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A content analysis of electronic cigarette manufacturer websites in China

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Abstract

Objective—The goal of this study was to summarise the websites of electronic cigarette (e-cigarette) manufacturers in China and describe how they market their products.

Methods—From March to April 2013, we used two search keywords ‘electronic cigarette’ (*Dian Zi Xiang Yan* in Chinese) and ‘manufacturer’ (*Sheng Chan Chang Jia* in Chinese) to search e-cigarette manufacturers in China on Alibaba, an internet-based e-commerce business that covers business-to-business online marketplaces, retail and payment platforms, shopping search engine and data-centric cloud computing services. A total of 18 websites of 12 e-cigarette manufacturers in China were analysed by using a coding guide which includes 14 marketing claims.

Results—Health-related benefits were claimed most frequently (89%), followed by the claims of no secondhand smoke (SHS) exposure (78%), and utility for smoking cessation (67%). A wide variety of flavours, celebrity endorsements and e-cigarettes specifically for women were presented. None of the websites had any age restriction on access, references to government regulation or lawsuits. Instruction on how to use e-cigarettes was on 17% of the websites.

Conclusions—Better regulation of e-cigarette marketing messages on manufacturers’ websites is needed in China. The frequent claims of health benefits, smoking cessation, strategies appealing

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to youth and women are concerning, especially targeting women. Regulators should prohibit marketing claims of health benefits, no SHS exposure and value for smoking cessation in China until health-related, quality and safety issues have been adequately addressed. To avoid e-cigarette use for initiation to nicotine addiction, messages targeting youth and women should be prohibited.

INTRODUCTION

China has the largest number of smokers in the world with 28.1% of adults smoking (301 million people), including 52.9% of men and 2.4% of women.¹ Electronic cigarettes (e-cigarettes; also called electronic nicotine delivery systems²) are produced mainly in China, and consist of a cartridge containing nicotine and (typically) propylene glycol, an atomiser, a heater and a battery.³⁴ When a user inhales the e-cigarette, a liquid consisting of nicotine, propylene glycol and other additives is heated and converted to an aerosol that delivers nicotine to the user^{5–7} The Chinese company Golden Dragon Holdings started exporting e-cigarettes in 2005–2006.⁸ When first manufactured in China, e-cigarettes were only available for export to Western countries and not sold in China because of their high price compared with conventional cigarettes.⁹

With the increase of income in China and substantial marketing by the industry, e-cigarettes have become increasingly popular in China.¹⁰ In the 2014 Lunar New Year in China, e-cigarettes were popular as gifts, especially for smoking colleagues, friends and families.¹¹ This popularity may be because e-cigarettes have been marketed as a safe alternative to conventional cigarettes and as a way of helping smokers to quit,¹²¹³ a message that is not clearly supported by current scientific evidence.¹⁴¹⁵ As all tobacco multinationals have now invested in the e-cigarette market,¹⁶¹⁷ Chinese tobacco firms decided to enter the market in 2014: Zhong Yuan of Yunnan and Huabao International in China signed an agreement to develop e-cigarette products in June 2014 and Zhong Yan of Hubei launched its first series of e-cigarette products in Wuhan, China, in July 2014.¹⁸ China currently has no regulation or marketing restrictions on e-cigarettes¹⁸ although marketing of conventional tobacco is regulated, including the prohibition of sales to minors (<18 years old).¹⁹

Manufacturers' websites are one of the main ways to market e-cigarettes.²⁰²¹ According to the China Internet Network Information Center, the number of internet users in China reached 604 million in 2012,²² almost half China's total population,²³ making the internet an effective way to promote e-cigarettes to Chinese consumers. A systematic analysis of 59 e-cigarette consumer-oriented websites (none Chinese) in 2012 found most sites had unsupported marketing claims including health claims and smoking cessation claims, as well as claims the product could be used to get around smoke-free laws.¹³ This study presents a comparable analysis of the websites of e-cigarette manufacturers in China to describe how they market their products.

