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ORIGINAL ARTICLE

Online sales compliance with the electronic cigarettes ban in India: a content analysis

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Abstract

Objectives To investigate the availability of and to characterise the internet electronic cigarette (e-cigarette) vendors (IEVs) that continued to sell vaping devices in an Indian city despite the promulgation of an Indian Ordinance on 18th September 2019 that prohibits e-cigarettes nation-wide.

Methods A structured internet search engine queries to identify IEVs. Subsequently, a content analysis to all identified IEVs was performed to check if they delivered vaping products to a New Delhi address (non-compliant with Indian Ordinance). Those non-compliant IEVs were then described according to some characteristics of interest.

Results Sixteen out of 45 identified IEVs (35.6%) were not compliant with the Indian Ordinance. Amongst them, half were general e-commerce, 75.0% did not apply any age verification methods, and 56.3% did not feature health or safety warnings on their websites. Many of these IEVs employed a wide range of promotional strategies, such as price discounts, health benefits claims, and social networks utilisation.

Conclusions E-cigarettes were still highly available and accessible in an Indian capital city through online sales following a bold step taken by the country to totally ban vaping products.

Keywords E-cigarettes · ENDS · Policy · India · Internet · Sales

Introduction

Accumulated evidence has shown that many toxic substances are present in electronic cigarette (e-cigarette) aerosol, posing potential harms to the health of users and

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non-users (National Academies of Sciences, Engineering and Medicine 2018). However, the global market of e-cigarettes is continuously growing, with an estimated worth of 37.4 billion USD by 2025 (Business Wire 2019). In the United States (USA), the products are widely available at tobacco retailers (U.S. Department of Health and Human Services 2016), vape shops (Harrell et al. 2017), and internet e-cigarette vendors (IEVs) (Zhu et al. 2014; Mackey et al. 2015). Notably, IEVs, instead of vape shops, have been the main channel for selling e-cigarettes in the USA in the last decade (Truth Initiative 2019).

The sales expansion of e-cigarette products through online platforms has been of concern to public health since, historically, internet cigarette vendors have evaded government regulation and violated tobacco marketing restrictions in the USA (Jo et al. 2015); thus, IEVs might similarly utilise such strategies to undermine e-cigarette regulations. Some IEVs have been known to feature misleading information about e-cigarettes regarding their benefits to help smoking cessation and safety compared to conventional cigarettes, even after e-cigarette marketing regulations were in force in the USA and South Africa (Williams et al. 2018b; Muposhi and Dhurup 2018). Additionally, compliance with sales age-restriction has been proven to be poor as minors were still easily able to purchase e-cigarettes from IEVs in the USA in 2014 when 41 states had banned e-cigarette sales to minors (Williams et al. 2015).

Although e-cigarettes use prevalence amongst adults in India was only 0.02% (Tata Institute of Social Sciences and Ministry of Health and Family Welfare Government of India 2017), most of the users were from younger age groups and also tobacco smokers (dual users) (Sharan et al. 2020). Most e-cigarette users in India (57%) purchased their vaping products from online retailers (Sharan et al. 2020). The emergence of e-cigarettes sales via online platforms in India has been identified by a study in 2015 (Mohanty et al. 2017). The study found six Indian retail shopping websites that sold 34 brands of Electronic Nicotine Delivery Systems (ENDS), including e-cigarettes, e-shishas, e-hookahs, and e-cigars. Most of the products used catchy promotional words and health-related claims as their product descriptors. Only 26% of the ENDS products were accompanied by health warnings (Mohanty et al. 2017).

To address the ENDS issue, a consensus to prohibit e-cigarette products in India was made in a National Consultation in 2014. In 2018, an advisory to include the ban of sales (including online sales), manufacture, distribution, trade, import, export, and advertisement of ENDS in all Indian states and union territories' jurisdictions was issued by the Ministry of Health and Family Welfare of India (The 50th Union World Conference on Lung Health 2019). The initiatives to ban e-cigarettes had actually been taken by some Indian states since 2016, making a total of 16 out of 29 states and one Union Territory that had prohibited e-cigarette products by 2019 (Sharma 2019). On 18th September 2019, India promulgated a nation-wide Ordinance that prohibits all forms of ENDS, including e-cigarettes, heated tobacco products (HTPs), e-hookahs, and other similar devices (Ministry of Law and Justice 2019). The Ordinance bans the production, manufacture, import, export, transport, sales, distribution, storage, and advertisement of e-cigarettes (Ministry of Law and Justice 2019). It states in Section 4 (i), "No person shall, directly or indirectly… sell… e-cigarettes, whether as a complete product or any part thereof; and as a complete or partial product."; thus, it also covers e-cigarette online sales. The Indian Parliament finally passed the Prohibition of Electronic Cigarettes Act (e-cigarettes Act) on 2nd December 2019 for replacing the Ordinance (Press Trust of India 2019a). As per the information technology guideline issued by the Ministry of Communications and Information Technology of India in 2011, "no one may host, display, upload, modify, publish,…, or share any information that violates any law for the time being in force" (Ministry of Communications and Information Technology 2011). Thus, the guideline is applied to the e-cigarettes Ordinance/Act.

