Misleading Tobacco Packaging: Moving Beyond Bans on "Light" and "Mild"

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Objectives: In this paper, we assess compliance of cigarette packaging with policies in 9 countries that ban misleading descriptors, assess the presence of other packaging design elements that are misleading to consumers, and identify policy loopholes. **Methods:** Cigarette packages were systematically collected in 9 countries between 2015 and 2017 – Bangladesh, Brazil, China, India, Indonesia, Philippines, Russia, Thailand, and Vietnam. The packs were coded for banned misleading descriptors and other misleading packaging design elements. Descriptive analyses were conducted. **Results:** Overall, compliance with explicitly banned misleading descriptors is high across countries, with the exception of packs from Indonesia, where compliance is moderate. However, the use of other misleading packaging elements such as alternative descriptors (soft, smooth, mellow), select color descriptors (blue, gold, silver), and a slim pack shape are still widely used in packaging design across the 9 countries examined. **Conclusions:** Policies that include loopholes or allow for other misleading packaging design elements could weaken the impact of recommended misleading packaging and labeling regulations as laid out in the WHO Framework Convention on Tobacco Control. Stronger provisions are needed and countries should consider comprehensive plain packaging.

Key words: global tobacco control; labeling; marketing; misleading product packaging and labeling; packaging; risk
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The tobacco industry has long used misleading marketing to reduce consumer concerns about the negative health effects of tobacco use.[1,2] Whereas industry-funded research utilizing machine tests claim that tar and nicotine are better filtered in some cigarettes, this has been refuted by independent research that finds that smokers inhale more deeply and with more frequency and cover ventilation holes with their fingers or lips when smoking cigarettes that have been marketed misleadingly as less harmful.[3,4] This change in smoker behavior means cigarettes labeled as "light," "mild," and "low tar" are no less dangerous than other cigarettes.[4] There is strong evidence that there is no "safer cigarette."[4] Even so, tobacco marketing utilizes deceptive tactics to convey that some products result in less harm and many smokers who are concerned with health risks have switched to these products.[3-6]

Tobacco packaging is a prominent tobacco marketing tool and it is well documented that specific packaging design features contribute to consumer misperceptions of harm. The descriptors "light," "mild," and "low tar" are commonly used to convey less harm and research verifies that many smokers of cigarettes that are branded like this believe the products pose less risk to their health.[7,8,9-16,17,18] Other pack design features such as printed numeric levels of tar, nicotine, and carbon monoxide;[19-21]

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the descriptors "silver," "blue," and "gold,"[19,20,22,23] the descriptors "organic" or "natural,"[19] descriptors such as "smooth,"[20-22,24] lighter shades of colors such as light blue and white,[20,24-26] and slim cigarette packaging and sticks[19,23,25,27] are also interpreted as less harmful by consumers.

The World Health Organization Framework Convention on Tobacco Control Article 11 guidelines recommend that Parties adopt and implement "effective measures to ensure that tobacco product packaging and labeling do not promote a tobacco product by any means that are false, misleading, deceptive or likely to create an erroneous impression about the product's characteristics, health effects, hazards or emissions."[28] This includes, but is not limited to, descriptors such as "low tar," "light," "ultra-light," and "mild." Over 80 countries now restrict the use of misleading descriptors and prohibit the use of other signs that "create a false impression about the product's characteristics or health effects."[29] However, as restrictions go into place, the tobacco industry circumvents bans on commonly known misleading descriptors through use of novel packaging design elements. For example, color descriptors and the descriptors "smooth," "mellow," and "fine" have been substituted for "light" and "mild" descriptors.[30-32] These tactics can minimize the impact of the bans on misleading descriptors.[33-37]

Little research has been conducted on compliance with bans on misleading descriptors. A New Zealand study found high levels of compliance with bans on "light" and "mild" on tobacco packaging in 2008-2009 and found that banned descriptors were replaced with associated colors and other descriptors used to communicated "reduced harm."[31] Substitution of banned descriptors with alternative descriptors and colors also was observed in Australia and the United States.[32,35] One study assessed the use of "natural" and "organic" descriptors on packs in multiple countries.[38] However, there are no studies that examine compliance across several countries and the tobacco packaging design elements that are being used in place of misleading descriptors. In this study, we aim to assess cigarette packaging compliance with policies in 9 countries that ban misleading descriptors and assess the presence of other packaging design elements that have been shown to be misleading to consumers.

