

# Graphic health warnings on tobacco packets and containers: compliance status in Bangladesh

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## ABSTRACT

**Objective** This study describes and analyses compliance with tobacco product graphic health warning (GHW) legislation introduced in Bangladesh in March 2016.

**Methods** A survey based on a structured questionnaire was conducted in April 2016 (immediately following the law coming into force), and 8 months later in November 2016, in eight divisional cities in Bangladesh. Five stores from three categories of retailers of combustible and smokeless tobacco products were surveyed, providing a total of 120 completed questionnaires. The study investigated a range of measures including the image and text of GHW, their ratio and colour use, and prescribed rotation.

**Findings** Warning labels for 3312 tobacco items were assessed. In April 2016, 75% of tobacco products surveyed did not have GHWs. In November 2016, 19% were still found to not have the prescribed warnings. Even among products which did include GHW, there was significant non-compliance with the full range of requirements, in both survey periods. Compliance was highest for cigarette packets and lowest among smokeless tobacco products. In addition, awareness among tobacco retailers about the range of GHW requirements was low.

**Conclusion** Effective implementation of GHW labels in low-income and middle-income countries requires awareness-raising among key stakeholders, combined with focused monitoring and compliance strategies. This should take into account different product categories and manufacturers, as well as measures targeted at retailers.

## INTRODUCTION

Graphic health warnings (GHW), recommended by the WHO's Framework Convention on Tobacco Control (FCTC), are a population-level intervention that warn tobacco users of health risks through text and image on the cover of tobacco packets and containers.<sup>1,2</sup> GHWs have the potential to communicate risks of smoking up to 7000 times a year with smokers who consume a packet of cigarettes every day.<sup>2</sup> Standardised packaging and aversive warnings also have the potential to reduce tobacco use.<sup>3–8</sup> In addition, GHWs influence smokers' attitudes and beliefs which can predict quit intentions.<sup>7–9</sup>

There is limited research about compliance with GHW legislation following the introduction of national regulations in low-income and middle-income countries (LMICs). Research in former Soviet states found that most countries in the region were close to meeting FCTC legislative guidelines on most aspects of tobacco pack warnings, however no country required the inclusion of GHW. Further, in

some cases enforcement of legislative requirements was weak.<sup>10</sup> A 2016 comparative study about health warning labels in 14 countries found that Bangladesh had the lowest compliance (46%) with regard to the required minimum size. Overall compliance in Bangladesh for four indicators—warning location, size of health warning, health warning elements and text size—was only 45%.<sup>11</sup> However, data for the study were collected prior to the implementation of GHWs in Bangladesh.

Section 10(1) of the Smoking and Tobacco Products Usage (Control) (Amendment) Act 2013 (hereafter referred to as the Act), mandates coloured images about the harms of tobacco use to be printed on tobacco packs. This requirement aligns with Bangladesh's obligations under the FCTC which it ratified in 2004, and is supported by research undertaken in Bangladesh on the likely effectiveness of graphic health labels in that country.<sup>7,8,12</sup> An amendment to the Act, The Smoking and Tobacco Products Usage (Control) Rule, 2015<sup>13</sup> specified that tobacco packets without GHW could not be marketed or sold after 19 March 2016. The Act covers four categories of tobacco products sold in Bangladesh: cigarettes, bidis (small hand-rolled cigarettes), zarda (chewing tobacco mixed with spices and other flavourings) and gul (an oral tobacco powder which is rubbed over the teeth and gums).

The Act stipulates that the image must cover at least 50% of the main display area of all forms of tobacco product packets, containers and cartons. Under the Act, seven pictures and text warnings are prescribed for combustible tobacco, and two for smokeless tobacco products (referred to in this article as 'approved images'). Warnings must be rotated every 3 months. In each round, only one warning label is displayed for each product category, creating a 21-month warning label cycle for combustible tobacco products and 6 months for smokeless. Violations of GHW requirements are punishable by imprisonment for a term not exceeding 6 months or a financial penalty of up to BDT 200 000 (approximately US\$2700) or both. Penalties are doubled for every subsequent violation. In addition to specified health warning requirements, all imported and locally manufactured tobacco packs must be labelled for sale in Bangladesh only.

