges by British American Tobacco, Selected Premium tobaccos by Phillip Morris International, Royal Standard by British American Tobacco, EDGE by KT an G (Korea), and others like TIME Virginia blend, Dorchester International, ORIS, BOHEM, Rothmans, Aspen, Dorchester, Dunhill, Sterling, Marlboro, Royal standard, Bohem green plus, St Moritz by Dunhill, Pall Mall, Target and All stars. Likewise, 270 packs of non-

cigarette tobacco products like Al Oostoura mint and cream flavour shisha tobacco packs, Jewels vanilla flavoured tobacco, Phillies blunt cigars, King Song e-cigarette among others were also sampled.

The following Nigerian and other FTCT regulations were assessed in the packs:

1. Health Warning Label and Picture Size: The labels were assessed to see if they cover at least 50% of the package surface, and if the text was large and visible. Labels were also checked for location and to see if they were noticeable and if the text used large fonts text that contrasts with the background color.
2. Health Warning Variability: HWLs were assessed for themes such as those depicting: self-harm from using cigarettes, ie 'Smoking causes lung cancer'; harming family or children with SHS, ie SHS causes lung cancer; reinforcing compliance with existing smoke-free policies and anticigarette gift-giving practices. It was determined if a set of messages using several approaches rather than a single, broad message was utilized.
3. Cessation Assistance: information about cessation resources, such as a quitline number and/or a cessation website was checked for.
4. Plain Packaging: The packs were checked for Standardized Color and Design – Packaging must be in a uniform, drab color (e.g., dark brown or green) with no glossy or attractive finishes.; Logos or Branding – Company logos, symbols, or promotional elements are prohibited.; Product Name in Standardized Font – Only plain, uniform text is allowed, with regulated font size, style, and placement; and Misleading Descriptors – Terms like "light," "mild," or "low tar" are banned to prevent false perceptions of reduced harm.
5. Health warning manipulations: HWL were checked for manipulations such as tinting, darkening, fading, changing the background colour from blue to grey, cropping the HWL, blurring, brightening, and increasing the colour saturation or reducing the size of the lung cancer image.

All panels of each package, front, back, top, bottom, sides, and inside, were assessed, and the location, and size of all health warnings and promotional messages. The width/length/circumference/diameter of the pictorial and text warnings was measured in centimeters using a calibrated scale for cuboid packs and a measuring tape for conical and cylindrical packs. The size of the warning labels relative to the Principal Display Area (PDA) was calculated using a standard ruler as the area covered by the warning label or labels (warning height × warning width) divided by the PDA. To enter the characteristics of each pack into the proforma, the two trained and calibrated examiners examined and reviewed the products and entered their values separately. The final value to be entered for each product was reviewed with a public health Specialist to resolve discrepancies and final values were entered in a separate proforma.

Data analysis

Data were entered and analyzed using SPSS version 26.0.0. Basic descriptive procedures were run for the type of tobacco products used, with frequencies and percentages calculated. For each compliance feature, we calculated the frequencies and percentages of the packs that were compliant. Compliance of the tobacco products with FTCT requirements was also dichotomized as not present/present for each item.

Results

704 packs which consisted of 434 packs of 22 cigarette brands and 270 packs of 17 brands of other tobacco products including cigars, snuff, pipe tobacco, and shisha tobacco were included in the study.

Examiner Reliability

The two examiners were trained and calibrated for the identification of relevant elements and calculation of PHWL as well as data entry by a public health specialist 20 randomly selected cigarette packs and 20 randomly selected packs of other tobacco products. The inter-examiner reliability for both examiners was 0.87, while the inter-examiner reliability was 0.84 and 0.89 for the two examiners, respectively.

Health warning label compliance by indicators and by specific cigarettes, 2023.

Out of 434 cigarette packs assessed, 50.3% of the packs evaluated were compliant with the 9 indicators assessed (Location of PHWL, PHWL size, size of the graphic image, size of textual warning, cessation assistance, variability of textual warning, image variability, plain packaging, and image manipulation). These ranged from 48.8% for All Stars and Target cigarettes to 55.5% for Benson and Hedges. For specific indicators, the level of compliance for the location of PHWL being placed on both the front and the back of the packs and for text variability (stating the health effects of cigarettes to include a variety of specific types of cancer) was 100% across all cigarette packs even though lung cancer was the only type mentioned on all product packs. For cessation assistance such as a quitline number and/or a cessation website, image variability, plain packaging (absence of flashy logos or any labeling that promotes tobacco products by false, misleading messages), and image manipulation, compliance was 0% across all cigarette packs.

The image used by all the cigarette packs was the same type (lung cancer) and the picture was dull, and did not contrast well with the background and with that of a normal lung. The overall compliance with graphic image size was 80%, and compliance ranged from 60% for

sterling cigarettes to 100% for Benson and Hedges, Dunhill, and Oris; while for text size, the overall compliance was 85.6% and compliance in individual products ranged from 70% for selected premium tobacco to 100% for Benson and Hedges, Royal standard, ESSE, Dorchester, Aspen, Dunhill, Sterling and Marlboro.

