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Using the Vape Shop Standardized Tobacco Assessment for Retail Settings (V-STARS) to Assess Product Availability, Price Promotions, and Messaging in New Hampshire Vape Shop Retailers

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Abstract

Objectives—This is the first statewide census of the product availability, price promotions, and product messaging of vape shops.

Methods—A comprehensive list of New Hampshire vape shops was developed through a previously validated online search method. Store audits were conducted in 55 stores between January and February 2016 using the Vape Shop Standardized Tobacco Assessment for Retail Settings (V-STARS).

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Human Subjects Statement

This research did not involve human subjects.

Conflict of Interest Statement

KM Ribisl has a royalty interest in a store audit and mapping system owned by the University of North Carolina at Chapel Hill, however, these systems were not used in this study. Dr Ribisl serves as an expert consultant in litigation against cigarette manufacturers.

Results—Modifiable devices and cig-alikes were sold in 92.6% and 14.6% of stores, respectively. Cross-product promotions with tobacco products were rare, and messaging promoting e-cigarettes as effective cessation devices was found in 27.3% of all stores. Candy/fruit and menthol e-liquids were most commonly found in stores, and sampling of products was available in 83.6% of stores. Ten (18.2%) stores did not have a minimum age sign posted, and self-service sampling displays were available in about one-fifth of stores.

Conclusions—Using V-STARS to conduct retail assessments of vape shops is feasible and is important for assessing the changing retail environment of vape shops. Vape shops distinguish themselves from traditional tobacco product retailers and offer a variety of products to customize a consumer’s experience. Regulations and effective enforcement ensuring accurate health messages is essential.

Keywords

e-cigarettes; vape; vape shops; point of sale

The electronic cigarette (e-cigarette) industry is growing rapidly with sales estimated to reach \$10 billion by 2017.¹ Use of e-cigarettes continues to increase among both youth and adults, and the number of retailers selling and marketing e-cigarettes is increasing as well.^{2–5} In a national study, the proportion of cigarette retailers selling e-cigarettes increased from 34% in 2012 to 80% in 2014.⁶

“Vape shops” are unique from other traditional tobacco retail outlets, such as convenience stores, as they are more likely to offer a wider selection of e-cigarette products, models, and accessories that allow the user to customize their re-usable product, rather than just selling cig-alike products that cannot be modified and are often disposable.^{7,8} For example, consumers are able to modify advanced systems with stronger batteries or larger tanks to produce more aerosols and deliver more nicotine.⁹ In an analysis of online Yelp reviews of vape shops in southern California, researchers found that the variety of flavors, devices, and accessories that vape shops offer are important to consumers.⁸ Many vape shops offer a social atmosphere with customized e-liquids mixed on site, samples available for consumers to try while inside the store, and entertainment such as movies, food, and concerts.^{7,10}

The precise number of vape shops in the United States (US) is unknown due to a lack of regulatory and licensing policies; however, estimates from industry groups have ranged from 3500 in 2013 to as many as 35,000 in 2014.^{10–12} Furthermore, how consumers, retailers, and researchers have defined vape shops has differed over time. For example, some retailers may consider themselves to be a vape shop if they sell e-cigarettes and traditional cigarettes, whereas other retailers believe vape shops should only sell e-cigarettes. Due to this industry growth, the US Food and Drug Administration (FDA) recently issued its “deeming rule” to extend its regulatory power over other tobacco products, including e-cigarettes.¹³ The deeming rules allow the FDA to monitor and regulate several different aspects of e-cigarettes, including their manufacturing, marketing, and health claims.¹³ For instance, vape shops are now prohibited from distributing free samples of vapor products and products with modified or reduced risk health claims, and manufacturers will be required to register their

establishments, report product ingredients, and place FDA-approved health warnings on all product packages.^{13,14}

To date, few studies have assessed the point-of-sale e-cigarette retail environment. A store audit study in Canada, where sales of e-cigarettes containing nicotine are prohibited, examined the sales and marketing practices at 4 types of retail outlets: grocery stores, convenience stores, tobacconist shops, and vape shops.¹⁵ Researchers found that 94% of the non-vape shop outlets complied with regulations and only sold nicotine-free products; however, all 13 of the vape shops that were audited were out of compliance by selling at least one product with nicotine. Vape shops were also more likely than other types of retail outlets to have exterior advertisements, promotions, and brochures with health claims and client testimonials about e-cigarette products.¹⁵ In a study of tobacco product retailers in college towns in North Carolina and Virginia both interior and exterior advertising of e-cigarettes increased between 2011 and 2012.¹⁶

Information from retail audits of vape shops has the potential to serve as an informative source about e-cigarette marketing and messaging, which can then be used to help inform regulatory agencies of how these products are being sold and marketed to consumers. To our knowledge, this is one of few studies to assess the retail environment of vape shops, and the first statewide census assessment of vape shops.

