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ADVANCES IN GLOBAL SERVICES AND RETAIL MANAGEMENT

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ADVANCES IN GLOBAL SERVICES AND RETAIL MANAGEMENT: VOLUME 2

ISBN 978-1-955833-03-5

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ISBN 978-1-955833-03-5

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Exposure to E-Cigarette Marketing and Product Use Among Highly Educated Adults

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Abstract

Although the use of e-cigarettes is new compared to conventional cigarettes, the rate of use is increasing rapidly. E-cigarettes, unlike traditional cigarettes, are not subject to marketing limits. The relationship between e-cigarette advertisement exposure and e-cigarette perception, susceptibility, and usage in a sample of highly educated adults is investigated in this research. A total of 482 fully completed questionnaires were obtained in an online survey, and 463 of the respondents were aware of e-cigarettes. The relationship between e-cigarette exposure, marketing, and current and ever usage, as well as perception and susceptibility to use e-cigarettes among never e-cigarette users, was investigated using multivariate logistic regression models with SPSS 26. Exposure to e-cigarette advertisement and social environmental were significantly associated with ever use of e-cigarettes. In addition, exposure to e-cigarette advertisement and social environmental were significantly associated with increased susceptibility of individual's e-cigarette use. The findings show that e-cigarette marketing and e-cigarette use are significantly related among highly educated adults.

Keywords: electronic cigarettes, marketing, advertising, perception, susceptibility

Recommended Citation: Sahin, O. (2021). Exposure to e-cigarette marketing and product use among highly educated adults. In C. Cobanoglu, & V. Della Corte (Eds.), *Advances in global services and retail management* (pp. 1–9). USF M3 Publishing.
<https://www.doi.org/10.5038/9781955833035>

Introduction

Electronic cigarettes (e-cigarettes) were first introduced in the United States in 2007, and their popularity among American youth has grown significantly in recent years. Between 2011 and 2014, the past 30-day use of e-cigarettes increased from 0.6% to 3.9% among middle school students in the US and from 1.5% to 13.4% among high school students (Singh et al., 2016). A significant rise in demand has been recorded over the last few years, with Bloomberg projecting sales in 2019 at \$3.4 billion compared to \$1.3 billion in 2018 (Miyashita & Foley, 2020).

Literature Review

The effect of ads is one factor that can lead to rapid growth. While television cigarette advertisement has been banned since 1971, e-cigarette advertisement currently remains federally unregulated. As a result, e-cigarette advertisements have proliferated in the media, on television, and on the Internet; exposure to e-cigarette advertisements among young people aged 12 to 17 increased by 256 percent between 2011 and 2013 (Singh et al., 2016). According to the World Health Organization, the number of vapors has increased from 7 million in 2011 to 41 million in 2018 (Cai, Garcia, & Wang, 2020).

Now that it is a multi-billion dollar industry and one without strict oversight, the protection of vaping products are becoming increasingly concerned (Miyashita & Foley, 2020). Only a small amount of research has been conducted on the impact of advertisement on e-cigarette use (Mantey, Cooper, Clendennen, Pasch, & Perry, 2016). It has been shown, however, that tobacco advertising and marketing leads to tobacco consumption, and increases the positive perception of tobacco consumption among non-users (Saffer & Chaloupka, 2000).

There is no standard about e-cigarette regulations. Some countries are completely prohibited, some advertising and marketing are restricted, but the use is legal (Fraser, Weier, Keane, & Gartner, 2015). The UK is the only country in the world with strong e-cigarette regulations, which includes marketing limitations (Mantey et al., 2016).

Methods

Study procedures were designed as Istinye University's Institutional Review Board.

Sample

Being an adult was a requirement for attendance. There was no personal information field in the survey. Participants were told that participating in the study was entirely voluntary, and their responses were kept private and anonymous. Table I lists the demographic profiles of the respondents.

Data Collection

An online survey was completed by 482 adults. The age of the respondents ranged from 18 to 65 years, with the average age being 37,48.

Data Source

Of the 482 respondents, 228 (47%) were female and 62% of them were married and most were graduated and more (91,7%). Respondents reported of over 1.500 USD monthly income (48%) and on the subjective social status scale, participants ranked themselves on average on the seventh rung of ten (SD= 1,41).

