

RESEARCH ARTICLE

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Industry Strategies for Attracting Youth to Cigarettes, E-cigarettes, and HTPs: Retailer Density and Marketing at Points-of-Sale in Vietnam and the Philippines

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Abstract

Background: Each year, tobacco-caused diseases kill 3 million people in the Western Pacific Region (WPR). Point-of-sale (POS) tobacco advertising, promotion, and sponsorship (TAPS) are utilized by tobacco and nicotine product companies to attract new customers, including youth; POS TAPS are associated with youth tobacco susceptibility, experimentation, and current use. E-cigarettes and heated tobacco products (HTPs) are sold in the WPR, yet limited research exists on TAPS for these products. We examined POS cigarette, e-cigarette, and HTP sales and TAPS in Vietnam and the Philippines to understand current marketing strategies and assess compliance with existing regulations. **Methods:** An observational study was conducted in urban and rural areas of several cities in Vietnam and the Philippines. A walking protocol was employed to identify all cigarette, e-cigarette, and HTP retailers within 100m of schools (Vietnam: n=371; Philippines: n=353). To represent areas without sales restrictions, retailers within 100m of post-offices (Vietnam: n=325) or 100-200m from schools (the Philippines: n=353) were also observed. An observation form documented product displays, advertising, and promotion. Descriptive statistics and ANOVA were used for analyses. **Results:** Cigarette retailers were common in areas with sales restrictions (Vietnam: n=712, mean=1.9; Philippines: n=2070, mean 5.9) and without (Vietnam: n=751, mean=2.3; Philippines: n=4496, mean=12.7). E-cigarette (n=113) and HTP (n=123) retailers were found in the Philippines; fewer e-cigarette (n=12) and no HTP retailers were found in Vietnam. In areas without sales restrictions, compliance with TAPS regulations was low (Vietnam: 0%; Philippines: 0-10.8%). Marketing tactics varied across product types. **Conclusions:** Cigarette sales and marketing are widespread in these two WPR countries; e-cigarettes and HTPs were also found. Compliance with sales and TAPS regulations is poor; stricter enforcement and more comprehensive regulations are recommended to prevent youth initiation. Other WPR countries may also consider monitoring, regulatory, and enforcement efforts to understand and limit youth initiation.

Keywords: Heated tobacco product- tobacco- e-cigarette- cigarette- advertising- marketing- point-of-sale- policy- sales

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Introduction

In the Western Pacific Region (WPR), a region that is home to around one third of the world's individuals who smoke, 3 million people die annually from tobacco-caused diseases [1]. In recent years, there has been growing global concern about electronic cigarettes (e-cigarettes) and heated tobacco products (HTPs). Two WPR countries that bear a substantial burden from tobacco include Vietnam and the Philippines. In Vietnam, 22.5% of adults and 2.5% of students smoke cigarettes [2-3]. In the Philippines, 21.5% of adults and 10% of students smoke cigarettes [4-5]. In the Philippines, where sale is legal to individuals 18 years and above but subject to restrictions, 14.1% of youth aged 13-15 use e-cigarettes. In Vietnam, where

e-cigarettes are unregulated, e-cigarette use among young people (aged 15-24) is lower (2.4%) but still of concern [5, 6]. Data on HTP prevalence in Vietnam and the Philippines are unavailable; however, the HTP market has grown rapidly in the Philippines, from USD \$1.5 million in 2020 to USD \$92.9 million in 2022 [7].

The tobacco industry uses tobacco advertising, promotion, and sponsorship (TAPS) at points-of-sale (POS) to attract and maintain users. POS TAPS exposure is associated with increased cigarette use susceptibility, experimentation, and current use among youth and greater urges to purchase, impulse buys of tobacco products, and risk of smoking and lower quit rates among adults [8]. E-cigarette POS TAPS is associated with increased e-cigarette initiation and use [9]. E-cigarettes and

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HTPs may particularly appeal to young people, with ENDS coming in various flavors and HTP packaging resembling high-end electronic products like the iPhone [10]. E-cigarettes and HTPs are being placed near youth-oriented merchandise at POS in some countries [11, 12].