METHODS

Study design and sample

We used the keywords 'electronic cigarette' (*Dian Zi Xiang Yan* in Chinese) and 'manufacturer' (*Sheng Chan Chang Jia* in Chinese) to search for the web-sites of e-cigarette

manufacturers in China from March to April 2013 beginning with Baidu, the largest Chinese online search engine. This approach failed because the search results were too noisy to use (eg, only 5 out of the top 32 results were about e-cigarette manufacturers) and because the manufacturer's website information was incomplete (eg, no company size information could be found) for all five websites. Therefore, we used Alibaba, an internet-based e-commerce website that covers business-to-business online marketplaces, retail and payment platforms, shopping search engine and data-centric cloud computing services.²⁴ Alibaba requires that manufacturers provide detailed information about the company, including location, employee size, registered capital and a link to the company's website. Alibaba allows manufacturers to subscribe as Gold Suppliers, a premium membership that provides promotional opportunities to maximise the exposure and return-on-investment of the suppliers. To qualify for a Gold Supplier membership, a supplier must complete an authentication and verification process by a reputable third-party security service provider appointed by Alibaba. Once approved, Gold Supplier members are authorised to display the Gold Supplier icon to demonstrate their authenticity. Limiting the search to Gold Suppliers ensured the existence of the manufacturing companies identified and excluded fake companies from the search results.

We searched for the websites of e-cigarette manufacturers in mainland China on both Alibaba English²³ and Chinese search engines.²⁵ Initial searches yielded websites for 251 and 89 Gold Supplier manufacturers on Alibaba English and Chinese, respectively. We excluded 34 non-e-cigarette manufacturers (eg, household electronic appliances, battery, etc) and 3 duplicate registered manufacturers from search results of Alibaba's Chinese search engine, which left 52 manufacturers for Alibaba Chinese. To examine possible differences in marketing strategies between manufacturers registered both in Alibaba English and Chinese, we compared the 251 manufacturers from Alibaba English and 52 manufacturers from Alibaba Chinese and then selected the 8 manufacturers registered both in Alibaba English and Chinese as Gold Suppliers (table 1).

In addition to the eight manufactures from Alibaba, we also added the Chinese members of the Smoke Free Alternatives Trade Association (SFATA), a trade association which represents the e-cigarette industry in the USA, to ensure our sample size was large enough to represent e-cigarette manufacturers in China. SFATA members included five Chinese manufacturers from China,²⁶ two of which were already located on Alibaba. Therefore, three SFATA manufacturer members were included in our data analysis. Finally, we included Dragonite International Ltd, the largest e-cigarette manufacturer in China, yielding a total of 12 manufacturers for our study. (Golden Dragon Holdings changed its name to Ruyan (meaning 'to resemble smoking') in 2007,⁸ then to Dragonite International Ltd in 2010.²⁷ In 2013 the multinational tobacco company Imperial Tobacco purchased Dragonite International.²⁸ Ruyan remains the brand name.) To the best of our knowledge, as of August 2014 no other tobacco multinationals are selling e-cigarettes in China.

These 12 manufacturers all target consumers via their websites. Among them, six manufacturers have both English and Chinese websites, four manufacturers have English websites only and two manufacturers have Chinese websites only, yielding a total of 18 websites for this study (table 2).

In order to compare marketing strategies within the same manufacturers, explore similarities and differences in claims, we analysed those manufacturers that had both Chinese and English websites.

Coding procedures

Coding was conducted from May to December 2013. The first author reviewed four e-cigarette manufacturer websites and adapted the coding guide developed for English language consumer e-cigarette websites by Grana and Ling¹³ to accommodate China-based and Chinese language-based website coding. As more websites were reviewed, the guide was reviewed iteratively by all authors, refined, and retested to generate consistent definitions and examples. The coding guide consisted of seven sections with 90 total items. These sections include: (1) basic information about the site, (2) regulatory language, (3) contact information, (4) products, (5) claims, (6) messaging and (7) promotion (table 3). After the coding guide was finalised, two Chinese-speaking coders (TY and NJ) double coded all 18 websites.

Data preservation and analysis

As websites are complex in structure and content changes frequently, we preserved all websites with Adobe Acrobat Pro X software. IBM SPSS V.20 was used for all analyses.