METHODS

The data used were derived from the Tobacco Pack Surveillance System (TPackSS), a study that systematically collects tobacco packages in the low- and middle-income countries with the greatest number of smokers.[39] TPackSS aims to collect a census of tobacco packs available on the market in large urban areas in each country where data collection occurs. Data included in the sample for this analysis include legal cigarette packs on the market with a country-specific health warning label in rotation at time of data collection in the following countries and respective years: Bangladesh (2016), Brazil (2016), China (2017), India (2016), Indonesia (2015), Philippines (2016), Russia (2015), Thailand (2015), and Vietnam (2015).

Sampling

Data collection was conducted in 3 cities – the country's most populated city and 2 of the next 9 most populated cities, selected based on cultural and geographic diversity – with the exception of China and India where data collection was conducted in 5 and 4 cities, respectively, following the same guidelines. In each city, data were collected in 12 distinct neighborhoods, stratified by socioeconomic status (4 high-income, 4 middle-income, and 4 low-income areas) and selected based on diversity in terms of geographic location and residential demographics. Selection of vendors (including formal and informal, such as stationary street vendors) in each neighborhood was informed by reference to most popular vendor types which were identified from Euromonitor and the Global Adult Tobacco Survey; specific vendors were identified through the use of a walking protocol in each neighborhood.

Data Collection

At the first vendor in the first city visited, data collectors purchased each unique tobacco pack available. Unique packaging is determined by there being at least one difference in an exterior feature of the pack, excluding health warning label and including but not limited to: stick count, stick size, brand name presentation, color, cellophane, packaging material (ie, hard, soft, tin), and inclusion of a promotional item. At vendors in subsequent neighborhoods, data collectors purchased only unique packs not previously purchased. If unique

packs were not found at the first vendor visited in any neighborhood, data collectors visited up to 4 vendors in that neighborhood to identify and purchase unique packs. If no unique packs were identified by the fourth vendor in a single neighborhood, data collectors moved on to the next neighborhood. A picture archive on a phone or tablet was used to assist data collectors in keeping track of the packs already purchased – collectors took a picture on the device of each pack purchased and organized the pictures into brand folders.

Data collectors worked in pairs to collect tobacco packs. At each vendor, they systematically scanned the product display of tobacco products (top to bottom, left to right) and asked retail workers if any tobacco products were available that were not on display to identify all possible unique tobacco packs. If unique tobacco packs were available for purchase, the pack purchase was made and data collectors recorded the price paid per pack.

Coding Data

Following the creation of the inventory, packs were shipped from the country they were purchased into Baltimore, Maryland in the United States. After any duplicate packs were identified and removed, unique packs were coded using 2 codebooks – (1) a country-specific health warning labeling and packaging codebook and (2) a common design features and marketing appeals codebook. Packs were double-coded by 2 trained coders. The average percent agreement between the 2 coders was 99.4% (ranging from 94.2%-100%) for health warning and labeling variables and 98.9% for the design features (ranging from 97.4%-99.7%). A third coder resolved any discrepancies for all coding.

The health warning labeling and packaging codebooks were developed based on the specific country's tobacco packaging and labeling laws that were in place at the time of data collection. All unique packs that displayed a health warning label in rotation at the time of data collection were coded using this codebook. The design features and marketing appeals codebook was common to all countries, and was developed based on literature and pre-existing resources on tobacco packaging and design, such as chatterbox.otru.org. The design features and marketing appeals codebook focused on collecting data on the structural (eg, hard vs soft pack, pack type, pack material, opening style, shape) and graphic (eg, color, descriptors, imagery) elements used in the design of the pack. Descriptors and imagery were grouped so as to be able to identify the appeal being connoted (eg, luxury, technology, masculinity) through use of the specific graphic elements. All unique packs were coded using this codebook, regardless of health warning label displayed on the pack.

In the case of Indonesia, which banned specific misleading descriptors but allowed for exceptions for tobacco products that have already obtained a brand/trademark certificate, coders answered an additional question asking if the misleading term identified appeared in the brand name or slogan. If not, packs were considered non-compliant. In Vietnam, descriptors were not prohibited if they were part of a tobacco label protected or registered on intellectual property in Vietnam before the effective day of the law on tobacco prevention. Packs were individually inspected to determine whether any misleading descriptor identified appeared in the brand name or slogan; we did not find any.