There has been no evaluation study that assesses e-cigarette online sales in India after the issuance of the prohibition of e-cigarettes Ordinance. Such evaluation would be of importance to inform the governing and law enforcement bodies in India and to gain useful insights about e-cigarette regulatory policies for other countries. Thus, the purpose of this study was to investigate the extent to which, following the e-cigarette prohibition by Indian Ordinance, IEVs continued to sell e-cigarettes in the national capital, New Delhi, and to describe some characteristics of such IEVs. We chose New Delhi as it is the capital of India, which is a favourable marketplace for novel products, and from which online sales of vaping products, therefore, were most likely accessible. Furthermore, the implementation of the Ordinance in the city shall ideally be a role model for the other Indian States and initiated from there.

Methods

Website identification

Initially, we identified the five most popular key search terms related to e-cigarettes. We obtained "vape", "vaping", "e cig", "e cigarette", and "electronic cigarette" as the top five e-cigarette-related key terms. These terms were

the most searched according to Google Trends, based on search term interest over the past 12 months in the India region. Additionally, we checked the five terms against those used by Mackey et al. (2015), also using Google Trends, and found that the five terms we had were still the most popular in India.

Subsequently, we conducted a structured internet search for each of the five key terms using the Google Advanced search engine. The search was done in the "incognito" mode of Google Chrome browser, without signing into any Google accounts to avoid the influence of browser history and user cookies when performing searches. From each of the key terms, we retrieved non-sponsored website addresses from the first five pages in "All" and "Shopping" Google tabs as consistent with previous studies (Lorigo et al. 2008; Liang and Mackey 2011). Therefore, we scanned ten pages in total for each key term from the combination of those two Google tabs.

We selected websites according to the inclusion criteria: the website sells vaping products or novel tobacco products (i.e., e-cigarettes and/or HTPs, and/or their parts and accessories and/or e-liquids) and the products may be purchased online. We excluded inactive websites (i.e., websites that were not visible to the public by the time of the study due to a close-down of the business or other reasons).

Websites identification was done by a researcher (BA) and cross-checked by another researcher (SK).

Website content analysis

In the next phase, we reviewed the content of each website included to identify compliance with the Indian Ordinance on e-cigarette sales prohibition. A non-compliant IEV is defined as a website that delivered its vaping products to New Delhi, India. To check the compliance, a purchase attempt was made for any e-liquid or e-cigarette device sold in the first or home page of each included website, to be delivered to a valid home address in New Delhi. If required by the website, we created a new account with a designated e-mail address when made a purchase attempt. All new accounts registered claimed a legal age for smoking or e-cigarette use (minimum age 18 or 21 years, depending on the requirement prompted by the IEVs).

Afterwards, we categorised the non-compliant IEVs according to their characteristics of interest such as type of IEVs, country of origin, type of products sold, age verification, price range, purchasing methods, delivery methods, health/safety warning, health-related claims, and other themes that were developed whilst coding the websites' content, by comprehensively assessing different pages in the websites. The list of the characteristics and their corresponding definitions are summarised in Table S1 (Online Supplement).

Reviewing and coding procedures were conducted by one researcher (BA), and records were cross-checked by another researcher (SK). Final records were analysed to obtain descriptive statistics of the non-compliant IEVs with their corresponding characteristics.

Period

Structured search engine queries and identification of non-compliant IEVs were conducted within 2 days (26th–27th November 2019) to minimise variation in the results, approximately 2 months after the issuance of the Ordinance (18th September 2019) and before it was passed by the Parliament to become an Act (2nd December 2019). Content analysis was performed from 28th November to 9th December 2019.