Vietnam and the Philippines prohibit the sale and marketing of cigarettes within 100m of schools; these regulations extend to e-cigarettes and HTPs in the Philippines, but not Vietnam, where these products are unregulated. Current POS TAPS regulations for areas without sales restrictions are summarized in Table S1 [13, 14]. Despite such regulations, 27.9% of Vietnamese adolescents aged 13-15 years in 2014, 40.5% of Filipino adults in 2015, and 25.8% of Filipino students in 2019 reported exposure to POS TAPS [3–5].

To our knowledge, only one study (in China) has examined POS e-cigarette marketing [15] and none have examined POS HTP marketing in the WPR; these data are critical for understanding the roll out of these products in the WPR and potential regulatory and enforcement actions. Additionally, public health professionals in Vietnam and the Philippines seek information on tobacco marketing to inform regulation and enforcement. Literature on POS TAPS regulation compliance in these countries is scarce; one 2015 Vietnamese study found poor compliance (<15%) with regulations [16]. No studies in these countries have assessed cigarette, e-cigarette, and HTP marketing or compliance with TAPS bans near schools, which children often frequent. We examined cigarette, e-cigarette, and HTP retailer density and marketing tactics in Vietnam and the Philippines in areas with and without sales restrictions.

Materials and Methods

Overview

We conducted an observational study of cigarette, e-cigarette, and HTP retailers in urban and rural areas of several cities/regions in both Vietnam and the Philippines. To represent areas with sales restrictions, all retailers within 100m of schools were observed. To represent areas without sales restrictions, all retailers within 100m of post-offices (Vietnam) or 100-200m from schools (the Philippines) were observed. A walking protocol was employed to identify cigarette, e-cigarette, and HTP retailers around a pre-identified hub (i.e., school or post-office). An observation form was completed at each retailer to document tobacco and nicotine product displays, advertising, and promotions.

Sample Selection

To select hubs, a multistage sampling strategy was employed (Figure S1). First, ten cities in Vietnam (Hồ Chí Minh; Hà Nội; Đà Nẵng; Hải Phòng; Cần Thơ; Hà Tĩnh; Hà Tĩnh; Cẩm Phả, Quang Ninh; Tây Ninh, Tây Ninh; Hòa Bình, Hòa Bình; Buôn Hồ, Đắk Lắk) and nine cities/regions in the Philippines (Metro Manila; Davao City; Cebu City; Pagadian City, Zamboanga del Sur; Naga, Camarines Sur; Roxas City, Capiz; Alaminos, Pangasinan; Catbalogan, Samar; Cabadbaran, Agusan del Norte) were selected. Purposive city selection considered geographic location, economic development class, and

population size.

Next, we randomly selected urban and rural districts/wards/communes in Vietnam using data from the General Statistics Office of Vietnam and urban and rural barangays in the Philippines using data from the Philippines Statistics Authority.

Lastly, we randomly selected primary, junior high, and senior high schools (and post offices in Vietnam) in each administrative unit using lists from educational authorities and an online location finder for Vietnam post offices. Hubs were mapped prior to data collection using ArcGIS to ensure hubs did not overlap with one another or bodies of water. For administrative units with an insufficient number of hubs, additional hubs were selected from a randomly selected administrative unit with similar characteristics.

Data Collection Protocol

Experienced data collectors were hired through market research firms and completed training and guided field practice. Pairs of data collectors traveled to each hub and employed a systematic walking protocol to locate all tobacco and nicotine product retailers within 100-meters (VT) or 200-meters (PH) of each hub. At each retailer, an observation form was completed. Data were collected from December 2021-January 2022 in Vietnam using a custom online-offline platform and from December 2022-January 2023 in the Philippines using KoboToolbox.