Table 1. Demographic Profile of the Respondents

Gender		Marital Status				Total Monthly Income			
	n	%		n	%		n	%	
Female	228	47,3	Married	298	61,8	Less than \$333	23	4,8	
Male	254	52,7	Unmarried	184	38,2	≅\$333-\$666	52	10,8	
Total	482	100,0	Total	482	100,0	≅\$667-\$1.166	99	20,5	
Age			Education			≅\$1.167-\$1.666	197	19,9	
	n	%		n	%	≅\$1.667-\$2.499	88	18,3	
18-24	39	8,1	Intermediate	6	1,2	≅\$2.500-\$3.333	57	11,8	
25-34	144	29,9	High School	21	4,4	≅\$3.334-\$8.333	66	13,7	
35-44	207	42,9	College	13	2,7	More Than \$8.333	18	3,7	
45-54	68	14,1	Graduate	221	45,9	Total	482	100,0	
55-64	21	4,4	Master's Degree	162	33,6				
65 and upper	3	0,6	Ph.D.	59	12,2				
Total	482	100,0	Total	482	100,0				

Empirical Model

The survey consisted of 28 items generated by the authors, did not gather any publicly identifiable information, was self-administered through an online survey (Google forms), and was performed over a four-week cycle in October and November. Participants were not rewarded for conducting the questionnaire.

“Did you smoke more than 100 cigarettes in your life?” was one of the smoking history questions (yes/no), and “How many days have you smoke a cigarette in the past 30 days?” (every day, some days, have not smoked). The question “Have you ever heard of an e-cigarette or electronic cigarette, a cigarette-looking electronic device that delivers nicotine vapor when you puff it?” asked about e-cigarette awareness (yes/no) (Pearson, Richardson, Niaura, Vallone, & Abrams, 2012; Peters et al., 2015).

The following elements were included in the e-cigarette perceptions: (1) e-cigarettes are LESS harmful than cigarettes; (2) e-cigarettes are LESS addictive than cigarettes; (3) people should be allowed to use e-cigarettes in public places where smoking cigarettes is not allowed; and (4) e-cigarettes can help people stop their cigarette use. The following is the possible responses: strongly disagree, disagree, neutral, agree, and strongly agree (Zhu et al., 2013).

The following is the concerns on e-cigarette use: (1) “Have you ever tried an e-cigarette, even just one time?” (yes/no). Many of those who said "yes" (coded as 1) were assumed to have tried electronic cigarettes; everyone else was considered a nonuser (coded as 0.); and (2) “How many days have you used an e-cigarette in the past 30 days?” (everyday, some days, have not used). with those responding with anything other than “0” considered to be a current user of e-cigarettes (coded as 1) (Peters et al., 2015).

Susceptibility to future e-cigarette use questions, like cigarette susceptibility criteria established by Pierce et al. and was coded as a binary variable (susceptible = 1 / not susceptible = 2). For individual questions, people were classified as having no susceptibility to future use if they answered “no” and were susceptible if they responded “yes”. A composite three-measure index was also created, according to previously used methods: participants were classified as having “no susceptibility” in the composite index if they responded “no” to all three questions (Pierce, Choi, Gilpin, Farkas, & Merritt, 1996).

The subjective social status using the MacArthur Scale of Subjective Status, which reflects the respondents’ subjective views of where they lie in the social hierarchy relative to other people {Singh-Manoux, 2005 #25. This 10-point scale is constructed in the shape of a ladder. Status consumption was measured with a five-item scale adapted from Eastman, Goldsmith, and Flynn (1999).

Analysis

The subjective social status (SSS) scale is a ladder of 1 to 10 that people point their perceived step they are on, has an average of 7,10. Due to the categorical analysis, we have coded as a binary variable, which is cut point 7. 1-7 is normal SSS (coded as 1), 8-10 is high SSS (coded as 2).

The status consumption scale is a composite index from 1-5 which indicated strongly disagree to strongly agree. The average of status consumption scale is 2,35 (SD:1,16). Due to the categorical analysis, we have coded as a binary variable, which is cut point 3,80. 1-3,80 is no status consumption susceptibility (coded as 1), 3,80-5 is status consumption susceptibility (coded as 2).

Multivariate logistic regression models, with evaluated the association of e-cigarette ever-use and e-cigarette current use with exposure to e-cigarette marketing and social environment, perceptions, susceptibility, subjective social status, status consumption, demographic characteristics related to e-cigarette use. Data were analyzed using SPSS 26.

Findings

Participants

Most survey respondents (59%) reported that they smoked cigarettes more than 100 times in a lifetime and 45% reported that they smoked in the last 30 days. Most of the respondents (96%) aware of e-cigarettes, 61% were in the same social environment and only 14% had seen e-cigarette advertisements.

Regarding e-cigarette use, 30,3% of respondents reported ever use and 5,2% reported current use (every day and some days) of e-cigarettes whereas 14,4% of non-users were susceptible to use. Information about the respondents in terms of their cigarette and e-cigarette usage profiles is shown in Table II.