Results

Website compliance

Figure 1 shows the scheme of website identification according to the inclusion and exclusion protocol. From 734 websites identified, 689 were excluded for not meeting the inclusion criteria and for being duplicate websites or without access, leading to 45 websites (Table S2, Online Supplement) included for content analysis. Amongst them, we found 16 (35.6%) IEVs delivered at least one of their vaping products to New Delhi, India, and thus were not compliant with the 2019 Indian Prohibition of E-cigarettes Ordinance.

Website characteristics

Table 1 summarises the main characteristics, and Table S3 (Online Supplement) shows the more detailed characteristics of the 16 non-compliant IEVs. Our content analysis identified that half (50.0%) of the non-compliant IEVs were general e-commerce, which also sold clothing, household appliances, electronics, and toys. Ten (62.5%) non-compliant IEVs were retailers from foreign countries such as USA (n = 5), China (n = 2), Hong Kong (n = 1), United Kingdom (n = 1), and United Arab Emirates (n = 1). The majority (75.0%) of non-compliant IEVs did not apply any age verification methods. One of these IEVs had unspecific age warning "Age confirmation: By adding this item to your shopping cart, you confirm that you have reached the age of majority in your country of residence.", which appeared before the check-out page (Table S3, Online Supplement). Only four (25.0%) IEVs used a form

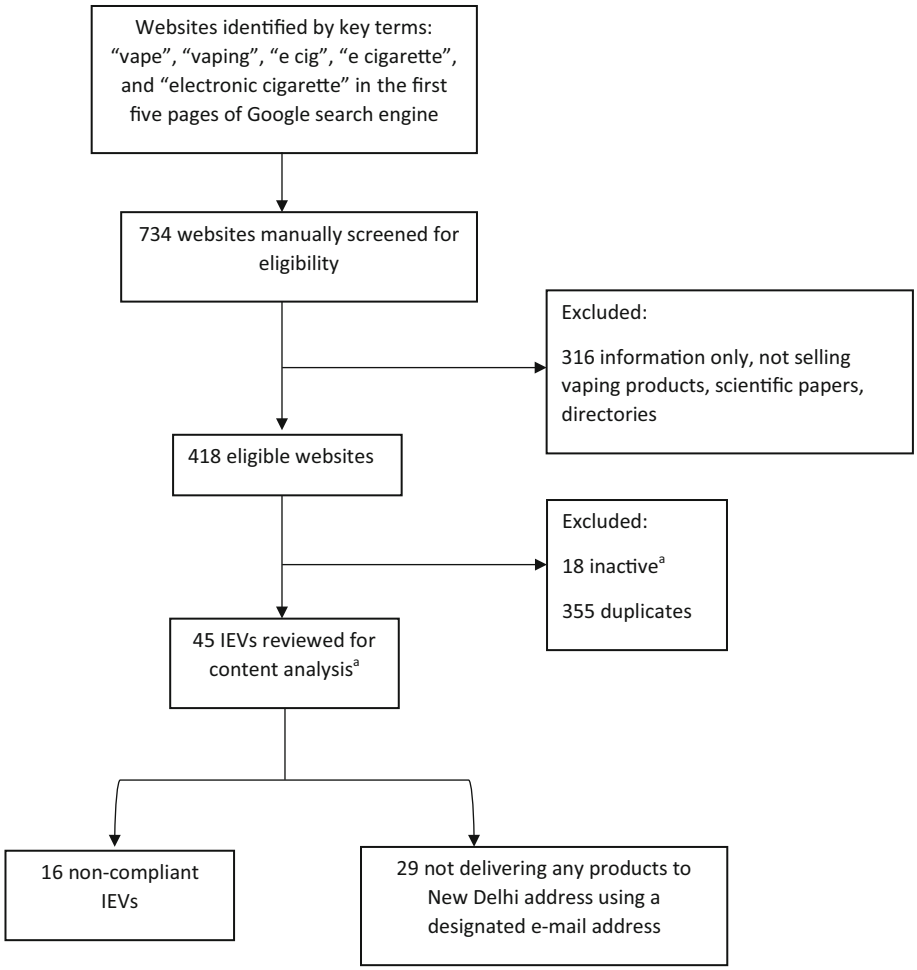

Fig. 1 Flowchart of non-compliant internet e-cigarette vendors (IEVs) identification, New Delhi, India, 2019. [a]The full list of the websites is shown in Table S2 (Online Supplement)

of age verification; they required potential customers to self-verifying their age as above 18-years or 21-years old or the legal age of e-cigarette use in the customers' countries by simply clicking a pop-up box at the beginning of the website's page. All non-compliant IEVs we found were in the English language.