Data Analysis

Descriptive analyses were conducted using Stata 14.[40] The analytic sample included manufactured cigarette packs (including kreteks) that displayed a health warning label in rotation at the time of data collection. Tobacco products of any kind other than a manufactured cigarette/kretek, packs with old health warning labels out of rotation in country, and illicit packs with no health warning label or a foreign health warning label were excluded from the analytic sample.

To assess pack compliance with bans on misleading descriptors, we calculated the number of packs from each country that complied with the bans on the misleading descriptors explicitly stated in the country's regulations on tobacco packaging and labeling. To assess the presence of other misleading packaging design not in a country's regulation, we calculated the number of packs with the color descriptors "blue," "silver," "white," and/or "gold," the descriptors "soft," "smooth," or "mellow," and the number of packs that were slim or contained slim cigarette sticks.

RESULTS

The total number of cigarette packs included in

Table 1
Pack Compliance with Banned Misleading Descriptors at Time of Data Collection

	Explicitly banned misleading descriptors	Ban Implementation date/ Dates of data collection	Number of unique packs	Number of compliant packs N (%)
Bangladesh	Light, mild, low tar, extra, ultra	May 2, 2013/Nov 30, 2016 - Jan 1, 2017	65	65 (100)
Brazil	Class(es), ultra-low content, low/moderate/high content levels, smooth, light, soft, mild	Sept 15, 2013/Mar 29 – April 8, 2016	111	111 (100)
China	Health-promoting, curative effect, safe, environmental, low-harm, light, ultra light, mild, low to middle tar level, low tar, low tar level	Oct 1, 2015/Feb 6 – 22, 2017	244	244 (100)
India	Light, ultra light, mild, ultra mild, low tar, slim, safer	May 31, 2009/Nov 15 – Dec 20, 2016	55	55 (100)
Indonesia	Light, ultra light, mild, extra mild, low tar, slim, special, full flavor, premium[a]	April 12, 2013/Nov 15 – 28, 2015	207	157 (75.8)
Philippines	Low tar, light, ultra light, mild, extra, ultra	Oct 27, 2015/Nov 11 – 24, 2016	83	83 (100)
Russia	Light, ultra light, with low tar content[b]	Jan 9, 2015/Sept 15 – 30, 2015	483	483 (100)
Thailand	Mild, medium, light, ultra light, low tar, cool, ice, frost, crisp, fresh, mint, mellow, rich, aromatic, special aroma, smooth, natural, special, genuine, luminous, extra, premium, quality, select	Dec 21, 2011/Sept 7 – 19, 2015	73	70 (95.9)
Vietnam	Low tar, light, ultra light, mild[c]	May 1, 2013/Oct 12 – 26, 2015	88	88 (100)

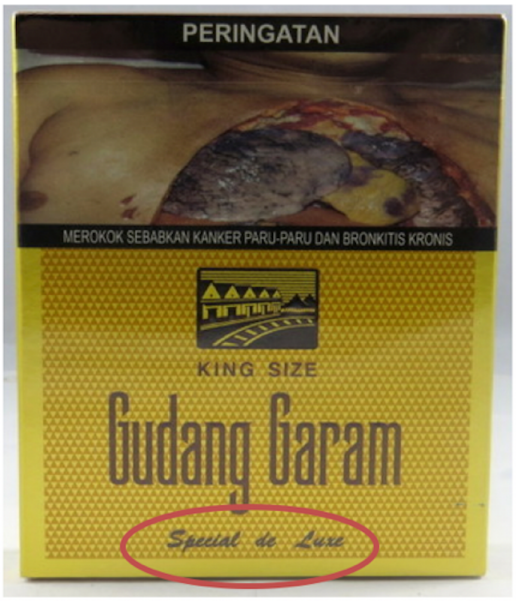
Note.
[a] Descriptors are not prohibited on tobacco products that have already obtained a brand/trademark certificate
[b] If these words are placed on packaging, a label must also be placed on packaging that states: "(word or word combination used with a capital letter in quotation marks) does not mean that this product is less harmful for health."
[c] Descriptors are not prohibited if they are part of tobacco label which has been protected or registered on intellectual property in Vietnam before the effective day of the law on tobacco prevention

the analysis was 1409. All unique cigarette packs (100%) from Bangladesh, Brazil, China, India, the Philippines, Russia, and Vietnam were compliant with their country's bans on misleading descriptors (Table 1). Additionally, 157 unique packs (75.8%) from Indonesia and 70 unique packs (95.9%) from Thailand were compliant with their country's bans on misleading descriptors (Table 1).