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Tobacco Product	n	Compliance with all 9 indicators	Location	PHWL Size	Graphic Image Size	Text size	Cessation Assistance	Text Variability	Image Variability	Plain package	Image Manipulation
Benson/Hedges	**26**	**55.5%**	100%	100%	100%	100%	0%	100%	0%	0%	0%
Pall Mall	**18**	**50.5%**	100%	85%	90%	80%	0%	100%	0%	0%	0%
ESSE	**25**	**52.2%**	100%	90%	80%	100%	0%	100%	0%	0%	0%
Rothmans	**25**	**52.2%**	100%	90%	90%	90%	0%	100%	0%	0%	0%
TIME	**26**	**52.2%**	100%	90%	80%	100%	0%	100%	0%	0%	0%
Virginia Blend	**20**	**52.2%**	100%	90%	90%	90%	0%	100%	0%	0%	0%
Dorchester	**18**	**52.2%**	100%	90%	80%	100%	0%	100%	0%	0%	0%
Aspen	**15**	**52.2%**	100%	90%	80%	100%	0%	100%	0%	0%	0%
Dunhill	**16**	**55.5%**	100%	100%	100%	100%	0%	100%	0%	0%	0%
Sterling	**20**	**48.8%**	100%	80%	60%	100%	0%	100%	0%	0%	0%
Marlboro	**20**	**52.2%**	100%	90%	80%	100%	0%	100%	0%	0%	0%
London	**16**	**48.8%**	100%	80%	80%	80%	0%	100%	0%	0%	0%
Chesterfield	**20**	**48.8%**	100%	85%	80%	90%	0%	100%	0%	0%	0%
Compact Black	**18**	**50.5%**	100%	80%	80%	80%	0%	100%	0%	0%	0%
Selected Premium Tobacco	**25**	**45.5%**	100%	70%	70%	70%	0%	100%	0%	0%	0%
Bohem	**25**	**50.5%**	100%	85%	80%	90%	0%	100%	0%	0%	0%
Royal Standard	**22**	**52.2%**	100%	90%	80%	100%	0%	100%	0%	0%	0%
Bohem Green	**26**	**52.2%**	100%	90%	90%	90%	0%	100%	0%	0%	0%
St Moritz by Dunhill	**20**	**45.5%**	100%	70%	70%	70%	0%	100%	0%	0%	0%
Target	**18**	**48.8%**	100%	80%	80%	80%	0%	100%	0%	0%	0%
All Stars	**17**	**48.8%**	100%	80%	80%	80%	0%	100%	0%	0%	0%
Oris	**18**	52.2%	100%	90%	100%	80%	0%	100%	0%	0%	0%
Overall (all cigarettes)	**434**	**50.3%**	**100%**	**86.7%**	**80%**	**85.6%**	**0%**	**100%**	**0%**	**0%**	**0%**

Table 1. Health warning label compliance by indicators and by specific cigarettes, 2023.

Out of 270 tobacco product packs assessed, 10.6% of the packs evaluated were compliant with the 9 indicators assessed (Location of PHWL, PHWL size, size of graphic image, size of textual warning, cessation assistance, variability of textual warning, image variability, plain packaging, and image manipulation). These ranged from 0% for Tabaci Shisha tobacco, Majalis hookah tobacco, Double apple Shisha Tobacco, Al Ostoura Mint grapes flavor Shisha tobacco, King Song E-Cigarettes and Al Ostoura Mint and Mint/Cream Shisha tobacco to 37% for Colts Pipe Mixture and Super match mixture. For specific indicators, the level of compliance for the location of PHWL being placed on both the front and the back of the packs was 14.7% ranging from 0% for most of the tobacco products to 50% for Colts Pipe Mixture and Super Match mixture.

For Cessation Assistance such as a quitline number and/or a cessation website, image variability, plain packaging (absence of flashy logos or any labeling that promotes tobacco products by false, misleading messages), and, text variability and image manipulation, compliance was 0%

across all tobacco product packs. There was an overall low compliance with graphic image size (18.2%) and PHWL size (20.9%) even though the overall compliance with text size was slightly higher (35.9%).

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Tobacco Product	n	Compliance with all 9 indicators	Location	PHWL Size	Graphic Image Size	Text size	Cessation Assistance	Text Variability	Image Variability	Plain package	Image Manipulation
Colts Pipe Mixture	**16**	**37%**	50%	90%	100%	100%	0%	0%	0%	0%	0%
Supermatch mixture	**17**	**37%**	50%	90%	100%	100%	0%	0%	0%	0%	0%
Al Ostoura Mint and Mint and Cream Shisha tobacco	**18**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Jewels Vanilla Flavour	**16**	**20%**	50%	30%	0%	100%	0%	0%	0%	0%	0%
Phillies Blunt Cigars	**15**	**18.9%**	50%	20%	0%	100%	0%	0%	0%	0%	0%
King Song E Cigarettes	**18**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Radford Snuff	**14**	**10.5%**	0%	25%	30%	50%	0%	0%	0%	0%	0%
Captain Black little Cigars	**21**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Backwoods Cigars	**12**	**30%**	50%	20%	0%	80%	0%	100%	0%	0%	0%
Rooster Snuff	**9**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Double apple Shisha Tobacco	**18**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Al Ostoura Mint grapes flavor Shisha tobacco	**18**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Tabaci Shisha tobacco	**21**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Majalis hookah tobacco	**16**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Captain black pipe tobacco	**32**	**26.7%**	0%	80%	80%	80%	0%	0%	0%	0%	0%
Erinmore Pipe tobacco mixture	**2**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%
Jacob E cigarettes	**7**	**0%**	0%	0%	0%	0%	0%	0%	0%	0%	0%