As in many countries, implementation of GHW in Bangladesh faced many challenges. Initially, the draft rules allowed a 6-month transition period; however, this was later amended to 12 months following tobacco industry lobbying. Government decisions about placement of GHW on packets and



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**Table 1** GHW compliance issues in Bangladesh

Compliance issues	Explanation
Placement of GHW	<ul style="list-style-type: none"> <li>▶ At least 50% of main display area on the lower part (upper part for zarda and gul).</li> <li>▶ GHW printed on both sides.</li> </ul>
Health warning text and rotation	Cigarette and bidi <ul style="list-style-type: none"> <li>▶ 'Smoking causes throat and lung cancer' (first round, current at the time of first phase data collection in April 2016).</li> <li>▶ 'Smoking causes respiratory problems' (second round).</li> <li>▶ 'Smoking causes strokes' (third round, current at the time of second phase data collection in November 2016).</li> </ul>
	Zarda and gul <ul style="list-style-type: none"> <li>▶ 'Consumption of tobacco products causes mouth and throat cancer' (first round, current at the time of both first phase data collection in April 2016 and again in second phase in November 2016).</li> <li>▶ 'Consumption of tobacco products causes harm to the fetus' (second round, current between two data-collection phases).</li> </ul>
Image and text: ratio and colour	<ul style="list-style-type: none"> <li>▶ Ratio of image to text is 6:1.</li> <li>▶ Text in white letter on a black background.</li> </ul>
Sale conditions	▶ Inclusion of 'Approved for sale in Bangladesh only'.

GHW, graphic health warning.

containers were also challenged. One day before the Minister for Law, Justice and Parliamentary Affairs agreed and signed the order for GHW to be printed on the lower half of packets and containers (instead of the initial guideline which specified upper half), industry-printed posters were circulated among retailers about the guideline. This raised a concern among anti-tobacco activists about how industry knew the decision before it received ministerial sign-off. Placement of GHW continues to be a contentious issue in Bangladesh. While health researchers and tobacco control experts advocate for GHW placement at the top of tobacco packets, tobacco manufacturers have successfully lobbied for them to remain on the lower half, arguing that tax stamps and band roll are attached to the top flap, which would require new technology and thereby create difficulty for implementation.

Given that signs of industry interference have been observed, GHW implementation in Bangladesh warrants close monitoring.

A survey in December 2016 sampled 233 tobacco packs for compliance. Only 65 packs (28%) were found to have the required GHW. Among the 28% that did have the required warnings, 89% were compliant with all requirements.<sup>14</sup> The aim of this study is to provide a more comprehensive description and analysis of the implementation status of GHW on packets, containers and cartons of tobacco products in Bangladesh immediately following the law coming into effect, and again 8 months later.

## METHODS

This research investigated four indicators of GHW compliance according to Bangladesh law: GHW size and location on pack, health warning text, image and text ratio and colours, and presence of 'approved for sale in Bangladesh only' notice. Table 1 shows the GHW compliance details.

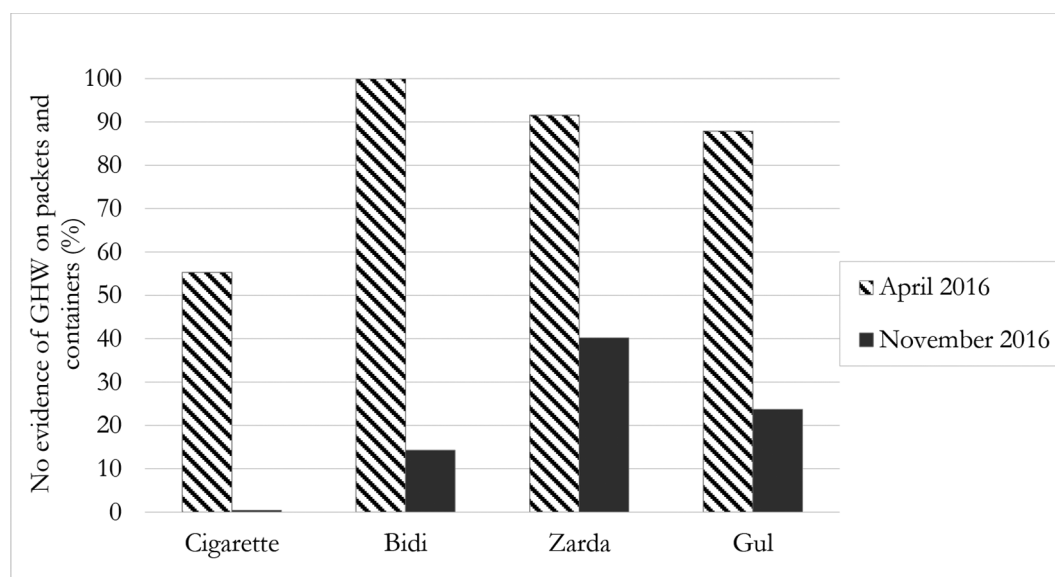
The research was conducted in two phases. The first phase was conducted during April 2016, immediately after the new rules requiring GHW came into effect, and the second phase was conducted in November 2016.