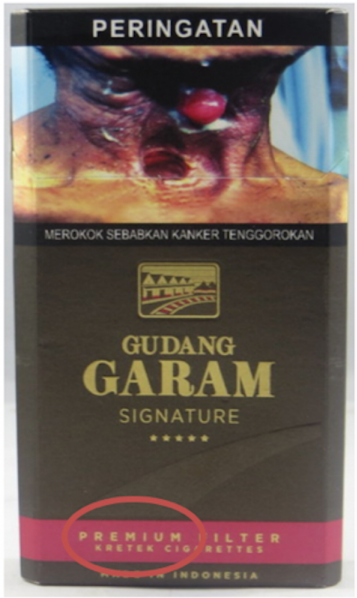
Of the non-compliant packs from Indonesia (N = 50), one pack (2%) displayed the descriptor "low tar;" 3 packs (6%) displayed "full flavor;" 4 packs (8%) displayed "light;" 8 packs (16%) displayed "slim;" 14 packs (28%) displayed "special;" 16 packs (32%) displayed "mild;" and 18 packs (36%) displayed "premium" outside of the brand name (Figure 1). Ten of these packs displayed 2 of the banned misleading descriptors and 2 packs displayed 3 of the banned misleading descriptors. Moreover, 27.9% (N = 46) of clove or kretek packs were non-compliant compared to 9.5% (N = 4) of manufactured cigarettes. Furthermore, 23.4% (N = 15) of packs manufactured by international companies were non-compliant compared to 24.5% (N = 35) of packs manufactured by national companies. Of the non-compliant packs from Thailand (N = 3), all 3 packs displayed the descriptor "quality" (Figure 1).

Of all of the packs collected in the 9 countries of interest (N = 1409), 330 packs (23.4%) displayed the color descriptors "blue," "gold," "white," and/or "silver;" 64 packs (4.5%) displayed the descriptors "soft," "smooth," or "mellow;" and 279 packs

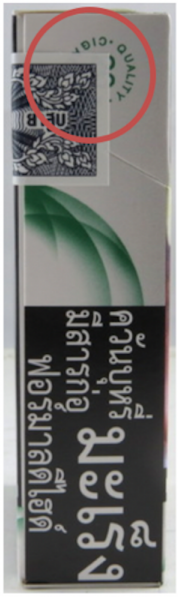
Figure 1
Examples of Non-compliant Packs



Front of pack, Indonesia; displays "special"



Front of pack, Indonesia; displays displays "premium"



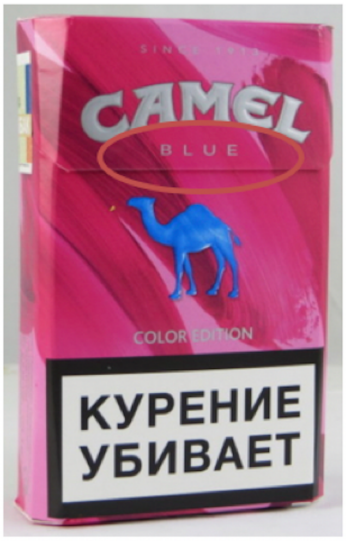
Side of pack, Thailand; displays "quality"