Measurements

The observation forms (Appendices 1 and 2) included fields to capture (1) retailer characteristics; (2) the availability and characteristics of tobacco/nicotine products; (3) the presence and types of tobacco/nicotine displays, advertising, promotion, and display; and (4) the presence of age sales restriction signage. Retailer density was calculated as the average number of retailers in each sampling area. Note that, while the 100m radius for hubs is ~31,400 m², the area 100-200m from schools is three times as large (~94,200 m²); therefore, retailer density 100-200m from schools should not be directly compared to other areas.

Statistical Analysis

Descriptive statistics were utilized to assess the extent of tobacco and nicotine product sales, displays, advertising, and promotions near schools. ANOVA was utilized to assess differences in retailer density by city, school type, city characteristics, and urbanicity. A two-sided $p < 0.05$ was used to determine statistical significance. Analyses were conducted using STATA V.16.1 [17].

Results

Sample Overview

In Vietnam, 371 schools and 325 post offices were sampled; 1463 cigarette retailers (712 near schools, 751 near post offices), 12 e-cigarette retailers (9 near schools, 3 near post offices), and no HTP retailers were observed. Most cigarette retailers (52.5%) were grocery/convenience stores, whereas most e-cigarette retailers (83.3%) were tobacco specialty stores (Table S2).

Table 1. Compliance with Sales Restrictions Near Schools in Vietnam: Number and density of cigarette retailers within 100m of schools, by city, school type, city characteristics, and geographic location

		Schools sampled	Schools with retailers	Retailers	Retailer density	p-value
		n	n (%)	n	M ± SD ^a	
Total		371	255 (68.7%)	712	1.9 ± 2.2	
City						p<0.001
	Hồ Chí Minh	87	64 (73.6%)	158	1.8 ± 2.0	
	Hà Nội	90	67 (74.4%)	249	2.8 ± 2.7	
	Đà Nẵng	47	35 (74.5%)	72	1.5 ± 1.3	
	Hải Phòng	43	32 (74.4%)	123	2.9 ± 3.4	
	Cần Thơ	46	23 (50.0%)	41	0.9 ± 1.1	
	Hà Tĩnh, Hà Tĩnh	13	11 (84.6%)	29	2.2 ± 1.4	
	Cẩm Phả, Quang Ninh	10	7 (70.0%)	16	1.6 ± 1.3	
	Tây Ninh, Tây Ninh	12	8 (66.7%)	13	1.1 ± 0.9	
	Hòa Bình, Hòa Bình	11	5 (45.5%)	6	0.6 ± 0.7	
	Buôn Hồ, Đắk Lắk	12	3 (25.0%)	5	0.4 ± 0.9	
School type						p=0.387
	Primary	172	125 (72.7%)	327	1.9 ± 2.0	
	Junior high	134	92 (68.7%)	280	2.1 ± 2.6	
	Senior high	65	38 (58.5%)	105	1.6 ± 2.0	
Region						p=0.139
	North	227	111 (48.9%)	394	1.7 ± 2.6	
	South	95	95 (100.0%)	212	2.2 ± 1.7	
	Central	49	49 (100.0%)	106	2.2 ± 1.1	
Population						p<0.001
	<1 million	58	34 (58.6%)	69	1.2 ± 1.3	
	1-2 million	93	58 (62.4%)	113	1.2 ± 1.2	
	>2 million	220	163 (74.1%)	530	2.4 ± 2.6	
Economic development class ^b						p<0.001
	Special	177	131 (74.0%)	407	2.3 ± 2.4	
	I or II	159	108 (67.9%)	281	1.8 ± 2.2	
	III or IV	35	16 (45.7%)	24	0.7 ± 0.9	
Urbanization						p=0.003
	Urban	274	202 (73.7%)	583	2.1 ± 2.4	
	Rural	97	53 (54.6%)	129	1.3 ± 1.8	