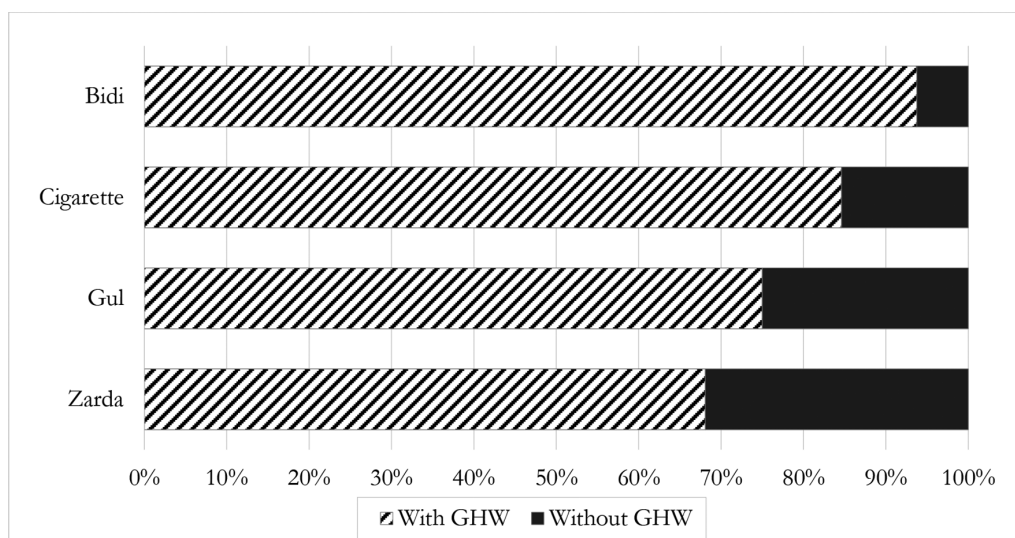
## Sampling: retailers

In order to achieve indicative national compliance, data were collected from all administrative divisions of Bangladesh (Dhaka, Chittagong, Rajshahi, Khulna, Barisal, Sylhet, Rangpur and Mymensingh). The administrative districts are all named for their main city, which also forms the commercial hub of the district. Five main market places/bazaars were selected in each main city.

Based on preliminary observation of retailer types, three types of retail stores were identified and purposively sampled: (a) retailers mostly selling high and premium brand cigarettes, (b) retailers mostly selling bidis and low-priced cigarettes and (c) retailers of smokeless tobacco products (zarda and gul). There is a clear delineation for different categories of products and how they are marketed and sold in Bangladesh. The latter two categories reflect the main sources for tobacco for people in low socioeconomic groups; together the three categories cover the main sources of tobacco products for people in Bangladesh.

Five vendors were surveyed from each of the three categories of retailers in each of the eight divisional cities, to achieve a total of 120 completed questionnaires. In order to maximise

**Figure 1** Absence of graphic health warning (GHW) by product category.



**Figure 2** Proportion of producers selling tobacco products affixing graphic health warning (GHW), November 2016.

variation, only one retailer was selected from each market place or bazaar (ie, care was taken to not select two of the same type of retailer within a specific market area).