RESULTS

Basic information and regulatory language

None of the 12 manufacturers required website visitors to be of a minimum age to view their websites, and none of them had a reference to the any government regulation of e-cigarettes. (While the Chinese government has no regulation of e-cigarettes yet, but other governments such as localities and states in the USA do.) All but one (Dragonite International, which is located in Beijing) of the 12 e-cigarette manufacturers (table 2) are located in Shenzhen, a major city located in Southern China, situated immediately north of Hong Kong Special Administrative Region. Shenzhen is one of China's five Special Economic Zones, and is known for its production of electronic products. All the companies were established between 2004 and 2011 and company size ranged from 101 to more than 1000 employees. Companies' registered capital (the amount of money that can be put into a company in the form of shares) ranged between US\$16 129 and US\$483 871 (exchange rate: US\$1= ¥6.2 in 2013). All manufacturers offered their products for purchase not only in China, but also elsewhere (Europe, Africa, North America and South America). All websites provided contact information in several formats, including QQ (28%), which is a popular online chat tool in China, MSN (28%), Skype (39%), email (83%), telephone (100%) and fax (89%).

Product features, price, flavors and 'for women'

The types of e-cigarettes manufacturers are selling include disposable and refillable e-cigarettes. E-liquids are available on all websites. Price was usually not available on the manufacturers' websites. Only one manufacturer (Dragonite Int Ltd) listed price on their website and allowed consumers to order starter kits. For all other companies, customers must contact the manufacturers to inquire about price. All websites described a starter kit,

but only Dragonite International listed the starter kit's price (US \$31.61). Eight of 18 websites (44%) listed available nicotine concentrations of their products and half (9/18) of the websites provided information about available flavours, including but not limited to, fruit (50%), coffee (50%), tobacco (44%), mint/ menthol (50%), candy-like or dessert flavours (50%), spice (11%), alcohol/cocktail (33%) and tea (22%; table 4). Six of 18 websites (33%) sold e-cigarettes especially designed for women, which were usually slim, and pink, yellow or blue. Only 3 of 18 sites (17%) provided information about how to use e-cigarettes. No health warnings were found on the product or its packaging.

Marketing claims

Of the 18 websites, most (16) presented claims of health benefits (89%), such as stating: “e-cigarettes do not contain tobacco, tar, real smoke nor other chemicals like traditional cigarettes.” Websites also frequently (14) claimed that products do not bother non-smokers/ expose others to secondhand smoke (SHS; 78%); 12 websites claimed e-cigarettes can help smokers quit conventional cigarettes and that one can smoke e-cigarettes anywhere; 10 claimed that products are cleaner to use than tobacco cigarettes; 9 claimed using e-cigarettes provide better value than buying tobacco products; 8 claimed increased ability to get around smoke-free laws or clean indoor air laws, or less risk of starting fires than tobacco cigarettes; and 7 claimed that e-cigarettes can increase social status, or are a modern or revolutionary way to smoke.

We compared the websites for the six manufacturers that had both Chinese and English websites, and found six claims that were shown equally on both Chinese and English websites, including health-related benefits (100%), avoidance of smoke-free or clean indoor air law (50%), no SHS exposure (83%), increased ability to socialise (100%), increased romantic involvement (33%) and increased freedom (100%). Five claims appeared more frequently on Chinese than English versions of the websites: “smoking cessation” (100% vs 67%), “increased ability to smoke anywhere” (100% vs 67%), “products are cleaner to use than tobacco cigarettes” (67% vs 50%), “products are environmentally friendly” (55% vs 30%) and “products are safer than tobacco cigarettes in terms of fire safety” (67% vs 50%). Three claims were more frequently made on the English than Chinese versions: “using products provides better [monetary] value than buying tobacco products” (67% vs 50%), “increased social status” (67% vs 33%) and “modern or revolutionary way to smoke” (67% vs 33%; table 5).

Promotional strategies

Of the 18 websites, 8 (44%) offered viewers the option of joining product or brand-related clubs or groups, including Facebook (88%), Twitter (88%), Google+ (13%), Tumblr (13%), Pinterest (13%), YouTube (63%) and Weibo (13%), a Chinese version of Twitter. No price promotions (eg, buy two get one free) were found. Ten websites (56%) showed images of alcohol (figure 1). One website (Buddy (Chinese)) showed Leonardo DiCaprio, a well-known actor, using an e-cigarette in his film *The Wolf of Wall Street* (figure 2).