METHODS

Selection of Store Sample

At the time of data collection, the FDA deeming rule had not been enacted, and vape shops in New Hampshire were not required to have a license to sell e-cigarette products and devices. Presently, New Hampshire has pending legislation to require licensing for all retailers selling vapor products. To build a comprehensive sampling frame of potential vape shops in New Hampshire, we employed a similar online search method validated in a previous study by Kim et al.¹⁷ Kim et al¹⁷ found that Yelp, an online search engine, had high sensitivity in identifying vape stores compared to other search engines. Additionally, Sussman et al⁸ first used Yelp to assess store and marketing characteristics of vape shops in southern California. Therefore, we used Yelp as a primary source for constructing a vape shop retailer list, and data collectors then visited each store to confirm eligibility. As Figure 1 shows, our sampling frame included 117 potential vape shops identified from a variety of sources, including industry websites, snowball sampling of store owners and managers, and Yelp.¹⁷

This list was then de-duplicated (N = 37), leaving 80 stores that were assigned to be visited. Of these, 19 were not audited for the following reasons: store did not exist (N = 8), store was closed (N = 8), store was an Internet-based business (N = 1), store did not sell vapor products (N = 1), or store mostly sold cig-alikes (N = 1). This left 61 eligible vape shop stores to be audited; however, audits were not completed in 6 stores due to refusal from the manager or store clerk (90.2% completion rate).

Data Collection

A pilot version of the Vape Shop Standardized Tobacco Assessment for Retail Settings (V-STARS) was used to complete assessments of store characteristics, availability of tobacco devices and products, availability of e-cigarettes and e-liquids/cartridges, price promotions, and messaging. Development of V-STARS was based on the approach used to develop the Standardized Tobacco Assessment for Retail Settings (STARS),¹⁸ and more information about the development of V-STARS is documented elsewhere.¹⁹ Data collectors included 3 staff members from the New Hampshire Department of Health and Human Services and 1 public health associate from the Centers for Disease Control & Prevention, all of whom had previous experience conducting store assessments and had reviewed a comprehensive training manual on utilizing V-STARS. Data were collected on a paper audit form, and all assessments were conducted between January and February 2016. When possible, data collectors attempted to answer questions without asking the store clerk for input; however, many store clerks were open to conversation and answering questions. As such, data collectors completed the assessment based on information gathered observationally and through engaging in conversations with staff members.

Measures

Store characteristics—The audit form assessed several store characteristics (eg, store type, exterior signs stating a policy regarding minors, presence of young children in the store, vaping allowed inside the store). Because the operational definition of vape shops is not standardized in the literature, data collectors were instructed to use their best judgment in classifying each store as a vape shop, vape kiosk, or vape and smoke/head shop (ie, sells paraphernalia related to drug use and e-cigarettes). The form also assessed the sales of alcoholic beverages, cannabis/ marijuana, and other psychoactive substances.

Availability of tobacco devices and products—The audit form assessed availability of cigarettes, cigarillos/little cigars, large cigars, smokeless tobacco products, bong, and hookah pipes/water pipes.

Availability of e-cigarettes and e-liquids/cartridges—The audit form assessed the availability of different electronic smoking devices (ie, cig-alikes, vape pens/eGo/stick models, modifiable/rebuildable devices, herbal/dry chamber devices). Additionally, it assessed several aspects surrounding the availability and types of e-liquids/juices and cartridges sold (eg, flavors, nicotine-free). Several indicators were also used to measure characteristics and protocols for the placement and sampling of e-liquids/cartridges in-store.

Price promotions and messaging—The audit form assessed the presence of price promotions for e-cigarettes and whether there were cross-product promotions with conventional tobacco products. Additionally, the audit form assessed messaging on interior signage (eg, health claims, loyalty programs, graphic warnings).