### Sampling: tobacco products

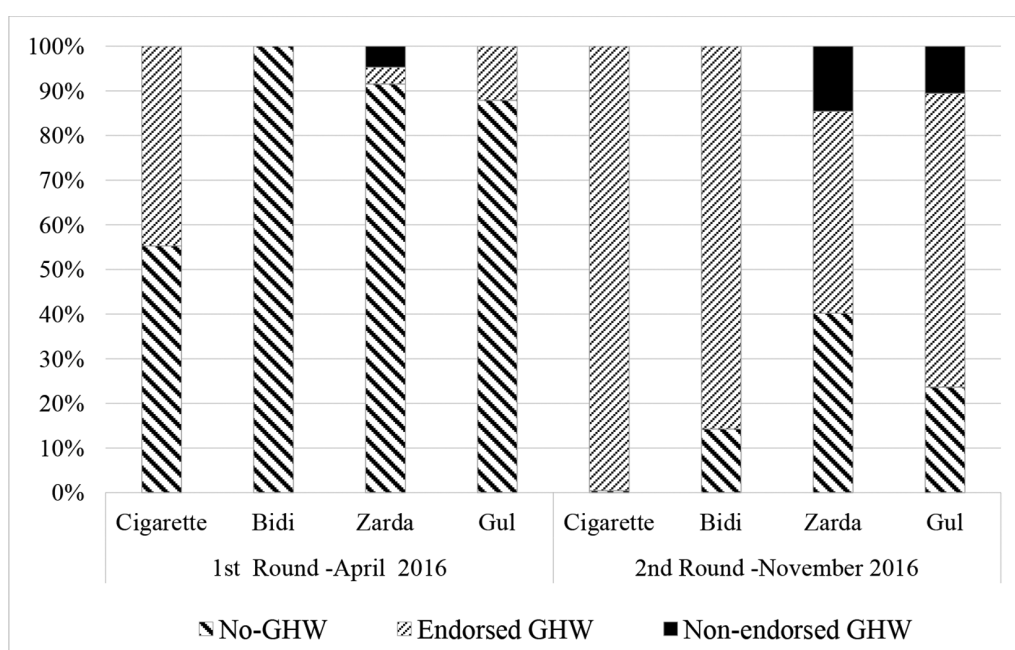
During data collection in April 2016, only the first round of GHWs was in circulation. Accordingly, only one packet of each product was assessed. During the November survey, the third round of image rotation was in place. It was therefore possible that cigarette and bidi packets might be found that contained GHW prescribed during the first two rounds. To account for this, a maximum of three packets (GHW with first, second and third rounds) of each tobacco product, available per retailer were assessed to ensure inclusion of packets with formerly approved GHW in the research. A total of 1485 items, including both smoking tobacco products and smokeless tobacco, were

recorded in the first phase in April, and 1827 items recorded during the second phase in November.

### Data collection and compliance assessment

A structured questionnaire was used for data collection. The research team first surveyed the full range of tobacco products available in each store to determine the total number available, and the proportion with and without GHW. Tobacco packets and containers with GHW were then assessed for compliance against the four broad indicators described in [table 1](#).

Research team members were provided with government standard sample packs which they used as a comparison to visually assess tobacco products (three packs per product type) for compliance. This method was intended to approximate community visual perceptions of the packs. The 6:1 image:text ratio was determined using the black background for the text which



**Figure 3** Proportion of packs with no graphic health warning (GHW), non-approved GHW and approved GHW, April 2016 and November 2016.

**Table 2** Product sample sizes and compliance with GHW requirements by product category for products with approved GHW (November 2016)

Product type	Sample size	Compliance indicator	Compliance rate (%)
Cigarette	886	GHW printed on both sides	100
		50% covering of GHW	100
		Current mandated health warning text and rotation	79
		Image ratio of 6:1	100
		Text colour and background	>99
		Sale conditions (for Bangladesh only)	99
Bidi	60	GHW printed on both sides	8
		50% covering of GHW	72
		Current mandated health warning text and rotation	62
		Image ratio of 6:1	92
		Text colour and background	62
		Sale conditions (for Bangladesh only)	0.0
Zarda	358	GHW printed on both sides	15
		50% covering of GHW	53
		Current mandated health warning text and rotation	81
		Image ratio of 6:1	84
		Text colour and background	86
		Sale conditions (for Bangladesh only)	45
Gul	50	GHW printed on both sides	58
		50% covering of GHW	54
		Current mandated health warning text and rotation	78
		Image ratio of 6:1	72
		Text colour and background	68
		Sale conditions (for Bangladesh only)	46
Total	1354		

GHW, graphic health warning.

clearly delineates the text portion of the label from the picture. Details of packs available at each retailer were recorded in a single questionnaire form for each retailer, with a blank row provided for each individual tobacco item surveyed.