DISCUSSION

Cigarette marketing and e-cigarette marketing have many similarities, including celebrity spokespeople, magazine advertisements feature rugged men and glamorous women, sexual attractiveness, sports and music festival sponsorship, use of sweet flavours in the products and cartoons.²⁹ E-cigarette marketing also discourages smokers from quitting by marketing using e-cigarettes as a way to reduce health risk.²⁹

Ours is one of the few studies to examine e-cigarette marketing and the only one to our knowledge that analyses the Chinese e-cigarette manufacturers' websites. The results indicate that the websites of e-cigarette manufacturers in China most frequently claim health-related benefits, followed by claims of no SHS exposure and smoking cessation.

Consistent with the one previously published systematic analysis of consumer e-cigarette website marketing,¹³ we found that health benefit claims were the most frequent claim presented on e-cigarette manufacturers' websites in China, while no websites warned of potential health risks. This situation contrasts with the balance of existing evidence. While information on health effects of e-cigarette use is just emerging,¹⁴¹⁵ there is evidence that e-cigarette users experience short-term increased peripheral airway constriction and decreased exhaled nitric oxide, both of which reflect decreased lung function.³⁰ Using an infodemiological approach, Hua *et al*³¹ collected health impact information of e-cigarettes posted through 15 July 2011 on three e-cigarette online forums and found that most posts described self-reported adverse effects (326 out of 405), many related to the cardiovascular and respiratory systems. To the best of our knowledge, no long-term health effects of e-cigarettes have been examined.

Also consistent with previous analyses of e-cigarette marketing,¹³³² we found that the claim of "no secondhand smoke" (including "no nicotine and only water vapor") was frequently presented on manufacturers' websites despite the fact that e-cigarette aerosols are a source of secondhand exposure to nicotine and other toxins.³³³⁴

Claims that e-cigarettes are effective for smoking cessation were found on most of the websites, which is consistent with previous marketing analysis studies.¹³³¹ Some studies support the claim that e-cigarettes may help some smokers quit,³⁵³⁶ most notably a UK population-based study which found that among smokers who made at least one quit attempt in the last year, those who used e-cigarettes as part of their quit attempt were significantly more likely to no longer be smoking cigarettes than smokers who used unassisted NRT or no aids.³⁷ In contrast, a meta-analysis¹⁵ of five population studies^{38–42} examining the relationship between e-cigarette use and quitting cigarettes among all smokers showed that e-cigarette use was associated with significantly lower odds of quitting cigarettes.¹⁵ (The aforementioned UK study of smokers who used e-cigarettes as part of a quit attempt³⁶ was not yet published at the time the meta-analysis was conducted.) The one randomised clinical trial comparing the efficacy of 16 mg e-cigarettes, non-nicotine e-cigarettes and 21 mg nicotine patches for tobacco cigarette cessation found no statistically significant differences in rates of 7-day point abstinence or continuous abstinence at 6-month follow-up.⁴³ Despite

this, in line with e-cigarette marketing claims, there is a widespread perception that e-cigarettes can be used for smoking cessation.

Our findings showed that five marketing claims are made more frequently on Chinese websites, while another three claims are made more frequently on the English websites. This may reflect what the manufacturers perceive to be dominant consumer concerns—that is, that Chinese consumers are more focused on e-cigarette's claims that they are a smoking cessation aid, can be smoked anywhere, are cleaner to use, environmentally friendly and safer than cigarettes, while English-speaking consumers are more concerned about e-cigarettes being cheaper than cigarettes, providing increased social status, and representing a modern way to smoke.

Unlike the previous content analysis of US websites,¹³ we did not find any age restriction on access to manufacturers' websites in China. Article 37 in the Law of Protection of Minors in China prohibits the sale of tobacco to minors¹⁹ (age<18 years old), although young people are thought to use the internet to circumvent age restrictions and purchase cigarettes.⁴⁴ According to the Chinese Association for Tobacco Control, more than 20 000 vendors are selling cigarettes on Taobao.com, China's largest online shopping site.⁴⁴ While there is not yet any equivalent evidence for e-cigarettes, it seems highly likely that young people are also buying e-cigarettes online—particularly since (unlike for cigarettes) it is currently legal for them to do so.