Tobacco Product	n	Compliance with all 9 indicators	Location	PHWL Size	Graphic Image Size	Text size	Cessation Assistance	Text Variability	Image Variability	Plain package	Image Manipulation
Overall (All tobacco products)	270	10.6%	14.7	20.9	18.2%	35.9%	0%	0%	0%	0%	0%

Table 2. Health warning label compliance by indicators and by specific by tobacco products, 2023.

Out of the 12 multinational parent companies, their subsidiaries, and other product distributors assessed, the overall level of compliance among them was 24.9%. These ranged from 0% from Al Saidy Tobacco, Egypt; Rhein Tobacco International, UAE; Al Amer Tobacco Industry, Jordan; and Cedar land Trading, SAL, Dominican Republic to 55.5% for British American Tobacco, Nigeria. None of the companies provided for Cessation Assistance such as a quit line number and/or a cessation website, and none were compliant with Image Variability, Plain packaging (absence of flashy logos or any labelling that promotes tobacco products by false, misleading and messages) and Image Manipulation. The overall level of compliance was noted to be non or very low for companies involved in the marketing of other tobacco products (shisha, snuff, cigars and e cigarettes), ranging from 0% to 20% but moderate for those marketing cigarettes, ranging from 37% to 55.5%. Companies that had no presence or subsidiaries in Nigeria (Poschl Tabak, Germany; Black Horse Tobacco Limited; Scandinavian Tobacco Group, Dominican Republic; Cedar land Trading, SAL, Dominican Republic; Cedar land Trading, SAL, United States; Al Saidy Tobacco, Egypt; Rhein Tobacco International, UAE and Al Amer Tobacco Industry, Jordan) but only export their products here were very non-compliant.

Tobacco Product	Compliance with all 9 indicators	Location	Size	Label elements	Text size	Cessation Assistance	Text Variability	Image Variability	Plain package	Image Manipulation
Philip Morris International	45.5%	100%	70%	70%	70%	0%	100%	0%	0%	0%
British American Tobacco, Nigeria.	55.5%	100%	100%	100%	100%	0%	100%	0%	0%	0%
Korea Tomorrow & Global Corporation	52.2%	100%	90%	80%	100%	0%	100%	0%	0%	0%
Habanera Limited (Japan Tobacco International)	52.2%	100%	90%	80%	100%	0%	100%	0%	0%	0%
Leaf Tobacco and Commodities, Nigeria	37%	50%	90%	100%	100%	0%	0%	0%	0%	0%
Poschl Tabak, Germany (Black Horse Tobacco Limited)	10.5%	0%	25%	30%	50%	0%	0%	0%	0%	0%
Scandinavian Tobacco Group, Dominican Republic	26.7%	0%	80%	80%	80%	0%	0%	0%	0%	0%
Cedar land Trading, SAL, Dominican Republic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cedar land Trading, SAL, United States.	20%	50%	30%	0%	100%	0%	0%	0%	0%	0%
Al Saidy Tobacco, Egypt	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Rhein Tobacco International, UAE	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Al Amer Tobacco Industry, Jordan	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Overall (all tobacco companies)	**24.9**	**37.5%**	**47.9%**	**46.7%**	**58.3%**	**0%**	**33.3%**	**0%**	**0%**	**0%**

Table 3. Health warning label compliance by indicators among multinational parent companies, their subsidiaries and other

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product distributors 2023.

Discussion

Almost two-thirds of NCD deaths are linked to tobacco use, alcohol misuse, unhealthy diets, and physical inactivity[19]. It is projected that one billion people will die from tobacco use this century[20] and at least half of all current tobacco users are likely to die from a tobacco-related disease[4]. To combat this global epidemic, the MPOWER project of the World Health Organization identified several potentially effective policy measures, including taxation of tobacco, banning advertisements, restricting smoking in public places, and supporting people who want to quit. The World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) also introduced standardized or plain packaging to restrict or prohibit the use of logos, colours, brand images, or promotional information on the packaging of tobacco products but to include pictorial health warning labels on cigarette packages[21]. The FCTC, which has been ratified by 181 countries, provides guidelines for member states regulating the sale, production, distribution, marketing and taxation of tobacco[22]. Packaging is a marketing and communication tool that is tangible, mobile, and ubiquitous which can drastically influence smokers' taste perception and other characteristics of cigarettes[23]. A narrative review by Hammond suggested that cigarette pack warnings can be effective in promoting smoking cessation, especially when warnings are large, full-colour, and use graphic images[24]. However, no single study has assessed compliance with PHWL requirements in Nigeria.