Photos of each product assessed were also collected. Once all data had been collected by field staff, the research team reviewed details provided in the questionnaires against the photos collected during the survey in order to correct errors such as product name, spelling and product type classification, in line with the protocols followed in similar surveys elsewhere.<sup>11</sup> This additional review of the data also minimised the risk of products variations in classification between different assessors, in the absence of standardised measurements. The printing quality, and image and text ratio in each round for specific products by a tobacco company was found to be the same across the country. As a result, there was minimal variation in assessments by field staff and negligible errors found in data review.

During the second phase, a further dimension was added to the questionnaire to assess retailer awareness and knowledge of GHW, and the legal requirement for the images to be rotated every 3 months.

## RESULTS

### GHW of any form on tobacco packets and containers

The first survey in April 2016 found that 75% of all tobacco products surveyed had no GHW affixed to packaging. In the second survey, the proportion of tobacco packs with no GHW declined to 19%.

Although overall compliance improved between the two survey periods, significant variation was found in compliance across different product categories. Smokeless tobacco products were still significantly non-compliant in November 2016. Zarda packets and containers had the highest proportion of products with no GHW (40%), followed by gul (24%) and bidi (14%), as shown in figure 1. Among cigarette producers, only a small number of low-priced cigarettes were found not to use the prescribed image by November 2016.

A producer-based analysis during the November 2016 round of data collection showed that 38 of 119 zarda producers and 4 of 16 gul producers did not print any GHW on their product packets and containers. Two out of 13 cigarette and 1 out of 16 bidi producers marketed products without GHW on their products. The proportion of producers for each product category that were compliant is shown in figure 2.

### Endorsed images for GHW

All GHW images require endorsement by the Bangladesh Ministry of Health and Family Welfare (MOH&FW). The ministry has selected a set of images for different products. Compliance with ministry-endorsed images was found to be high for those cigarette and bidi products that did have GHW in both surveys, and overall compliance increased significantly between the April and November surveys. The total number of all tobacco products with MOH&FW-approved and non-approved images in both time periods are shown in figure 3.

All cigarette and bidi packets included ministry-approved images in November 2016. However, compliance was lower for smokeless tobacco; 24% of zarda items (115 of 473) and 8 of 58 gul items (14%) did not have ministry-approved images.

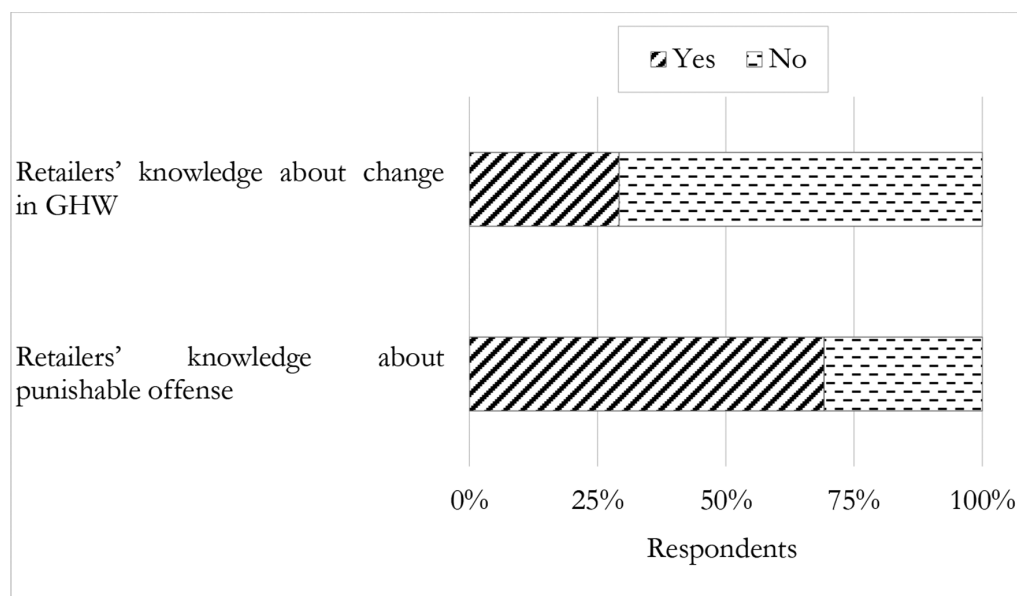
### Use of prescribed image and text for GHW