^a, Mean ± (standard deviation) number of retailers within 100m of a school; ^b, Vietnamese economic development classes are determined using socioeconomic performance indicators: urban center functions, population size, population density, proportion of non-agricultural labor, and urban infrastructure facilities. Special class represents the highest socioeconomic performance, followed by I, II, III, and IV

In the Philippines, 353 schools were sampled, around which 6566 retailers sold cigarettes, 112 e-cigarettes, and 123 HTPs within 200m. Of these, 2070 cigarette, 43 e-cigarette, and 33 HTP retailers were within 100m of a school; the remaining were 100-200m from a school. Most cigarette (88.6%) and HTP (61.0%) retailers were sari-sari stores (small, family-owned retailers, selling personal and household essentials, that are commonly seen in Filipino neighborhoods); most (43.8%) e-cigarette retailers were grocery/convenience stores (Table S2).

Tobacco and nicotine product retailer density Cigarettes

Considering regulations in both countries prohibit sales of cigarettes within 100m of schools, cigarette retailer density within 100m of schools was relatively high in both

Vietnam (mean: 1.9) and the Philippines (mean: 5.9). In both countries, retailer density was highest in cities with larger populations and of higher economic development classes and in rural areas (p<0.05) (Tables 1 and 2). In the Philippines, retailer density was also elevated in the Luzon region. Retailer density was also high in areas without sales restrictions in both Vietnam (mean: 2.3) and the Philippines (mean: 12.7).

E-cigarettes

In both countries, e-cigarette retailer density within 100m of schools was far lower than cigarette retailer density (VT mean: 0.02; PH mean: 0.1). In the Philippines, a higher density of e-cigarette retailers was found in cities with larger populations and of higher economic development classes and in urban areas (Table 2).

Table 2. Compliance with Sales Restrictions Nears Schools in the Philippines: Number and density of cigarette, e-cigarette, and HTP retailers within 100m of schools, by city, school type, city characteristics, and geographic location

	Cigarettes			E-cigarettes ^b			HTP ^b		
	Schools sampled n	Schools with retailers n (%)	Retailers n	Retailer density M ± SD ^a	p-value	Schools with retailers n (%)	Retailers n	Retailer density M ± SD ^a	
Total	353	275 (77.9%)	2070	5.9 ± 7.6		32 (9.1%)	43	0.1 ± 0.4	
City					p<0.001				
Metro Manila	116	109 (94.0%)	1298	11.2 ± 10.1		23 (19.8%)	34	0.3 ± 0.7	
Davao City	89	57 (64.0%)	243	2.7 ± 3.2		3 (3.4%)	3	0.03 ± 0.2	
Cebu City	37	30 (81.1%)	179	4.8 ± 6.1		1 (2.7%)	1	0.03 ± 0.2	
Pagadian City, Zamboanga del Sur	36	25 (69.4%)	98	2.7 ± 3.3		0 (0.0%)	0	0	
Naga, Camarines Sur	32	28 (87.5%)	152	4.8 ± 3.7		5 (15.6%)	5	0.2 ± 0.4	
Roxas City, Capiz	12	7 (58.3%)	16	1.3 ± 1.8		0 (0.0%)	0	0	
Alaminos, Pangasinan	14	7 (50.0%)	29	2.1 ± 3.5		0 (0.0%)	0	0	
Catbalogan, Samar	7	6 (85.7%)	36	5.1 ± 6.3		0 (0.0%)	0	0	
Cababbaran, Agusan del Norte	10	6 (60.0%)	19	1.9 ± 1.8		0 (0.0%)	0	0	
School type					p=0.405				
Primary	151	121 (80.1%)	910	6.0 ± 8.2		12 (7.9%)	17	0.1 ± 0.5	
Junior high	62	49 (79.0%)	421	6.8 ± 8.7		6 (9.7%)	8	0.1 ± 0.4	
Senior high	140	105 (75.0%)	739	5.3 ± 6.4		14 (10.0%)	18	0.1 ± 0.4	
Region					p<0.001				
Luzon	162	144 (88.9%)	1479	9.1 ± 9.4		28 (17.3%)	39	0.3 ± 0.6	
Mindanao	135	88 (65.2%)	360	2.7 ± 3.2		3 (2.2%)	3	0.02 ± 0.2	
Visayas	56	43 (76.8%)	231	4.1 ± 5.6		1 (1.8%)	1	0.02 ± 0.1	
Population					p<0.001				
<200k	43	26 (60.5%)	100	2.3 ± 3.6		0 (0.0%)	0	0	
200k - 1 million	105	83 (79.0%)	429	4.1 ± 4.6		6 (5.7%)	6	0.06 ± 0.2	
>1 million	205	166 (81.0%)	1541	7.5 ± 8.9		26 (12.7%)	37	0.2 ± 0.5	
Economic development class ^c					p<0.001				
Special or I	242	196 (81.0%)	1720	7.1 ± 8.6		27 (11.2%)	38	0.2 ± 0.5	
II or III	80	60 (75.0%)	266	3.3 ± 3.5		5 (6.3%)	5	0.06 ± 0.2	
IV, V, or VI	31	19 (61.3%)	84	2.7 ± 4.0		0 (0.0%)	0	0	
Urbanization					p<0.001				
Urban	273	230 (84.2%)	1954	7.2 ± 8.2		32 (11.7%)	43	0.2 ± 0.5	
Rural	80	45 (56.3%)	116	1.5 ± 1.9		0 (0.0%)	0	0	