Out of 434 cigarette packs assessed in this study, 50.3% of the packs evaluated were compliant with the nine indicators assessed. These ranged from 48.8% for All Stars and Target cigarettes to 55.5% for Benson and Hedges. At present, cigarette packages in the vast majority of countries carry a health warning; however, the position, size, and general strength of these warnings vary considerably across jurisdictions[25][26]. Studies that have assessed compliance with other MPOWER initiatives such as smoke-free policies, and tobacco advertising, promotion, and sponsorship bans or restrictions [27][28][29] have provided evidence regarding loopholes in the law that tobacco companies have exploited, which need to be identified and addressed to improve enforcement efforts. Tobacco packages provide high reach and frequency of exposure and smokers are potentially exposed to the warnings over 7000 times per year while also having the opportunity to communicate with smokers during the act of smoking[30]. Tobacco packs also serve as portable advertisements with high levels of exposure among non-smokers: unlike many other consumer products, cigarette packs are displayed each time the product is used and are often left in public view between uses[31]. Tobacco packages are also prominent in retail outlets, where product displays are common and typically increase in prominence as other forms of tobacco marketing are restricted[32].

For specific indicators, the level of compliance for location of PHWL being placed on both the front and the back of the packs and for text variability was 100% across all cigarette packs even though lung cancer was the only type of health warning mentioned on all packs. There was no evidence of rotation of the health warnings. The overall compliance with graphic image size was 80%, and compliance ranged from 60% for Sterling cigarettes to 100% for Benson and Hedges, Dunhill and Oris; while for text size, the overall compliance was 85.6% and compliance in individual products ranged from 70% for selected premium tobacco to 100% for Benson and Hedges among others. There is great variation in tobacco packaging and labeling requirements by country. The PHWL has been mandated in Nigeria and the Nigerian Industrial Standard for Tobacco and Tobacco Products and the National Tobacco Control Regulations, 2019 stipulates that the combined picture and text health warnings must cover 50% of the front and back of the cigarettes and smokeless tobacco product packages. Compared to text-only warnings, pictorial warnings are more likely to be noticed[33][34] and are more effective in educating the public about the dangers of smoking[30][31][32] and increase intentions to quit[33][34][35][36][37]. Tobacco packaging featuring graphic health warnings is an effective way to spread information about the risks of smoking. These warnings are easy to notice due to their prominent placement on the packages. Furthermore, they cost very little to implement and reach a wider audience than other methods of informing people about the risks of smoking. By keeping these messages visible on the packaging, tobacco users are more likely to pay attention to the health warnings and understand the risks associated with smoking[38].

For cessation assistance such as a quit line number and/or a cessation website, none of the cigarette packs obtained displayed any form of information. Even though this is not presently mandated in Nigeria it was necessary to document this FTCT requirement because the communication of the health risks associated with smoking and promoting smoking cessation is a primary objective of tobacco-control policy and programs. The World Health Organization's Framework Convention on Tobacco Control (WHO FCTC) includes two articles dedicated to health communication[39]. Experimental research on cigarette pack warnings indicates that pictorial warnings are more likely to be rated as effective, both as a

deterrent for new smokers and a means to increase cessation among current smokers[40]. Pictorial warnings in at least 30 countries include information about cessation resources, such as a quitline number and/or a cessation website. By going beyond providing information about smoking-related risks, these warnings not only serve as cues for thinking about quitting but also offer resources for help with making the next steps towards cessation. Previous studies have found that the provision of cessation resources in warnings can be effective in informing smokers about their existence[41]. and promoting their use, thus a revision of the existing laws in Nigeria is necessary to include it[42][43][44][45].

With regards to image variability, absence of flashy logos or any labeling that promotes tobacco products by false, misleading messages and image manipulation, compliance was 0% across for cigarette packs obtained. These findings are similar to those from our earlier study of 12 countries in Asia, Latin America, Europe, and Australasia which noted adequate compliance with health warning labeling, but weak national policies and compliance with deceptive labeling[46]. Tobacco packaging is a potent marketing tool and the tobacco industry's manipulative marketing tactics increase the consumption of these products, leading to an increase in death and disease across the world[47]. Along with the use of color, font, pictures, and unique pack shapes, advances in printing technology have enabled printing of on-pack imagery on the inner frame card, outer film and tear tape, and the incorporation of holograms, collectible art, metallic finishes, multi-fold stickers photographs and images in pack design[47]. Pack design and colour are used to manipulate people's perception of the level of harm and increase the products' appeal, especially among the young, including young women[48][49].As plain/standardized packaging has been found to be effective in reducing the appeal of cigarettes/smoking in many countries across the world, more countries have passed plain packaging laws despite the tobacco industry's resistance[50][51]. It is thus necessary the for Nigerian laws to be updated and for tobacco companies in Nigeria to be mandated to comply.

Furthermore, all the images used for all the cigarette packs were the same picture of lung cancer which was dull, cropped and did not contrast well with the background and with that of the normal lung used for comparison. Evidence shows that tobacco companies have found ways to evade tobacco control regulations[52][53]. The tobacco industry has undermined these warnings in many ways, including the use of vague warnings and weak messages, reduction in the size, prominence and visibility of PHWL through the choice of colours and package location and deficient print quality for colour images. They also use warnings that stretch over beveled edges and novel package formats that impair warnings[54][55]. Noncompliance with PHWL best practices can result in poorer knowledge about the dangers of tobacco use, a reduction in quitting behaviors, and an increase in smoking initiation. Given that compliance is key to achieving the ultimate health goals of policy interventions, it is necessary that these lapses are sternly communicated to these companies and appropriate deterrents imposed on persistent defaulters.