Even when packs had government-approved images, a significant number were found to be non-compliant with the requirement for images to be rotated every 3 months. Bidi packets had the highest proportion of images (38%) from the previous round of images in November 2016, followed by cigarette, zarda and gul, which were all around 20% (table 2). A total of 36 cigarette brands from 9 different cigarette producers were found to use images approved for previous rounds. Among bidi, 12 brands from 12 different producers were found to use images from earlier rounds. Non-compliance among zarda was found in 26 different products from 17 producers, and among gul, four products from four factories.

Overall, compliance with government-mandated content for the text component of health warnings was good across all products in the November 2016 survey. Around 4.5% of zarda and 6% of gul were found to include a health warning which did not conform to the government-approved text. All cigarette and bidi packets had government-approved text.

In terms of text colour, in November 2016 bidi packets had a non-compliance rate of around 39% for printing in white colour font on a black background. For smokeless products, 13.7% (49 containers out of 358) of zarda and 32% (16 containers out of 50) of gul containers did not have any warning in the prescribed colours to comply with GHW specifications.





**Figure 4** Awareness about graphic health warning (GHW) requirements among tobacco retailers, November 2016.

Around 9% of bidi products did not have the required ratio of 6:1 image to text. Non-compliance was 16% for zarda and 28% for gul containers. Full compliance was found for cigarette packets.

In November 2016, no bidi packets had the statement, 'approved for sale in Bangladesh only', on the packet. Similarly, 55% and 54% of zarda and gul containers, respectively, did not display the statement. Compliance for cigarette packets was high; only 9 out of a total of 886 (around 1%) cigarette packs containing GHW did not include the statement.

### Placement of GHW

Despite the tobacco industry successfully lobbying for changes in GHW placement prior to the law coming into force, compliance with requirements was still low. In November 2016, more than 90% of the bidi packets did not place the GHW in the appropriate place; on 80% of the packets it was on one side of lower part of the packet, and around 7% on one side of upper part. All cigarette packets sampled had the GHW printed on the lower part of both sides, in compliance with the requirements. Approximately 42% of gul containers were found not to follow the guidelines. Zarda products also had a high level of non-compliance; more than 85% had the image and text incorrectly placed.

Non-compliance for GHW size was also found to be high in November 2016. Around 46% of zarda and gul did not allocate the required 50% of the space for GHW. Non-compliance with the 50% space requirement among bidi packets was 29%.

### Awareness among retailers

Front-line sales persons (who are usually the shop owner and sole proprietor) are unlikely to be knowledgeable about government directives on selling tobacco products with GHW. Around 31% of the retailers did not know that selling tobacco product without GHW is punishable under the Smoking and Tobacco Products Usage (Control) (Amendment) Act 2013; and more than two-thirds of the retailers did not know about the requirement for GHWs to be changed every 3 months (figure 4).

### DISCUSSION

The purpose of this study was to provide evidence of the current status of GHW implementation in Bangladesh. Two surveys of tobacco packets and containers were conducted 8 months apart. While compliance improved between the two surveys, significant non-compliance continued to be found in November 2016 for particular indicators. Non-compliance varied significantly by product type. Overall, this study found a higher proportion of products had GHW in November 2016 than a smaller study based on pack samples in December 2016.<sup>14</sup> The differences may be due to the sampling method used and the different approaches for assessing compliance.

Full implementation of GHW requirements was not achieved, even 8 months after the new requirements came into force. Although over 80% of all types of tobacco packets and containers included any form of GHW in November 2016, there were significant gaps to achieve 100% compliance with the full range of requirements specified in the Act. Around half of all products were found to have inappropriately placed GHW and were non-compliant with the prescribed image, size, text and colour at 8 months postimplementation.

Cigarette producers were found to have overall high compliance; however, bidi, zarda and gul products have substantial room for improvement. Bidi and smokeless tobacco industries are predominantly home-based and labour-intensive sectors in Bangladesh. These sectors are fragmented and poorly organised, and largely consist of producers who are typically small entrepreneurs, who require only a small investment to open a new venture. There is a lack of standardisation across products, particularly in the size and shape of packs/containers. For instance, gul containers are 2–3 inch long thin spherical containers, making placement of the GHW and text difficult.