^a, Mean ± (standard deviation) number of retailers within 100m of a school; ^b, p-values have been excluded for e-cigarettes and HTPs due to the small sample size; ^c, Filipino economic development classes are based on average annual income. Special class represents the highest socioeconomic performance, followed, by I, II, III, IV, V, and VI

E-cigarette retailers were also found in areas without sales restrictions, with a mean density of 0.009 in Vietnam and 0.2 in the Philippines.

HTPs

HTP retailer density within 100m of schools in the Philippines was 0.1; HTP retailers tended to be found in cities with high populations and higher economic development classes and in urban areas (Table 2). In areas without sales restrictions, the mean HTP retailer density was 0.3.

Marketing tactics at tobacco and nicotine product retailers

Cigarettes

Marketing tactics varied by country and product type (Figure S2). In Vietnam, cigarette product displays were the most common form of marketing tactic; these displays were frequently placed near snacks or beverages. Single stick sales, flavored cigarette sales, and indoor and outdoor advertisements were present but less common. Most indoor and outdoor advertising was print signage (99-100%); indoor advertising was also sometimes illuminated, particularly near schools (schools: 98%, post-offices: 56%). Promotions were rare. Examples of observed tactics can be found in Figure S3. All 751 cigarette retailers found within 100m of post offices were non-compliant with at least one TAPS regulation, the most common violations being a lack of sales age restriction signage and display of more than one pack per brand (Table S3).

In the Philippines, flavored and single stick cigarette sales were widespread. Some retailers had outdoor advertisements and fewer had promotions, displays, or indoor advertisements. Most indoor and outdoor advertising was print signage (98-100%) and indoor advertising was often displayed at the eye-level of children, particularly closer to schools (100m: 80%; 100-200m: 25%). Contests and competitions (81-83%) and price discounts (34-39%) were the most popular forms of promotions. Product displays were often placed near snacks (50-60%). Of the 4496 cigarette retailers in areas without sales restrictions in the Philippines, 89.2% were non-compliant with at least one TAPS regulation due to their lack of sales age restriction signage (Table S3).

E-cigarettes

In Vietnam, all 12 e-cigarette retailers identified sold flavored e-cigarettes and marketed e-cigarettes via product displays. Six of these retailers also had power walls and displays in the cashier zone.