The level of compliance with regulations for other tobacco products like shisha, cigars, pipe mixture and E cigarettes was however abysmally low, even though the same plain packaging regulations in Nigeria apply to them. Out of 270 tobacco product packs assessed, only 10.6% of the packs evaluated were compliant with the 9 indicators assessed. These ranged from 0% for Tabaci Shisha tobacco, Majalis hookah tobacco, Double apple Shisha Tobacco, Al Ostoura Mint grapes flavor Shisha tobacco, King Song E Cigarettes and Al Ostoura Mint and Mint/Cream Shisha tobacco to 37% for Colts Pipe Mixture and Super match mixture. For specific indicators, the level of compliance for location of PHWL being placed on both the front and the back of the packs was 14.7% ranging from 0% for most of the tobacco products to 50% for Colts Pipe Mixture and Super match mixture. Globally, Israel is the only country in the world to pass a bill requiring plain packaging for e-cigarettes and this has also been adopted by some provinces in Canada[56]. For cessation assistance such as a quit line number and/or a cessation website, image variability, plain packaging (absence of flashy logos or any labelling that promotes tobacco products by false, misleading and messages), text variability and image manipulation, compliance was 0% across all tobacco product packs. There was an overall low compliance with graphic image size (18.2%) and PHWL size (20.9%) even though the overall compliance with text size was slightly higher (35.9%). These findings are disheartening, and show that even though there is relative compliance with PHWL on cigarette packs, other tobacco products that are presently consumed with a higher frequency in Nigeria have little or no compliance with the country's regulations.

Out of the 12 multinational parent companies, their subsidiaries, and other product distributors assessed, the overall level of compliance among them was 24.9%. These ranged from 0% for Al Saidy Tobacco, Egypt; Rhein Tobacco International, UAE; Al Amer Tobacco Industry, Jordan; and Cedar land Trading, SAL, Dominican Republic to 55.5% for British American Tobacco, Nigeria. None of the companies provided cessation assistance such as a quitline number and/or a cessation website, and none were compliant with image variability, plain packaging (absence of flashy logos or any labeling that promotes tobacco products by false, misleading messages), and image manipulation. The overall level of compliance was noted to be none or very low for companies involved in the marketing of other tobacco products (shisha, snuff, cigars and e-cigarettes), ranging from 0% to 20%; but moderate for those marketing cigarettes, ranging from 37% to 55.5%. Companies that had no presence or subsidiaries in

Nigeria (Poschl Tabak, Germany; Black Horse Tobacco Limited; Scandinavian Tobacco Group, Dominican Republic; Cedar land Trading, SAL, Dominican Republic; Cedar land Trading, SAL, United States; Al Saidy Tobacco, Egypt; Rhein Tobacco International, UAE and Al Amer Tobacco Industry, Jordan) but only export their products into the Country were very non-compliant. Through the activities of these non-compliant companies and weak regulatory oversight of relevant authorities, Nigerian smokers and those exposed to secondhand smoke are undergoing a slow but sure death.

There is need to revise existing tobacco control laws in Nigeria to make them to incorporate all the relevant sections of the FCTC like providing cessation assistance such as a quit line number and/or a cessation website on the packs and also to amend some sections to close existing loopholes existing in the laws. This study also highlights lack of enforcement by regulatory authorities on standard sizes, picture quality, text size and variability of PHWL on cigarette packs nut especially on other tobacco products. In Nigeria, health warning labels (HWLs) are enforced under the National Tobacco Control Act (2015) and Regulations (2019), with oversight by the Federal Ministry of Health, National Tobacco Control Committee (NATOCC), and the Tobacco Control Unit. Compliance checks are hindered by funding delays, leading to inconsistent enforcement. Non-compliance attracts fines of ₦5 million (manufacturers) or ₦200,000 (retailers), with possible imprisonment. Routine inspections remain irregular, highlighting the need for stronger enforcement mechanisms. The study also highlights the need of regulatory authorities to focus more on importers of foreign products who are flagrantly ignoring the guidelines rather than on only local manufacturers and multinationals

This study however has some limitations. Firstly, we used neatly discarded packs, and the sample of packets was not weighted to account for prevalence of use of each brand variant, rather than purchasing new unopened tobacco products based on documented patterns of consumption. Even though this approach is valid, it may however have omitted some products that were less/more compliant but were not in high demand in those locations. Secondly, the findings of the study may not be generalizable to the whole of Nigeria since it was conducted in Lagos state. Lagos is however the most cosmopolitan and populous state in the country. A key strength of the study however is the high number of assorted packs collected by multistage sampling from densely populated rural and urban regions of the state. Future research can build on these preliminary findings using designs that involve the whole country using multiple pack collection techniques.