These findings raise concerns about the extent to which e-cigarettes may facilitate initiation of nicotine use among both young people and women in China. The widespread availability and advertising of flavoured e-cigarettes seems particularly likely to appeal to young people, with the 2012 Surgeon General Report showing that youth have higher rates of using flavoured tobacco products than adults.⁴⁵ Several Hollywood celebrities have used e-cigarettes in films (eg, Johnny Depp in *The Tourist*²) and exposure to onscreen smoking in movies causes smoking among adolescents and young adults,^{46,47} raising concern that promotion of e-cigarettes by celebrities could contribute to youth use of e-cigarettes. Similar to the tactics of tobacco companies' advertisements targeting women,⁴⁸ the marketing of fashionable e-cigarettes for women may particularly appeal to young girls. Because female smoking prevalence in China is so low (2.4% in 2010), evidence that e-cigarettes are being specifically marketed to women raises concerns that this may encourage female smoking initiation and create a female market.⁴⁹

More than half of the websites studied showed images of alcohol, consistent with a previous study that found tobacco companies frequently used promotional strategies linking cigarettes and alcohol to increase consumer appeal and cigarette sales.⁵⁰ Tobacco companies' marketing strategies linking e-cigarettes with alcohol may reinforce the use of both substances.

A limitation of this study is the fact that the decisions made about this search terms ('electronic cigarettes' and 'manufacturer') may not have resulted in a comprehensive list of websites.

Better regulation of e-cigarette marketing by manufacturers is needed in China. Our study suggests that regulators should prohibit e-cigarette marketing claims that are unsupported by scientific evidence or that encourage e-cigarette use by tobacco novices, such as youth and women.

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What this paper adds

- Electronic cigarettes (e-cigarettes) in their current form originated in China, and in 2014, most e-cigarettes are manufactured in China.
- This study is the first to summarise the websites of e-cigarette manufacturers in China and describe how they market their products.
- We found that the health-related benefits were claimed most frequently, followed by the claims of no secondhand smoke exposure, and utility for smoking cessation. Better regulation of e-cigarette marketing messages on manufacturers' websites is needed in China.

Figure 1.
“Realizing the dream of healthy smoking” in a Ruyan (Dragonite Ltd) web advertisement.
Source: http://www.ruyantech.com/_d271668698.htm (accessed 10 Aug 2014).

Figure 2.

Advertising for Buddy electronic cigarettes that “Leonardo DiCaprio actively advocated banning smoking, and he chose to use electronic cigarette instead of conventional cigarette in his new film.” Source: <http://www.cn.szxsp88.com/cn/news.asp?id=63> (accessed 19 Aug 2014).

Table 1

Sample selection on Alibaba

Selection criteria	Alibaba in English Valid cigarette manufacturers	Alibaba in Chinese		Valid number of e-cigarette manufacturers	Overlap (present on both English and Chinese Alibaba)
		Number of e-cigarette manufacturers	Number of invalid e-cigarette manufacturers		
Gold Supplier	251	89	34 (non-e-cigarette manufacturers); 3 (duplicate registered manufacturers)	52	8

e-cigarette, electronic cigarette.

Table 2

Chinese electronic cigarette manufacturers in our sample

Manufacturer	English website	Chinese website	Sources
First Union Technology Co., Ltd.	http://www.chinafirstunion.com/siteen/index.html	http://www.chinafirstunion.com.cn	Alibaba
Shenzhen Buddy Technology Co., Ltd	http://www.szxp88.com/en/	http://www.cn.szxp88.com/cn/	Alibaba
Shenzhen Boge Technology Co. Ltd	http://www.bogecig.com/index.php	http://www.bogetech.cn/	Alibaba
Shenzhen Jieshibao Technology Co. Ltd	http://www.e-cigarette.hk/	http://www.e-cigarette.hk/cn	Alibaba
Hangsen Technology Group	http://www.hkhangsen.com/	http://www.cnhanxing.com/	Alibaba
Sailebao	http://www.slbsmoking.com/	NA	Alibaba
Shenzhen ZLY Technology Co. Ltd	NA	http://www.zlychina.com/	Alibaba
Smoore	http://www.smoorecig.com/	NA	Alibaba
Szkanger Tech	http://www.szkanger.com/	NA	SFATA
E-cikar	http://www.e-cikar.com/	NA	SFATA
Yingdeer	http://www.desonic.net/index.html	http://www.desonic.net/chinese/index.html	SFATA
Dragonite Int Ltd	NA	http://www.ruyantech.com/_d271668698.htm	

URLs were all available on 7 February 2014.