Half (50.0%) of the non-compliant IEVs sold e-liquids; seven of them sold both nicotine-containing and nicotine-free e-liquids. Illegal recreational drugs in India, like cannabidiol juice and marijuana seeds, were available for purchase in four (25.0%) IEVs; only one of them required a valid customer's identification information for the age verification process. Indian rupees currency was used by half (50.0%) of the IEVs, and the most used foreign currency was USD. Almost all (87.5%) of non-compliant IEVs accepted debit/credit card payment. There were four out of six Indian IEVs exporting their products.

The majority of IEVs employed promotions strategies with respect to prices (n = 13, 81.3%), free delivery (n = 11, 68.7%), and warranty of their products (n = 11, 68.7%). Less than half (43.7%) of IEVs displayed any health or safety warnings on their websites. Nicotine substances, minors' safety, and health concerns for non-smokers, pregnant women, and people with medical conditions were cited by IEVs in their health warnings (Table S3, Online Supplement). Four (25.0%) IEVs claimed their vaping products as either healthier than smoking, helped to quit smoking and saved lives. Figure 2 shows a screenshot of a health claim made by one IEV on its website. Three (18.7%) IEVs had wordings that associated prospective customers to their products, for example, "You're a fan of nostalgic sweet flavours, minty menthols,… we pride ourselves on having an e-liquid to suit every type of vaper" (Table S3, Online Supplement).

All IEVs provided methods to address customers' issues or concerns via customer care service (100%) and a FAQ section (87.5%). Other platforms were also largely utilised by IEVs, such as social media (75.0%), newsletters (68.7%), and blog sites (56.2%). One blog site owned by a US-based IEV was used as an advocacy channel for vaping laws in the country.

As shown in Table S3 (Online Supplement), the number of brands sold by IEVs ranged from 5 to 64 brands in total. The full list of the top three brands in the IEVs is shown in

Table 1 Number (proportion) of non-compliant internet e-cigarette vendors (IEVs) according to their main descriptive characteristics ($N = 16$), New Delhi, India, 2019

Characteristics	Number of IEVs (%)	Characteristics	Number of IEVs (%)
Type of IEVs site		Health/safety warnings	
General e-commerce	8 (50.0)	Yes	7 (43.7)
Vape e-commerce	7 (43.7)	No	9 (56.3)
Tobacco products e-commerce	1 (6.3)	Health-related claims	
Country of origin		Yes	4 (25.0)
India	6 (37.5)	No	12 (75.0)
Abroad	10 (62.5)	Identification of customers to a certain category	
Age verification		Yes	3 (18.7)
Yes	4 (25.0)	No	13 (81.3)
No	12 (75.0)	Featured human models	
Products sold[a]		Yes	3 (18.7)
E-cigarettes	11 (68.7)	No	13 (81.3)
Heated tobacco products	2 (12.5)	Website's logo	
E-liquids	8 (50.0)	Yes	15 (93.7)
Parts and accessories of vaping products	16 (100.0)	No	1 (6.3)
Other illegal addictive products	4 (25.0)	Customer care service	
Currency used		Yes	16 (100.0)
Indian Rupees	8 (50.0)	No	0 (0)
Foreign currencies	8 (50.0)	FAQ section	
Purchase methods[a]		Yes	14 (87.5)
Debit/credit card	14 (87.5)	No	2 (12.5)
Paypal	6 (37.5)	Owned social media channels	
Netbanking	4 (25.0)	Yes	12 (75.0)
Others	8 (50.0)	No	4 (25.0)
Delivery methods[a]		Newsletter	
National delivery	16 (100.0)	Yes	11 (68.7)
International delivery	14 (87.5)	No	5 (31.3)
Price promotions		Owned blogsites	
Yes	13 (81.3)	Yes	9 (56.3)
No	3 (18.7)	No	7 (43.7)
Free shipping		Site authentication	
Yes	11 (68.7)	Yes	6 (37.5)
No	5 (31.3)	No	10 (62.5)
Warranty of the products			
Yes	11 (68.7)		
No	5 (31.3)		

FAQ, Frequently Asked Questions

[a]The percentages do not sum up 100% because IEVs could be included in more than one category

Please see the operational definition and full notes of each characteristic in Table S1 and Table S3 (Online Supplement)

Table S4 (Online Supplement). The price range of vaping products varied too, ranging from 0.05 USD to 399.99 USD, depending on the product; a "starter kit" costs from 25 USD to 67 USD. Other characteristics of the non-compliant IEVs that emerged during the content analysis process were environmental friendliness image (2 IEVs), socially acceptable image (1 IEV), indirect promotion (1 IEV), and quality transparency (2 IEVs) (Table S3).