Statistical Analyses

All variables were analyzed using a denominator of 55 stores. All frequencies, means, and analyses were calculated using SAS 9.3.²⁰

RESULTS

As Table 1 shows, 36 (65.4%) stores were categorized as a vape shop or vape kiosk and 19 (34.6%) stores were categorized as a vape and smoke/head shop. An exterior sign stating that the store had a policy regarding minors was present more often in vape and smoke/head shops (94.7%) compared to vape shops (75.0%); additionally, 2 (5.9%) vape shops allowed minors if an adult was present. Only 9 (16.4%) stores sold alcoholic beverages or psychoactive substances, and none sold cannabis/marijuana. Finally, during the completion of about half of the audits, a person was using electronic smoking products inside the store.

Table 2 shows that overall, 20 (36.4%) of the stores audited sold at least one tobacco device and/ or tobacco product (not including any e-cigarette products). Only 3 (8.3%) vape shops and kiosks sold one or more tobacco products and devices and 17 (89.5%) vape and smoke/head shops sold one or more tobacco products and devices. Vape shops and vape kiosks (N = 36) sold a mean of 0.31 (SD = 1.1) tobacco devices and/or products and vape and smoke/head shops (N = 19.0) sold a mean of 3.3 (SD = 1.9) tobacco devices and/or products. When assessing availability of tobacco products and devices for all stores types, hookah pipes/water pipes were the most likely to be sold (27.3%), followed by cigarillos/little cigars (25.5%). Cigarettes (20.0%) and smokeless tobacco products (14.6%) were the least likely to be sold.

Table 3 shows the availability of e-cigarettes and e-liquids/cartridges. In contrast to the high prevalence of availability of both modifiable devices and vape pen models that are not modifiable, cig-alikes were only sold in 8 (14.6%) stores. Additionally, only 2 (5.6%) stores that sold cig-alikes were classified as a vape shop or vape kiosk. E-liquids and cartridges were sold in all stores, and candy/fruit flavored e-liquids were available in all stores. Menthol or mint flavored e-liquids were also readily available (98.2%), as well as nicotine-free products (96.3%). Although illegal in New Hampshire, e-liquids containing tetrahydrocannabinol (THC) or cannabidoil (CBD) were sold in almost 50.0% of vape and smoke/head shops.²¹ Sampling of products was allowed in the majority of stores (83.6%), and flavored and nicotine-free e-liquid samples were commonly available as well. All but one store used child-resistant packaging to contain e-liquids.

Table 4 lists the characteristics of the promotions and messages in use. Price promotions were marketed in 39 (70.9%) stores and were more common in vape shops and kiosks (86.1%) compared to vape and smoke/head shops (42.1%). Cross-product promotions with tobacco products (eg, buy one e-cigarette, get one cigar for free) were rare (5.5%). Customer loyalty programs that provide discounts and incentives (eg, buy × bottles of e-liquid, get one free; get X% off for referring a friend) to repeat customers were available in 35 (64.8%) stores. Messaging directed toward military consumers was present in slightly more than half of all stores (51.9%). Overall, messaging comparing vaping to traditional cigarettes was promoted in 23 (41.8%) of all stores. Of the 36 vape shops and kiosks audited, 13 (36.1%) included messaging that promoted vaping as a way to quit smoking cigarettes, and 7 (20.0%) included messaging that suggested vaping is safer than cigarettes.

DISCUSSION

Modifiable e-cigarette devices were sold in all but 5 stores audited and cig-alikes were only sold in 2 vape shops and kiosks. The high availability of modifiable and reusable units sold is consistent with projections that these products are becoming more popular than cig-alikes, and increasing numbers of consumers are starting with modifiable and reusable units instead of closed systems.^{7,22} Furthermore, individuals who start with a cig-alike may progress to using a modifiable device to maximize and tailor the amount of nicotine delivered.²³ The e-liquid that is used in modifiable units may be more cost-effective than purchasing disposable cig-alikes or cartridges, and this also offers consumers the opportunity to customize their experience further by having a greater variety of flavors from which to choose. At the time of this study, sampling of e-liquid was available in 46 (83.6%) of stores, and nicotine-free samples were abundant, allowing consumers to choose to try the product without nicotine's addictive properties.²⁴ However, free sampling of e-cigarette products is now prohibited by the FDA.

Price promotions may encourage consumers to purchase new and more e-cigarette products, and customer loyalty programs may help incentivize this by encouraging consumers to commit to one vape shop, further maintaining the social atmosphere of vape shops. About half of the stores had e-cigarette messaging directed towards veterans or the military population (eg, "Ask us about a military discount"), a population with high smoking rates.²⁵ This targeted messaging was more common in vape shops and kiosks than vape and smoke/head shops, and it may serve as a harm reduction frame to entice more of the veteran and military population to try e-cigarettes as a way to quit smoking traditional cigarettes. Overall, vape shops are unique from other types of stores selling e-cigarettes, such as convenience and grocery stores, as they are offering a customizable experience to build loyalty and repeat customers. This atmosphere also may be demonstrated through the high frequency of stores featuring printed booklets or menus of e-liquids for customers to purchase and sample.