Table 2
Misleading Package Design

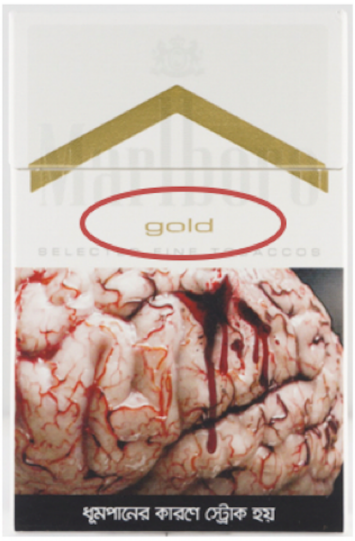
Country	Number of unique packs	"Blue", "gold", "white", and/or "silver" printed on pack N (%)	"Soft", "smooth", or "mellow" printed on pack N (%)	Slim pack and/or slim cigarette sticks N (%)
Bangladesh	65	21 (32.3)	11 (16.9)	1 (1.5)
Brazil	111	21 (18.9)	0 (0)[a]	16 (14.4)
China	244	27 (11.1)	2 (0.8)	43 (17.6)
India	55	10 (18.2)	8 (14.5)	2 (3.6)
Indonesia	207	11 (5.3)	16 (7.7)	17 (8.2)
Philippines	83	14 (16.9)	1 (1.2)	5 (6.0)
Russia	483	192 (39.7)	25 (5.2)	179 (37.1)
Thailand	73	11 (15.1)	0 (0)[a]	4 (5.5)
Vietnam	88	23 (26.1)	1 (1.1)	12 (13.6)
TOTAL[b]	1409	330 (23.4)	64 (4.5)	279 (19.8)

Note.
[a] **"Soft" and "smooth" already explicitly banned**
[b] **sample includes only packs coded with the health warning label codebook**

Figure 2
Examples of Misleading Packaging: Color Descriptors, Use of "smooth," and Slim Packs

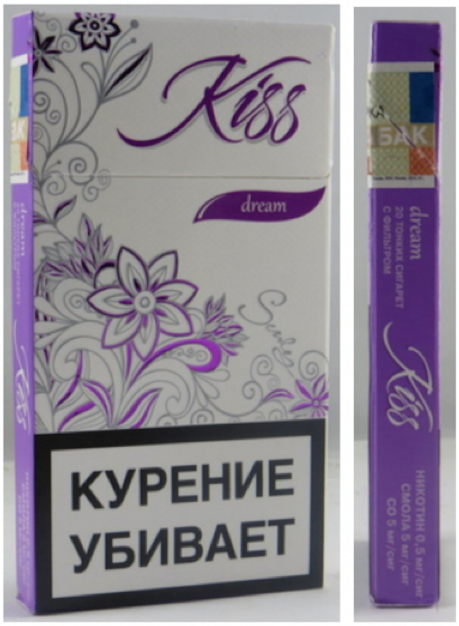


Front of pack, Russia; displays "blue"

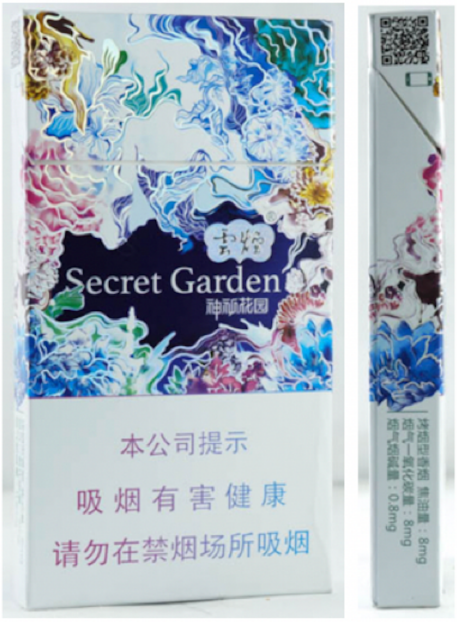


Front of pack, Bangladesh; displays "gold"

Side of pack, India; displays "smooth"