Fig. 2 A screenshot of an internet e-cigarette vendor's blog site, which featured a health-related claim about vaping *source* http://blog.eleafworld.com/vaping-saves-life/, taken on 7th December 2019, New Delhi, India, 2019

Discussion

The present study observed a violation of e-cigarettes ban Ordinance by 16 IEVs, which still sold vaping products in New Delhi 2 months after the Ordinance was in force. We found a higher availability of IEVs compared to that was found by an Indian online retail study in 2015 (16 vs. 6 websites) (Mohanty et al. 2017). The difference might be because the previous study only included retail websites that were selling multiple items beyond vaping products (fashion, apparels, electronics, etc.) on a single IEV, and used different keywords in the search engine. The higher number of IEVs identified by our study might also demonstrate the growth of e-cigarette e-commerce within 5 years in a strictly regulated environment. The rapid expansion of e-cigarette online sales is also exemplified by a previous study based on internet searches in 2012 and 2013–2014, where an increasing number of e-cigarette brands and flavours were found, with a mean net increase of 10.5 brands and 242 new flavours per month (Zhu et al. 2014). In fact, the present study identified a diverse selection of vaping products, including up to 64 brands, delivered to an Indian address by one IEV. Additionally, the finding of 355 duplicate websites in our study may reflect the high presence of these IEVs in the online platform as they had a high likelihood to be found with different combinations of keywords.

The World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) has recommended Parties to regulate ENDS with policy options in accordance with their national laws, especially for countries that have not banned the importation, sale, and distribution of ENDS (WHO FCTC COP 7 2016). Besides India, 28 countries, including Brazil, Thailand, Turkey, Nepal, and Cambodia, had banned the sale of all types of e-cigarettes by January 2020 (Institute for Global Tobacco Control 2019). Obstacles in enforcing a strict regulation on e-cigarettes have been reported in Finland. The country, which bans characterising flavours in e-cigarette liquids, has seen challenges posed by limited resources for tobacco control and e-cigarette businesses that were non-compliant with regulations, resulting in court cases filed by the business (Ollila 2019). Similarly, India seems to receive a strong resistance from the e-cigarette industry as it faced its first legal challenge by an e-cigarette company in September 2019, shortly after the issuance of the Ordinance (Press Trust of India 2019b). The Supreme Court of India finally gave a verdict in favour of the Government of India; thus, e-cigarette products remain banned (Supreme Court of India 2020).

In line with previous findings (Mackey et al. 2015; Williams et al. 2018b), our study found that non-compliant IEVs were dominated by foreign vendors who were mostly based in the USA. Not only the IEVs violated the Ordinance, but they also threatened minors' health by not having a proper age-restriction system and selling certain illicit drugs. High accessibility of vaping products to minors in online stores was also largely found in previous studies (Williams et al. 2015; Mackey et al. 2015; Nikitin et al. 2016; Williams et al. 2018a), where only a few websites featured effective methods to verify the age of their prospective customers, such as online age verification services, driving licences, and age verification at delivery (Williams et al. 2018a). Similarly, easy access to tobacco products in Indian online retailers by minors has been reported in a previous study which shows that hookah

products that were sold online barely had age-related warnings (6.5%) and there was no means to control the selling of the products to minors (Rijhwani et al. 2018). This is despite the fact that Section 6 of Cigarettes and Other Tobacco Products Act 2003 clearly restricts the access of tobacco products to minors. Illicit drugs contained in e-cigarettes, such as cannabidiol, ecstasy, cocaine, and methamphetamine, have been reported in the past and have complicated the enforcement of illegal drug laws (Breitbarth et al. 2018); thus, the existence of illegal drugs in IEVs warrants stringent monitoring by police and drug enforcement agencies.