In the Philippines, flavored e-cigarette sales were widespread and many retailers had product displays; fewer had indoor advertisements, outdoor advertisements and promotions. Displays sometimes included lights (12-32%) and often the HWLs were not visible (40-61%). Print signage was the most common form of indoor and outdoor advertising (75-100%). Unlike cigarettes, power walls (28-33%) and indoor displays visible from outside (23-32%) were also somewhat common. All 69 e-cigarette retailers in areas without sales restrictions

were non-compliant with at least one TAPS regulation due to flavored e-cigarette sales and/or lack of sales age restriction signage. Even within 100m of schools, few retailers displayed signage prohibiting sales to youth (Table S3).

HTPs

In the Philippines, flavored HTP sales were nearly ubiquitous among HTP retailers. Outdoor advertisements, product displays, and indoor advertisements were also somewhat common. Promotions were extremely rare. Most retailers with indoor and outdoor advertising displayed print signage (98-100%) and retailers with product displays often displayed HTPs without the HWL visible (67-70%). Unlike cigarettes but similar to e-cigarettes, power walls (18-22%) and indoor displays visible from outside (15-18%) were also observed. All 90 HTP retailers in areas without sales restrictions were non-compliant with at least one TAPS regulation due to their flavored HTP sales (100%) and/or lack of sales age restriction signage (50%). Even within 100m of schools, less than half of retailers displayed signage restricting sales to youth (Table S3).

Discussion

Cigarette retailers are highly prevalent near schools in Vietnam and the Philippines, despite regulations prohibiting such sales. Other studies have similarly found that violations of tobacco sales restrictions near schools are common [15, 18–20]. Despite prior monitoring in Vietnam and Philippines demonstrating youth-targeted tobacco marketing tactics, policies remain largely unchanged and, as this study demonstrates, these marketing practices continue [18].

Literature across the globe has demonstrated growing e-cigarette [21] and HTP [11-12, 22–24] POS sales and marketing, including marketing targeted at youth (e.g., flavored products, placement near snacks). In the current study, few e-cigarette and no HTP retailers were found in Vietnam and some e-cigarette and HTP retailers were found in the Philippines, despite data suggesting growing e-cigarette and HTP markets in these countries. Together, the lack of retailers, absence of legal importation, and growing e-cigarettes and HTPs use in Vietnam may suggest informal markets exist for these products; future studies may examine online sales and individuals selling from trays/containers outdoors (typically on streets). In the Philippines, more e-cigarette and HTP retailers were found, perhaps relating to the e-cigarette/HTP-friendly policies; a new Philip Morris International HTP product (BONDS), first introduced in the Philippines and marketed as a more affordable HTP, further supports that the Philippines may be an attractive market for e-cigarette and HTP companies [25]. In the current study, retailers were found primarily in economically-developed, high-population, urban areas; however, following the implementation of RA11900, a 2022 bill which relaxed e-cigarette and HTP regulations, there is potential for the e-cigarette/HTP market to continue expanding throughout the Philippines. Learning from these two countries, other

WPR countries may consider the role of online sales and informal retailers for e-cigarettes and HTPs and the importance of effective e-cigarette and HTP policies to avoid the expansion in youth use observed in the Philippines.

TAPS compliance and marketing tactics in Vietnam align with a prior study of areas without sales restrictions which found low TAPS regulation compliance, with display violations being the most common. However, the prevalence of display violations decreased from 2009 to 2015 and our study finds a further decline. Similarly, ad violations in the prior study hovered around 30–40% and promotion violations were rare, which is consistent with the findings presented here [16]. We also found many retailers lacked sales age restriction signage that included a specific age. While not restricted in areas without sales restrictions, single stick and flavored cigarette sales, which can appeal to youth [18], were also common.