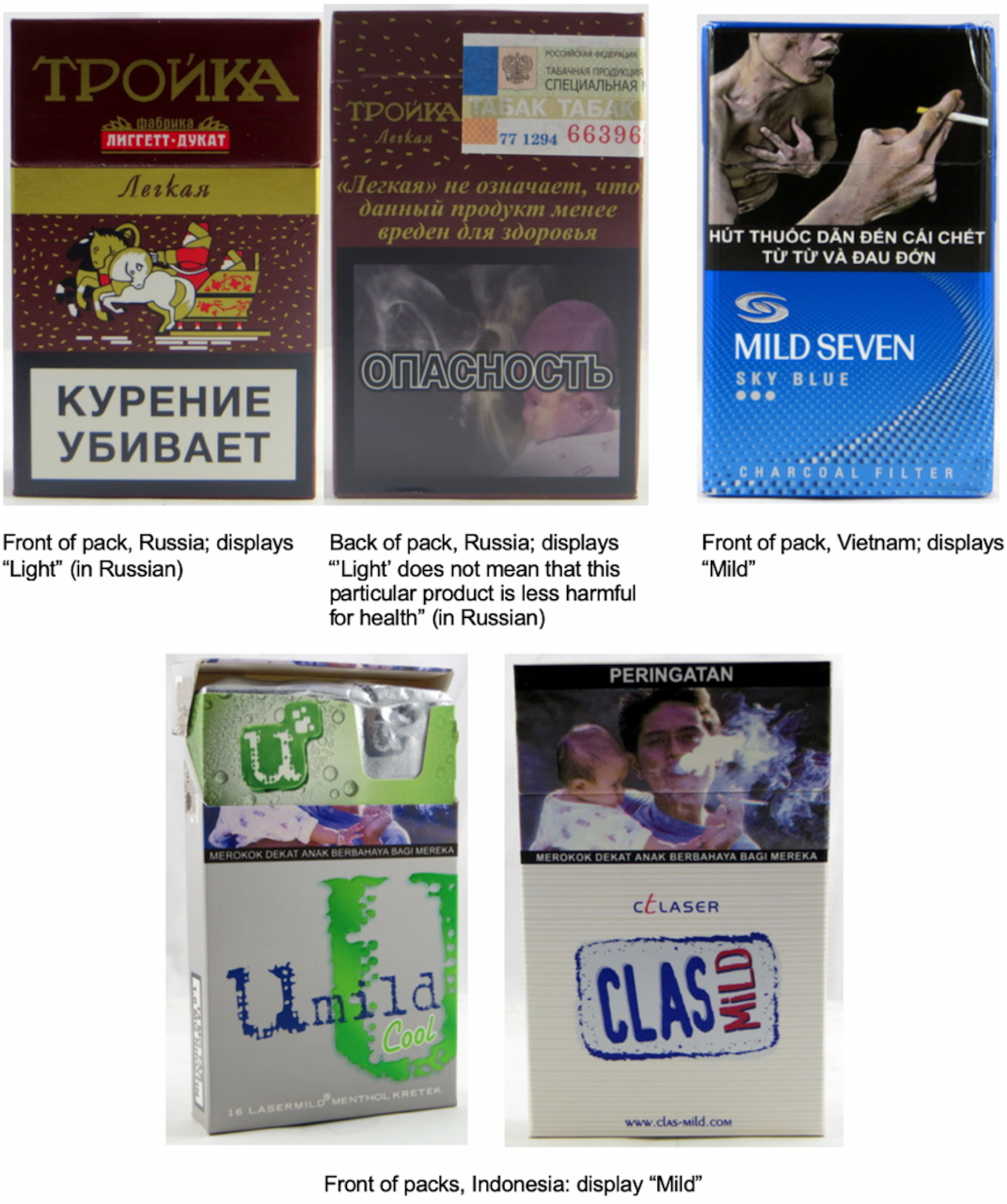
Front and side of pack, Russia; slim cigarette pack



Front and side of pack, China; slim cigarette pack

(19.8%) were slim packs and/or contained slim cigarette sticks (Table 2). The highest percentage of packs displaying the selected color descriptors were collected in Russia (39.7%), followed by Bangladesh (32.3%) (Figure 2). The highest percentage of packs displaying the descriptors "soft," "smooth,"

Figure 3
Examples of Cigarette Packs from Countries with Loopholes in Regulations



Front of pack, Russia; displays "Light" (in Russian)

Back of pack, Russia; displays "'Light' does not mean that this particular product is less harmful for health" (in Russian)

Front of pack, Vietnam; displays "Mild"

Front of packs, Indonesia: display "Mild"

or "mellow" were collected in Bangladesh (16.9%) and India (14.5%) (Figure 2). The highest percentage of slim packs and/or packs that contained slim cigarette sticks were collected from Russia (37.1%), followed by China (17.6%) (Figure 2).