The scarcity of health warnings for vaping products featured in the non-compliant IEVs added more risks for prospective customers as they might not be fully aware of the harms of the products. Previous studies also showed that a large number of IEVs failed to include any form of health warnings on their websites (Williams et al. 2015, 2018b; Mackey et al. 2015; Mohanty et al. 2017). Instead, they promote their products with diverse strategies, such as price promotions, unproven health claims, and utilising social media platforms, which were also found in our study. The highly claimed health-related benefits of e-cigarettes and HTPs, like reduced harms and smoking cessation aids, remain unfounded in many studies (Bhatnagar et al. 2019; Eissenberg et al. 2020). Furthermore, the use of social media, like Twitter and Instagram, in e-cigarette industry were allegedly part of its strategy in targeting youths (Czaplicki et al. 2019; Kim et al. 2019). In fact, our study found three-quarters of non-compliant IEVs utilised social media. Exposure to e-cigarette advertising on social media amongst youth who had never used e-cigarettes has been found to increase the likelihood of subsequent e-cigarette use (Camenga et al. 2018). Indeed, vaping products might be more appealing to youth as many IEVs we found sold the products at considerably low prices. Additionally, IEVs seemed to start exploiting the culturally sensitive Indian society by using festivities deals in marketing their products, as seen in four IEVs.

The practices of IEVs in selling and portraying their vaping products resemble the strategy used by tobacco companies in undermining tobacco control laws. Internet cigarette retailers have been known for using deceptive tactics to mislead customers and alluring minors, such as marketing their products using false science, indirect promotions, and engaging influencers and celebrities (Cohen et al. 2001; Ward and Gordon 2019). The presence of some good impression about the IEVs (e.g., environmentally friendly and socially acceptable image), health-related claims (such as "vaping saving lives"), and the sale of e-cigarette-related books on the websites we found, exemplified the use of indirect promotions to market their products.

This study has some limitations that should be noted. Firstly, we only used a New Delhi address when purchase attempts were made. The 29 IEVs that did not deliver their products to New Delhi (see Fig. 1) might deliver their products to other cities/states in India. However, again, New Delhi was considered a proper city to test this compliance study, given the city's high accessibility for goods delivery service. Secondly, we limited IEVs identification through the Google search engine. We only used Google as it is the most widely used search engine by internet users (Law 2019). Lastly, we acknowledge the inherent limitations of the cross-sectional study design employed in our study; it only captured the situation at the time of the study. Thus, a follow-up study, especially after the passage of the e-cigarettes Act, is needed.

To the best of our knowledge, this is the first study that evaluated e-cigarette online sales in a country that just banned these products, which highlights a challenge for the enforcement actions. E-cigarettes were still highly accessible in New Delhi, the capital of India, through online sales despite a bold step of e-cigarette total ban taken by the country at the national level. Law enforcement is as equally important as a law enactment. Internet activities are truly complex to monitor as they quickly evolve to find loopholes in regulations (Funabashi and Grzech 2005). It is especially challenging given the expansion of vaping products sales in general e-commerce, not only in specialised vape or tobacco retailers, as has been revealed in our study. Future work might explore more detailed aspects of the IEVs websites attractiveness, such as images, colours, and types of languages, that look appealing to young customers.

The replacement of the e-cigarette prohibitions Ordinance by a higher hierarchical law in India, the e-cigarettes Act, might offer room for improvement for the country to strengthen the enforcement efforts. The government should regularly and more rigorously monitor IEVs and may engage the public to actively report any violations of the law. The Ministry of Communications and Information Technology, for example, plays a substantial role in inspecting the existence of e-cigarettes online black market and strengthening the implementation of the Information Technology Act, 2000 by promoting its information technology guideline to all internet users. The Ministry might require internet service providers to block access to IEVs that would deliver any of their vaping products to an address in India. An integrated action by multiple responsible authorities, especially in the area of health, trade, information technology, and law enforcement, is warranted. Importantly, a stronger tobacco control policy might promote the efficacy of e-cigarettes bans, as shown in a previous study in Poland where smoke-free policy affected the popularity of e-cigarette and online sales of

ENDS (Goniewicz et al. 2014). The decision to totally ban all forms of vaping products in India was a bold step taken by the government amid a high market expansion of the vaping products around the world (Business Wire 2019), and whilst a high tobacco consumption was still continuously seen in the country. Therefore, e-cigarettes and other emerging tobacco products should not hamper the country's effort in protecting its public health.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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