Conclusions

The results from this study shows that there was low compliance by tobacco companies on PHWLs and negligible compliance on other tobacco products like cigars, shisha and smokeless tobacco. Out of 434 cigarette packs assessed in this study, 50.3% of the packs evaluated were compliant with the nine indicators assessed. Out of 270 tobacco product packs assessed, only 10.6% of the packs evaluated were compliant with the 9 indicators assessed. Out of the 12 multinational parent companies, their subsidiaries, and other product distributors assessed, the overall level of compliance among them was 24.9%. As an immediate measure, governments should strictly enforce all regulations applying to health warnings, especially on non-cigarette tobacco products and closely monitor companies that merely export their products to the country. It is also recommended that tobacco companies be mandated to increase the size of health warnings, the number of images and the frequency of the rotation of the images. There is need to revise existing tobacco control laws in Nigeria to accommodate plain packaging regulations and to incorporate all the relevant sections of the FCTC like providing cessation assistance such as a quit line number and/or a cessation website on the packs and also to amend some sections to close existing loopholes existing in the laws.

Appendix

Assortment of Some Cigarette and Tobacco Product Packs Assessed in the Study

Statements and Declarations

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All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

References

1. ^US National Cancer Institute and World Health Organization. The Economics of Tobacco and Tobacco Control: National Cancer Institute Tobacco Control Monograph 21. US Department of Health and Human Services, National Institutes of Health, National Cancer Institute and World Health Organization2016. NIH publication No. 16-CA-8029A
2. ^Management of Substance Abuse The Global Burden. World Health Organization. Available from: http://www.who.int/ substance abuse/facts/global burden/en. Accessed on 5th Jan, 2023
3. ^Fosson GH, McCallum DM, Beeson DH. The health and economic consequences of cigarette smoking in Alabama, 2009-2010. Public Health Rep. 2014 Nov-Dec; 129(6):486-90. doi:10.1177/003335491412900606.
4. a, bDai X, Gakidou E, Lopez AD. Evolution of the global smoking epidemic over the past half century: strengthening the evidence base for policy action. Tob Control. 2022 Mar; 31(2):129-137. doi:10.1136/tobaccocontrol-2021-056535.
5. ^Tobacco Fact Sheet. World Health Organization website. Accessed June 8th, 2023. https://www.who.int/news-room/fact-sheets/detail/tobaccoGoogle Scholar.
6. ^Folayan MO, Alade OT, Sabbagh H, Oyapero A, Adeyemo YI, Popoola BO, Adeniyi AA, Eigbobo J, Quritum M, Nzomiwu C, et al. Factors Associated with Changes in E-Cigarette Use and Tobacco Smoking by Adolescents and Young People in Nigeria during the COVID-19 Pandemic. Psychoactives. 2023; 2(1):23-36. doi:10.3390/psychoactives2010002
7. ^Oyapero A, Erinoso O, Osoba M, Ebuka A, Olasunkanmi O, Ekerin O, Oyapero O, Omotoye I. Prevalence and predictors of depression and oral health related quality of life among patients living with HIV/AIDS in Nigeria: modifying influence of tobacco use. PAMJ - One Health. 2023; 11(5). doi:10.11604/pamj-oh.2023.11.5.39401
8. ^Oyapero A, Erinoso O, Olatosi OO. Wheels of Strain? Lifestyle Habits, Stress Perception and Quality of Life among Long Distance Bus Drivers in Nigeria. West Afr J Med. 2022 Apr 29; 39(4):399-406. PMID: 35490360.
9. a, bBardach A, Casarini A, Rodriguez Cairoli F, Adeniran A, Castradori M, Akanonu P, Onyekwena C, Espinola N, Pichon-Riviere A, Palacios A. The estimated benefits of increasing cigarette prices through taxation on the burden of disease and economic burden of smoking in Nigeria: A modeling study. PLoS One. 2022 Mar 2; 17(3):e0264757. doi:10.1371/journal.pone.0264757.
10. ^Egbe CO, Bialous SA, Glantz SA. Avoiding "A Massive Spin-Off Effect in West Africa and Beyond": The Tobacco Industry Stymies Tobacco Control in Nigeria. Nicotine Tob Res. 2017 Jul 1; 19(7):877-887. doi:10.1093/ntr/ntx037.
11. ^World Health Organization (2008). Guidelines for implementation of Article 11 of the WHO Framework Convention on Tobacco Control: packaging and labelling of tobacco products [Internet]. Geneva: World Health Organization; 2016. Available from: [insert URL] [accessed 2025 Feb 26].
12. ^Seitz CM, Ward KD, Kabir Z. Quitline Information Included on Cigarette Packaging: An Assessment of Country Adherence to WHO FCTC Guidelines, 2007 to 2018. Int J Environ Res Public Health. 2021 Nov 20; 18(22):12193. doi:10.3390/ijerph182212193.
13. ^Chudech S, Janmaimool P. Effectiveness of warning graphic labels on cigarette packs in enhancing late-teenagers' perceived fear of smoking-related harms in Bangkok, Thailand. J Public Health Res. 2021 Jan 20; 10(1):1912. doi:10.4081/jphr.2021.1912.
14. ^Erinoso O, Oyapero A, Osoba M, Amure M, Osibogun O, Wright K, et al. Association between anxiety, alcohol, poly-tobacco use and waterpipe smoking: A cross-sectional study in Lagos, Nigeria. Niger Postgrad Med J 2021; 28:117-25.
15. ^Erinoso O, Oyapero A, Amure M, Osoba M, Osibogun O, Wright K, Osibogun A. Electronic cigarette use among adolescents and young adults in Nigeria: Prevalence, associated factors and patterns of use. PLoS One. 2021 Oct 22; 16(10):e0258850. doi:10.1371/journal.pone.0258850.
16. ^Oyapero A, Erinoso O, Osoba M, Amure M, Osibogun O, Wright K, Osibogun A. Exposure to Anti-Tobacco Messaging and Quit Attempts among Adolescent and Young Adult in Lagos, Nigeria: A Population-based Study. West Afr J Med. 2021 Nov 30; 38(11):1058-1064. PMID: 34919362.
17. a, b, cThe National Tobacco Control Act, 2015 (Sec. 20); https://faolex.fao.org/docs/pdf/nig192387.pdf Accessed 18th May 2023
18. ^Country tobacco control laws. Accessible at www.tobaccocontrollaws.org. Accessed 18th May 2023
19. ^World Health Organization. Global status report on noncommunicable diseases 2014: Attaining the nine global noncommunicable diseases targets; a shared responsibility. Retrieved from http://apps.who.int/iris/bitstream/ 10665/148114/1/9789241564854_eng.pdf?ua=1 Accessed 18th May 2023
20. ^Jha P, MacLennan M, Chaloupka FJ, Yurekli A, Ramasundarahettige C, Palipudi K, Zatoński W, Asma S, Gupta PC. Global Hazards of Tobacco and the Benefits of Smoking Cessation and Tobacco Taxes. In: Gelband H, Jha P, Sankaranarayanan R, Horton S, editors. Cancer: Disease Control Priorities, Third Edition (Volume 3). Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2015 Nov 1. Chapter 10. PMID: 26913345.
21. ^Noar SM, Francis DB, Bridges C, Sontag JM, Ribisl KM, Brewer NT. The impact of strengthening cigarette pack warnings: Systematic review of longitudinal observational studies. Soc Sci Med. 2016 Sep; 164:118-129. doi:10.1016/j.socscimed.2016.06.011.
22. ^WHO framework convention on tobacco control. Geneva, Switzerland. World Health Organization; 2003. May. Avai