Compliance with existing TAPS regulation in areas without sales restrictions was also low in the Philippines, despite the limited TAPS regulations in these areas. Marketing tactics varied by product; while flavored product sales were nearly ubiquitous, outdoor advertising relatively common, and promotions rare across all products, displays and indoor advertising were relatively common at e-cigarette and HTP retailers but not at cigarette retailers. This variance in tactics may be related to differences in the retailers (sari-sari vs grocery/convenience stores) predominately selling each product, but nonetheless may warrant further consideration as to why this variance exists (e.g., varying target audiences).

Ultimately, retailer density is high and compliance with existing legislation is low, both in areas with and without sales restrictions. This may be due to lacking enforcement capacity and complex TAPS regulations; identifying and taking action against retailers within 100m of schools requires officials to know the location of all schools and the 100m radius around them. Additionally, exemptions (e.g., displays with one package/brand) may be confusing for retailers and enforcement agencies; even with improved enforcement, limited restrictions like these allow for youth TAPS exposure.

As recommended by the WHO Framework Convention on Tobacco Control [26], comprehensive TAPS bans, including all locations (i.e., those not around youth-centric areas) and TAPS types (displays, indoor and outdoor advertising, and promotion), in both countries are recommended to protect Vietnamese and Filipino youth and adults from tobacco and nicotine products. POS TAPS bans can reduce youth experimentation and initiation and overall tobacco consumption [27]. Continued regulatory, monitoring, and enforcement efforts are recommended in these two countries; other WPR countries may benefit from compliance monitoring to inform regulation and enforcement.

Strengths and Limitations

These data are strengthened by the sample size; over 1400 Vietnamese and 6500 Filipino retailers were observed. Sample cities and local administrative units were diverse, thereby enhancing study generalizability.

However, data were collected only in cities; results may not extend outside of cities. Data collected were cross-sectional and markets can change rapidly; results may not accurately represent other time periods. Data collectors underwent extensive training and practice. Still, mobile vendors (e.g., some street vendors) may have been missed if they left areas as the walking protocol was executed. We did not collect data on individuals selling from trays/containers outdoors (often along streets); sales may be occurring that were not captured. Promotions data should be considered with caution; identifying promotions during brief store observations is challenging and promotions can occur without information displayed. Data in Vietnam was collected a year prior to data collection in the Philippines; because this was during the COVID-19 pandemic, data collectors in Vietnam were trained virtually, whereas data collectors in the Philippines were trained in-person and shadowed during initial data collection efforts. Some Vietnamese stores were operating on a limited basis (e.g., not allowing customers inside); retailers and/or marketing tactics at retailers may have been undercounted.

In conclusions, in Vietnam and the Philippines, cigarette retailers are common within 100m of schools, despite regulations restricting such sales. Numerous e-cigarette and HTP retailers were found in the Philippines; fewer e-cigarette and no HTP retailers were found in Vietnam. There may be high growth potential in the Filipino e-cigarette/HTP markets and concern exists about the extent of online and informal sales in these countries. In areas without sales restrictions, compliance with TAPS regulations was extremely low in Vietnam (0%) and the Philippines (0–10.8%); children may still be exposed to TAPS in areas without sales restrictions. Improved enforcement and comprehensive regulations (e.g., sales restrictions beyond 100m near schools, bans on all TAPS types) may be warranted to prevent youth tobacco and nicotine product initiation and use.

Author Contribution Statement

EC, JB, and JC conceived the research question and designed the research methodology. EC, JB, NH, and FB contributed to project coordination and data collection. EC conducted analyses and drafted the manuscript. JB, NH, FB, and JC critically reviewed manuscript drafts and read and approved the final manuscript.

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Statement of Data Availability

Interested investigators may contact the corresponding

author for more information on accessing these data.

Declaration of Conflicting Interests

JEC was a paid consultant in litigation against a tobacco company. All other authors have no conflicts of interest to report.

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