Table 3

Data collected

Section	Items
Basic information	Age restriction
	When was this manufacture established
	Where is this manufacture located
	What is the company size? (the number of employee)
	What is the registered capital of this company?
	Contact information
	Jobs
Regulatory language	References to government regulation or lawsuits
	Disclaimers
Contact	Email, phone, fax, address
Products	Starter kit and the lowest price offered on the site
	Nicotine concentrations of the cartridges (none, low, medium, high and extra high, etc)
	Flavours of prefilled cartridges and/or solution (e-juice)
	Information or instruction about how to use an e-cigarette
Claims	Health-related
	Smoking cessation
	Increased ability to smoke anywhere
	Increased ability to get around 'smoke-free laws' or 'clean indoor air laws'
	Products do not bother non-smokers/expose others to secondhand smoke
	Products are cleaner to use than tobacco cigarettes
	Products are environmentally friendly
	Products are safer than tobacco cigarettes in terms of fire safety
	Using products provide a better value than buying tobacco products or NRT
	Increased ability to socialise
	Increased social status
	Increased romantic involvement, improves relationships, increases sex appeal
	Increased personal freedom
Messaging	Modern or revolutionary way to smoke
	Comparisons made between the e-cigarette and other forms of tobacco or nicotine products
	Alcohol depicted or mentioned
Promotion	Celebrity on the site
	Brand-related club/group to join

e-cigarette, electronic cigarette.

Table 4

Information on products

	English websites (N=10)		Chinese websites (N=8)		All websites (N=18)	
	n	Per cent	n	Per cent	n	Per cent
Starter kit	10	100	8	100	18	100
Advertised nicotine concentration						
No nicotine, none, zero	4	40	4	50	8	44
Ultralight	0	0	0	0	0	0
Light	0	0	0	0	0	0
Low	4	40	4	50	8	44
Medium	4	40	3	38	7	39
Regular	4	40	3	38	7	39
High	4	40	4	50	8	44
Extra high	1	10	0	0	1	6
Flavours						
No information about flavour	5	50	4	50	9	50
Fruit	5	50	4	50	9	50
Coffee	5	50	4	50	9	50
Tobacco	5	50	3	38	8	44
Mint/menthol	5	50	4	50	9	50
Candy-like or dessert flavours	5	50	4	50	9	50
Spice	1	10	1	13	2	11
Alcohol/cocktail	4	40	2	25	6	33
Tea	3	30	1	13	4	22
E-cigarette for lady	4	40	2	25	6	33
Instruction on how to use e-cigarette	2	20	1	13	3	17

e-cigarette, electronic cigarette.

Table 5

Marketing claims

	All websites (N=18)		Manufacturers which have both English and Chinese websites (N=6)			
	n	Per cent	English version		Chinese version	
			n	Per cent	n	Per cent
Marketing claims						
Health-related	16	89	6	100	6	100
Smoking cessation	12	67	4	67	6	100
Increased ability to smoke anywhere	12	67	4	67	6	100
Increased ability to get around 'smoke-free laws' or 'clean indoor air laws'	8	44	3	50	3	50
Products do not bother non-smokers/expose others to secondhand smoke	14	78	5	83	5	83
Products are cleaner to use than tobacco cigarettes	10	56	3	50	4	67
Products are environmentally friendly	3	33	2	33	3	50
Products are safer than tobacco cigarettes in terms of fire safety	8	44	3	50	4	67
Using products provide a better value than buying tobacco products or NRT	9	50	4	67	3	50
Increased ability to socialise	1	6	6	100	6	100
Increased social status	7	39	4	67	2	33
Increased romantic involvement, improves relationships, increases sex appeal	4	22	2	33	2	33
Increased personal freedom	1	6	6	100	6	100
Modern or revolutionary way to smoke	7	39	4	67	2	33