E-cigarettes are now more commonly used than traditional cigarettes by middle and high school-aged children, and youth cite availability of flavored products as one of the main reasons why they use these products.^{26,27} Candy or fruit flavored e-liquids were available for sale and sampling in all stores, and 9 (16.4%) stores had products in a self-service display where anyone could grab an e-liquid and start sampling. Although New Hampshire had a state law prohibiting the sales and distribution of e-cigarettes and liquid nicotine to minors at the time the store assessments were conducted, 10 (18.2%) stores had no minimum age sign posted, and a few stores had a child appearing to be less than 14 years of age present inside the store while the assessment was being completed.²⁸ To combat youth access and appeal to these products, the enactment of the FDA deeming rule now prohibits the sales of e-cigarette products to those under 18 years old, requires photo ID age verification to purchase e-cigarettes, and prohibits all free samples.^{29,30}

We found that vape shops and kiosks were significantly less likely to sell any tobacco devices and/or products compared to other types of stores. Of all store types, vape shops and kiosks more commonly had messaging that promoted vaping as safer than traditional

cigarettes and as a way to quit smoking. Additionally, only one vape shop sold another substance (ie, psychoactive substances). Messaging that is focused on the separation of traditional tobacco products from e-cigarettes has been documented in previous studies.^{31–33} A survey of vape shop retailers in Los Angeles found that 76% of retailers thought e-cigarettes were safer than traditional cigarettes, and 24% believed that e-cigarettes had no safety issues.³⁴ These beliefs may influence the types of messaging and discussions that vape shop retailers have with consumers, making some consumers believe that e-cigarettes are harmless and will help them quit smoking traditional cigarettes –2 health claims that are not yet scientifically substantiated.^{35–37} Finally, further retail assessments using V-STARS have the potential to capture whether the overlap of selling e-cigarettes and other psychoactive substances is prevalent in other areas of the country.

Limitations

Our study results may not be generalizable to other vape shops, as the investigation was only conducted in New Hampshire. The sample size of New Hampshire vape shops is small, which is due primarily to the fact that the state has only about 1.3 million residents; additionally, there could have been more eligible vape shops that we were not able to identify due to the lack of licensing, growth, and fluidity of this industry.³⁸ Our cross-sectional study was designed as an observational pilot study, and thus, is descriptive. Whereas data collectors were instructed to complete the audit form with minimal interactions with the store clerks, many indicators were informed by discussion with store clerks, and this could have led to response bias. However, clerk interaction also may have led to some questions being answered accurately that could not have been determined strictly through observation, especially as the vape shop atmosphere was interactive.

IMPLICATIONS FOR TOBACCO REGULATION

To our knowledge, this is the first study to conduct a statewide census of the point-of-sale retailer environment of vape shops. Our study demonstrates the feasibility of using V-STARS to assess the point-of-sale retailer environment of vape shops. The FDA deeming rule is an essential step forward in regulating the manufacturing, marketing, and sales of e-cigarettes. Sampling of products was common in the stores audited, and the new rule now prohibits free samples in an effort to reduce youth consumption.²⁹ However, with the proliferation of flavored e-liquids and the obvious youth appeal, the FDA also should consider regulating which, if any flavors of e-liquids should be sold. Additionally, whereas the rule bans the sales of e-cigarettes in vending machines, except in adult-only facilities, this rule does not prohibit self-service displays; therefore, youth still may be able to access these products easily.³⁹ The rule also requires a health warning about nicotine's addictive properties, and it states that without scientific evidence, manufacturers cannot claim that e-cigarettes are less harmful than other tobacco products or that e-cigarettes are an effective smoking cessation aid without any empirical evidence.³⁹ These provisions are strong components of the rule as they can help ensure that consumers are receiving accurate information before making the choice to use e-cigarettes, given the high prevalence of messaging we observed that promoted vaping as safer than traditional cigarettes and as a way to quit smoking. Overall, store audits of vape shops conducted using V-STARS have

strong potential to assess the changing landscape of the vape shop industry and can help guide regulatory policies.