lable at: http://apps.who.int/iris/bitstream/10665/42811/1/9241591013.pdf. Accessed 12th November 2022.

23. ^Wakefield M, Germain D, Durkin S, Hammond D, Goldberg M, Borland R. Do larger pictorial health warnings diminish the need for plain packaging of cigarettes? Addiction 2012; 107(6), 1159-1167.
24. ^Hammond D. Health warning messages on tobacco products: a review. Tob Control 2011; 20:327–37. doi:10.1136/tc.2010.037630
25. ^Aftab M, Kolben D, Lurie P. International cigarette labeling practices. Tob Control 1999; 8:368e72.
26. ^Hammond D. Tobacco Labeling Resource. Waterloo, ON. http://www. tobaccolabels.org Accessed 12th Jan 2023.
27. ^Salloum RG, Nakkash RT, Myers AE, Wood K a, Ribisl K M. Point-of-sale tobacco advertising in Beirut, Lebanon following a national advertising ban. BMC Public Health. 2013; 13(1):534. doi:10.1186/1471-2458-13-534.
28. ^Vardavas CI, Girvalaki C, Lazuras L, et al. Changes in tobacco industry advertising around high schools in Greece following an outdoor advertising ban: a follow-up study. Tob Control. 2013; 22(5):299-301. doi:10.1136/tobaccocontrol-2012-050518.
29. ^Quedley M, Ng B, Sapre N, et al. In sight, in mind: retailer compliance with legislation on limiting retail tobacco displays. Nicotine Tob Res. 2008; 10(8):1347-1354. doi:10.1080/14622200802238860.
30. a, bWakefield M, Morley C, Horan JK, et al. The cigarette pack as image: new evidence from tobacco industry documents. Tob Control 2002; 11(Suppl 1):I73e80.
31. a, bPollay RW. The Role of Packaging Seen Through Industry Documents. Expert Report prepared for: JTI-Macdonald., Imperial Tobacco Canada Ltd and Rothmans, Benson & Hedges Inc. v. Attorney General of Canada and Canadian Cancer Society (intervenor). Supreme Court, Province of Quebec, District of Montreal, 2001. Defense Exhibit D-116.
32. a, bDewhirst T. POP goes the power wall? Taking aim at tobacco promotional strategies utilised at retail. Tob Control 2004; 13:209e10.
33. a, bLi J, Grigg M. New Zealand: new graphic warnings encourage registrations with the quitline. Tob Control. 2009; 18(1):72. doi:10.1136/tc.2008.027649.
34. a, bThrasher JF, Hammond D, Fong GT, Arillo-Santillán E. Smokers' reactions to cigarette package warnings with graphic imagery and with only text: a comparison between Mexico and Canada. Salud Publica Mex. 2007;49 Suppl 2: S233-40. http://www.ncbi.nlm.nih.gov/pubmed/17607485. Accessed December 7, 2015.
35. ^Elton-Marshall T, Xu SS, Meng G, et al. The lower effectiveness of text-only health warnings in China compared to pictorial warnings in Malaysia: findings from the ITC project. Tob Control. 2015. doi:10.1136/tobaccocontrol-2015-052616.
36. ^Hammond D, Fong GT, Borland R, Cummings KM, McNeill A, Driezen P. Text and Graphic Warnings on Cigarette Packages. Findings from the International Tobacco Control Four Country Study. Am J Prev Med. 2007;32(3):202-209. doi:10.1016/j.amepre.2006.11.011.
37. ^Kees J, Burton S, Andrews JC, Kozup J. Understanding how graphic pictorial warnings work on cigarette packaging. Marketing Faculty Research and Publications 2011;29 (2):115-126. doi:http://dx.doi.org/10.1509/jppm.29.2.265.
38. ^Hammond D. Health warning messages on tobacco products: a review. Tob Control 2011; 20:327–37. doi:10.1136/tc.2010.037630
39. ^World Health Organization. (2003). WHO Framework Convention on Tobacco Control. Geneva, Switzerland: www.who.int/tobacco/framework/en/ Accessed 12th November 2022.
40. ^O'Hegarty M, Pederson LL, Nelson DE, Mowery P, Gable JM, Wortley P. Reactions of young adult smokers to warning labels on cigarette packages. Am J Prev Med. 2006 Jun; 30(6):467-73. doi:10.1016/j.amepre.2006.01.018.