Due to the structure of the bidi and smokeless tobacco industry, it is possible that poor compliance may be partially attributable to low awareness of GHW requirements among producers, suggesting a need for targeted strategies to boost compliance. Examples might include producer information sessions based at production facilities, as well as awareness campaigns among retailers.

Of particular concern is the fact that the highest proportions of non-complying products were low-priced products which are mostly consumed by low-income groups,<sup>15</sup> and for whom GHW are likely to be particularly effective compared with other tobacco-control measures.<sup>16</sup> Fifty-one per cent of the tobacco products (bidi, zarda and gul) were low-priced, among which 37% of the packets and containers did not have GHW. Another important issue is the significant proportion of products identified with the images of previous round, given the importance of rotating images to ensure effectiveness of GHWs.<sup>17</sup>

Despite the significant lack of compliance found for smokeless tobacco products, the inclusion of GHW on tobacco packets and containers, and the overall compliance across all tobacco products 8 months after implementation was an improvement compared with the findings from earlier studies.<sup>11</sup> Overall compliance in Bangladesh was good compared with Georgia and Moldova as found by Mir *et al.*<sup>10</sup>

Generating awareness among retailers may be an important tool to discourage tobacco trade bypassing national and international rules and regulations. If retailers are well-informed about the images and warning text approved for current round and the way these need to be shown on the packets and containers, it may create pressure on the producers to comply with government directives, particularly if compliance measures are introduced which are targeted at retailers and producers.

To the best of our knowledge, this is the only study to investigate compliance following the implementation of GHW in Bangladesh across all eight districts, and with systematic sampling by retailer and product type. Although not nationally representative, as the study was conducted only in eight divisional cities, it provides important indicative data. Further study at the district, subdistrict and rural levels would provide a more comprehensive base for national situation analysis.

The method of visually assessing packs for compliance, rather than standardised assessment with clearly defined allowable margins of error for elements such as text:picture ratio and overall size, is a potential limitation of this study. Although measures were taken to minimise this by further review by the research team using photos taken during data collection, future research could provide standardised measurement tools to minimise variance in classification by different assessors. Given that tobacco companies may use subtle measures to undermine labelling requirements, more precise assessment tools may provide more details about such tactics.

Based on the findings, a set of recommendations may be proposed. A law-enforcement approach coupled with awareness-raising strategies such as retailer seminars, meetings and campaigns both in urban and rural areas may assist with generating support for the law and mobilising voluntary compliance among key stakeholders. Local-level administration should focus on regional smokeless tobacco producers who maintain a niche market with a higher rate of non-compliance. Frequent penalties may be imposed publicly against violating tobacco producers. For instance, open destroying or burning of non-compliant tobacco products may be an option. In addition, frequent but irregular mobile courts may be operated to investigate tobacco shops. A strong emphasis on compliance, with greater involvement of law enforcement authorities, is likely to improve the current situation.

## CONCLUSION

Effective implementation of GHW labels in LMICs requires awareness-raising among key stakeholders, combined with focused monitoring and compliance strategies. This should take

into account different product categories and manufacturers, as well as measures targeted at retailers.

## What this paper adds

- Low-income and middle-income countries are increasingly introducing mandatory graphic health warnings on tobacco packaging. To ensure effectiveness, legislation should be comprehensive and incorporate elements such as size, position, the need to rotate warnings regularly and the content of accompanying text.
- While there is a strong evidence base for important elements of graphic health warnings, there is limited research about compliance.
- This study provides a comprehensive overview of compliance with graphic health warning requirements in Bangladesh, immediately following the introduction of legislation, and 8 months later.
- It provides evidence of clear differences in compliance levels across different product categories, and highlights the need for targeted monitoring and enforcement strategies.

**Contributors** SMR, MSharA, ABMZ, and MHossein contributed to the study design. SMR, MSharA, MHossein, MShahA contributed to data collection. SMR, MSharA, ABMZ, MHS, MShahA contributed to data analysis. SMR, MSharA, ABMZ, MHS, MShahA and MHeffer contributed to interpretation of data. SMR, MSharA, MHS, MH, MdShahA and MHeffer contributed to drafting and revising the manuscript. All authors approved the final version and agree to be accountable for the work.

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