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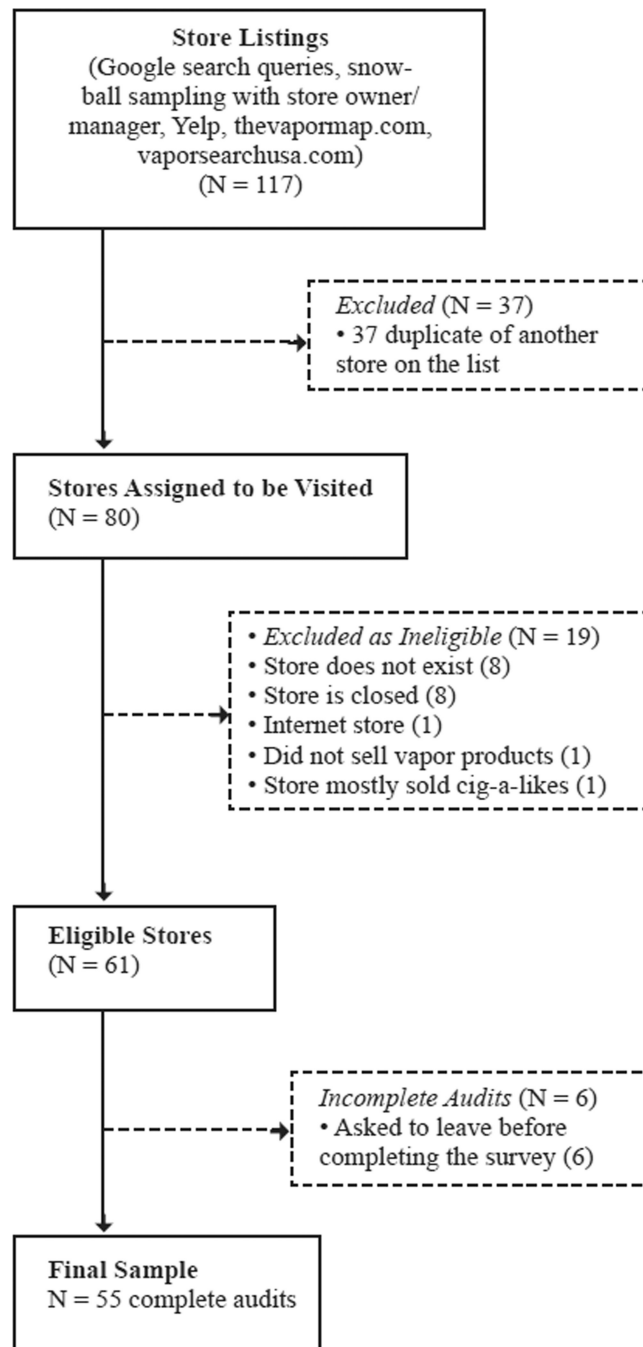


Figure 1.
New Hampshire Vape Store Identification and Eligibility

Table 1

Store Characteristics of New Hampshire Vape Shops (N = 55)

	Vape Shop or Vape Kiosk ^a N (%)	Vape and Smoke/Head Shop N (%)	Total N (%)
Store type			
Vape Shop or Vape Kiosk	36 (65.4)	-	36 (65.4)
Vape and Smoke Shop/Head Shop	-	19(34.6)	19(34.6)
Exterior sign stating policy regarding minors			
Minimum Age Must Be 18 Or Older To Enter	25 ^b (73.5)	18(94.7)	43(81.1)
Minors Allowed Only If Accompanied By An Adult	2 ^b (5.9)	0 (0.0)	2(5.9)
Other substances sold (% selling any)			
Alcoholic Beverage	0 (0.0)	5 (26.3)	5(9.1)
Other Psychoactive Substances	1 (2.8)	4(21.1)	5(9.1)
Cannabis/Marijuana	0 (0.0)	0 (0.0)	0 (0.0)
Someone (including staff) using e-cigarettes and/or e-liquids/cartridges inside store			
	21 ^c (60.0)	5 ^c (27.8)	26(49.1)
Children (appearing 14 years old) in the store			
	1 (2.8)	2(10.5)	3(5.5)

Note.

^aIncludes 34 vape shops and 2 vape kiosks.^bN = 34 as exterior signs are not eligible to be assessed at vape kiosks.^cOne missing value reported.