DISCUSSION

Overall, there was high compliance with explicitly banned misleading descriptors in the majority of countries of focus. This is in line with findings from New Zealand.[31] Although this is positive, it is also

important to recognize that whereas compliance is high in these countries, some of the regulations are weak and contain substantial loopholes. For example, in Russia, specific descriptors are prohibited, but prohibited descriptors can be displayed on packaging if accompanied by the disclaimer "(word or word combination used) does not mean that this product is less harmful for health."[29] An example of a pack from Russia that displays the prohibited descriptor "light," but is still considered compliant due to also displaying this disclaimer, is found in Figure 3. This is problematic given that this could be confusing to consumers and also given that the disclaimer appears on the back of the pack where it may go unnoticed. Additionally, research finds that corrective statements issued to invalidate misleading information is often ineffective at changing consumer beliefs and intentions.[41] Simple corrective statements, like those used on Russian tobacco packaging, are particularly ineffective.[41] In Vietnam, specific descriptors are prohibited, but packs are exempt if they are part of a tobacco label that is protected or registered on intellectual property prior to enactment of the regulations (Figure 3).[29] In Indonesia, almost one-fourth of cigarette packs were non-compliant, and an additional 36 cigarette packs displayed one or more banned descriptors but were considered compliant due to the Indonesian law that states that such prohibitions are not applicable to tobacco products that already have such words in their branding or trademarks (Figure 3).[29] Keeping tobacco products on the market that still display misleading descriptors likely does little to reduce misperceptions of harm among consumers.

Similar to previous findings in high-income country contexts, alternative descriptors are being used on tobacco packaging in place of banned descriptors.[31,32,35] Over one-fifth of all packs had the color descriptors "blue," "gold," "white," and/or "silver" printed on the pack. This was true of over one-fourth of packs in Bangladesh and over one-third of packs in Russia. As previously noted, color descriptors are often used to denote the strength of a cigarette and influence perceptions of harm.[19,20,22,23] The color descriptors "blue," "gold," "white," and "silver" create false impressions of less harm among consumers and can make it easier for consumers to identify their usual brand after regulations on misleading descriptors and packaging are implemented.[19,20,22,23] Almost one-fifth of all packs were slim packs and/or contained slim cigarettes. Overall, less than 5% of packs had the descriptors "soft," "smooth," or "mellow" printed on them; however, about one-fifth of packs purchased in Bangladesh or India displayed these descriptors. Such descriptors are used to convey mildness and are perceived as less harmful by consumers.[20-22,24] Over one-third of packs purchased in Russia in 2015 were slim and/or contained slim cigarettes. Slim cigarettes are particularly appealing to females and many consumers believe that slim cigarettes are less harmful than other cigarettes.[19,23,25,27]

Limitations and Strengths

The limitations of this study include the coding scheme that captured compliance with explicitly banned misleading descriptors, but did not assess all graphic elements, such as other words or symbols and primary color of the packaging, that would create the impression of reduced harm. Therefore, our results present a conservative estimate of compliance with bans on misleading tobacco product packaging and labeling. Additionally, we did not examine the use of descriptors on packaging prior to bans on misleading descriptors; therefore, we were unable to determine how brand variants changed over time. Among the strengths of this study is the inclusion of packs from multiple countries with a high prevalence of smoking. To our knowledge, this study is also the first to examine compliance with misleading tobacco product labeling in multiple countries and the use of other misleading packaging design elements in the same sample of cigarettes.

IMPLICATIONS FOR TOBACCO REGULATION

Whereas compliance with explicitly banned descriptors in 8 of the 9 countries where we examined cigarette packaging was high, other packaging design elements that are misleading to consumers and create impressions of less harm are still used widely on packaging in the same countries. These packaging design elements likely weaken the impact of the misleading tobacco packaging and labeling regulations by making it easier for consumers to identify their regular cigarette brands and still being perceived as communicating a less harmful product in

comparison to other cigarettes. Countries should close loopholes that allow for misleading descriptors to remain part of trademarked terms and branding or appear alongside a disclaimer, consider extending bans to other misleading labeling and packaging design elements, and consider implementing plain packaging for maximum effectiveness.

Human Subjects Approval Statement

This study did not directly involve human subjects.

Conflict of Interest Disclosure Statement

All authors have no conflict of interest to disclose.

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