41. ^Thrasher JF, Osman A, Moodie C, Hammond D, Bansal-Travers M, Cummings KM, Borland R, Yong HH, Hardin J. Promoting cessation resources through cigarette package warning labels: a longitudinal survey with adult smokers in Canada, Australia and Mexico. Tob Control. 2015 Mar;24(e1):e23-31. doi:10.1136/tobaccocontrol-2014-051589
42. ^Li J, Grigg M. New Zealand: new graphic warnings encourage registrations with the quitline. Tob Control. 2009;18 (1):72.
43. ^Miller CL, Hill DJ, Quester PG, Hiller JE. Impact on the Australian Quitline of new graphic cigarette pack warnings including the Quitline number. Tob Control. 2009 Jun;18 (3):235-7. doi:10.1136/tc.2008.028290.
44. ^Willemsen MC, Simons C, Zeeman G. Impact of the new EU health warnings on the Dutch quit line. Tob Control. 2002;11(4):381-382.
45. ^Perry CL. The tobacco industry and underage youth smoking: tobacco industry documents from the Minnesota litigation. Arch Pediatr Adolesc Med. 1999 Sep;153(9):935-41. doi:10.1001/archpedi.153.9.935.
46. ^Mir H, Buchanan D, Gilmore A, McKee M, Yusuf S, Chow CK. Cigarette pack labelling in 12 countries at different levels of economic development. J Public Health Policy. 2011 May;32(2):146-64. doi:10.1057/jphp.2011.3.
47. a, bFreeman B, Chapman S, Rimmer M. The case for the plain packaging of tobacco products. Addiction. 2008;103 (4):580-590.
48. ^Lempert LK, Glantz S. Packaging colour research by tobacco companies: the pack as a product characteristic. Tob Control. 2017;26(3):307–15 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5135621/).
49. ^Lee J, Averett PE, Blanchflower T, Gregory KR. Qualitative assessment of a context of consumption framework to inform regulation of cigarette pack design in the U.S. Tob Induc Dis. 2018;16:3. doi:10.18332/tid/82925
50. ^Standardized or plain tobacco packaging, international developments. Washington, DC: Campaign for Tobacco-Free Kids; 2019. https://www.tobaccofreekids.org/assets/gl

obal/pdfs/en/standardized_packaging_developments_en.pdf. Accessed 12th November 2022.

51. ^*Cigarette package health warnings: international status report, sixth edition. Toronto: Canadian Cancer Society; 2018 (https://www.fctc.org/wp-content/uploads/2018/10/CCS-international-warnings-report-2018-English-2-MB.pdf). Accessed 12th November 2022.*
52. ^*King B, Borland R. What was "light" and "mild" is now "smooth" and "fine": new labelling of Australian cigarettes. Tob Control. 2005;14(3):214-215. doi:10.1136/tc.2005.011692.*
53. ^*Collin J, Legresley E, MacKenzie R, Lawrence S, Lee K. Complicity in contraband: British American Tobacco and cigarette smuggling in Asia. Tob Control. 2004 Dec;13 Suppl 2(Suppl 2):ii104-11. doi:10.1136/tc.2004.009357.*
54. ^*Crespi E, Iacobelli M, Welding K, et al. Industry manipulation of pictorial health warning labels in Pakistan. Tob Control 2021. doi:10.1136/tobaccocontrol-2020-056433.*
55. ^*Tan YL. Implementing pictorial health warnings in Malaysia: challenges and lessons learned. Bangkok, Thailand: Southeast Asia Tobacco Control Alliance, 2019. Available: https://seatca.org/dmdocuments/Implementing%20PHW%20in%20Malaysia%202010.pdf Accessed 18th Jul 2022.*
56. ^*Campaign for Tobacco Free Kids. Standardized or plain tobacco packaging international developments. Published online July 1, 2019. https://www.tobaccofreekids.org/assets/global/pdfs/en/standardized_packaging_developments_en.pdf. Accessed 18th Jul 2022*

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