Table 2

Availability of Tobacco Products and Devices in New Hampshire Vape Shops (N = 55)

	Vape Shop or Vape Kiosk ^a N (%)	Vape and Smoke/Head Shop N (%)	Total N (%)
Any tobacco products and devices sold	3 (8.3)	17 (89.5)	20 (36.4)
Hookah Pipes/Water Pipes	2(5.6)	13(68.4)	15(27.3)
Cigarillos/Little Cigars	2(5.6)	12 (63.2)	14(25.5)
Large Cigars	2(5.6)	11 (57.9)	13(23.6)
Bongs	2(5.6)	10(52.6)	12(21.8)
Cigarettes	2(5.6)	9 (47.4)	11 (20.0)
Smokeless Tobacco Products	1 (2.8)	7(36.8)	8(14.6)

Note.

^aIncludes 34 vape shops and 2 vape kiosks.

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Table 3

Availability of E-cigarettes and E-liquids/Cartridges in New Hampshire Vape Shops (N = 55)

	Vape Shop or Vape Kiosk ^a N (%)	Vape and Smoke/ Head Shop N (%)	Total N (%)
E-cigarettes			
Modifiable/Rebuildable	32(91.4)	18(94.7)	50 (92.6)
Vape Pens/Ego/Stick Models (Not Modifiable)	32(91.4)	16 (84.2)	48(88.9)
Herbal/Dry Chamber	4(11.1)	13(68.4)	17(30.9)
Cig-alikes	2(5.6)	6(31.6)	8(14.6)
E-liquids/Cart ridges			
Available And Visible	36(100.0)	19(100.0)	55(100.0)
<i>Candy/Fruit</i>	36(100.0)	19(100.0)	55(100.0)
<i>Menthol/Mint</i>	36(100.0)	17 ^b (94.4)	53(98.2)
<i>Nicotine-Free</i>	33 ^b (94.3)	19(100.0)	52(96.3)
<i>Alcoholic Drinks</i>	12(33.3)	9 (47.4)	21 (38.2)
THC/CBD	2(5.6)	9 (47.4)	11(20.0)
<i>Caffeine</i>	0 (0.0)	4(21.1)	4(7.3)
Sampling Permitted Inside Store	32 (88.9)	14 (73.7)	46 (83.6)
<i>Flavored^c</i>	32 ^d (100.0)	13 ^f (100.0)	45(100.0)
<i>Nicotine-Free</i>	31 ^d (96.9)	13 ^f (100.0)	44(97.8)
<i>Disposable Tips Used</i>	28 ^e (90.3)	11 ^f (84.6)	39(88.6)
<i>Contain Nicotine</i>	10 ^d (31.3)	4 ^f (30.8)	14(31.1)
<i>Observed F-Liquids/Juices Mixed On-Site</i>	3(8.3)	0 (0.0)	3(5.5)
<i>Observed Clerk Using Gloves</i>	2 (66.7)	-	2 (66.7)
Contained In Child-Resistant Packaging	36(100.0)	18(94.7)	54 (98.2)
Printed Booklet, Pamphlet, Or Menu Board On Wall/Counter	34 (94.4)	12 (63.2)	46 (83.6)
Placed In Self-Service Display	6(16.7)	3(15.8)	9(16.4)

Note.

^aIncludes 34 vape shops and 2 vape kiosks.^bOne missing value reported.^cIncludes candy/fruit, alcoholic drink, and menthol samples.^dFour missing values reported.^eFive missing values reported.^fSix missing values reported.

Table 4

Price Promotions and Messaging in New Hampshire Vape Shops (N = 55)

	Vape Shop or Vape Kiosk ^a N (%)	Vape and Smoke/ Head Shop N (%)	Total N (%)
Price Promotions	31(86.1)	8(42.1)	39 (70.9)
Cross-Product Promotions with Tobacco Products	2(5.6)	1 (5.3)	3(5.5)
Messaging in store			
Promoted a Customer Loyalty Program	28 ^b (80.0)	7(36.8)	35 (64.8)
Directed Towards Veterans or the Military Population	24 (68.6)	4(21.1)	28(51.9)
Stated That Vaping is Allowed in the Store	12(33.3)	4(21.1)	16(29.1)
Promoted Vaping as a Way to Quit Smoking Cigarettes (Including Customer Testimonials)	13 ^b (36.1)	2(10.5)	15(27.3)
Suggested Vaping is Safer Than Cigarettes (Including Customer Testimonials)	7 (20.0)	1 (5.3)	8(14.8)
Displayed Graphic Health Warnings	4 ^b (11.4)	0 (0.0)	4 (7.4)

Note.

^aIncludes 34 vape shops and 2 vape kiosks.^bOne missing value reported.