Table 2. Cigarette and E-cigarette Usage Profiles

Cigarette and E-Cigarette Usage			
Lifetime Cigarette Use	<i>≤100</i>	<i>>100</i>	
	196 (%40,7)	286 (%59,3)	
Last 30 days Cig. Use	<i>Yes</i>	<i>Sometimes</i>	<i>No</i>
	157 (%32,6)	60 (%12,4)	265 (%55,0)
E-Cigarette Awareness	<i>Yes</i>	<i>No</i>	
	463 (%96,1)	19 (%3,9)	
E-Cigarette Ever Use	<i>Yes</i>	<i>No</i>	
	146(%30,3)	336 (%69,7)	
Last 30 days E-Cig. Use	<i>Everyday</i>	<i>Sometimes</i>	<i>No</i>
	9 (%1,9)	16 (%3,3)	457 (%94,8)

E-Cigarette Awareness and Use

463 (96%) of the 482 participants had heard of e-cigarettes, 146 (30%) had ever used them, 25 (5,4%) had used them every day or on certain days in the previous 30 days, and 9 (1,9%) had used them daily in the previous 30 days. As a result, the majority of participants (83%) who had ever used e-cigarettes did not do so now. Participants who were still smoking cigarettes were substantially more likely than those who were not to have used e-cigarettes at any point in their lives (50,7% vs. 13,6%; chi-square [1] = 77,8, $p < 0,001$). Association between e-cigarette use and exposure to e-cigarette, perception, susceptibility, subjective social status, and status consumption is shown in Table III.

Table 3. Association Between E-Cigarette Use and Exposure to E-Cigarette, Perception, Susceptibility, Subjective Social Status, and Status Consumption Restricted to Never Cigarette Users, N = 482

Variables	N (row %)	OR (95% CI)
Exposure to e-cigarette marketing		
Non-users	32 (9,6)	Ref
Past e-cigarette users	20 (16,1)	1,29 (0,65-2,55)
Current e-cigarette users	14 (56,0)	5,94 (2,00-17,65)**
Exposure to e-cigarette in social environment		
Non-users	172 (51,7)	Ref
Past e-cigarette users	85 (68,5)	1,90 (1,17-3,09)**
Current e-cigarette users	24 (96,0)	16,39 (1,98-135,67)**
E-cigarette Perception		
Non-users	28 (8,4)	Ref
Past e-cigarette users	22 (17,7)	1,34 (0,66-2,69)
Current e-cigarette users	9 (36,0)	3,70 (1,14-12,02)*
E-cigarette Susceptibility		
Non-users	48 (14,4)	Ref
Past e-cigarette users	68 (54,8)	6,58 (4,03-10,74)**
Current e-cigarette users	23 (92)	42,45 (9,17-196,57)**
Subjective Social Status		
Non-users	188 (56,5)	Ref
Past e-cigarette users	81 (65,3)	1,34 (0,83-2,16)
Current e-cigarette users	21 (84,0)	3,47 (1,00-12,03)*
Status Consumption Susceptibility		
Non-users	292 (87,7)	Ref
Past e-cigarette users	108 (87,1)	1,23 (0,61-2,49)
Current e-cigarette users	22 (88,0)	2,00 (0,41-9,70)

Notes: Non-users served as the reference category for e-cigarette use; * significant at $p < 0.05$, ** significant at $p < 0.001$. CI = confidence interval; OR = odds ratio. There were more men (68,0% vs. 48,9%, $P < 0,05$) and more cigarette users (92,0% vs. 31,2%, $P < 0.001$) among daily e-cigarette users than among non-users. The use of e-cigarettes was substantially related to exposure to e-cigarette marketing. Participants who were exposed to advertising were substantially more likely than those who were not to have previously used e-cigarettes (51,5% vs. 26,9%; chi-square [1] = 16,3, $p < 0,001$).

E-Cigarette Perceptions

Participants who had ever used e-cigarettes were substantially more likely than those who had never used e-cigarettes to agree or strongly agree that e-cigarettes are less harmful than cigarettes (29,4% vs. 15,5%, chi-square[1] = 16,6, $p < 0,001$) and those that should be allowed to use e-cigarettes in public (16,4% vs. 5,7%, chi-square= 24,9, $p < 0,001$). Participants who said they had ever used e-cigarettes were substantially more likely than those who said they had never used e-cigarettes to agree or strongly agree that e-cigarettes are less addictive than cigarettes (32,0% vs. 10,5%, chi-square[1] = 23,9, $p < 0,001$) as well as the fact that e-cigarettes could assist smokers in quitting (36,0% vs. 26,6%, chi-square[1] = 31,1, $p < 0,001$)

Current consumers of e-cigarettes were substantially more likely to agree or strongly agree that e-cigarettes are less harmful than cigarettes than participants who had ever used e-cigarettes but had not used them in the previous 30 days (56,0% vs. 24,2%, chi-square[1] = 44,4, $p < 0,001$) and

those that should be allowed to use e-cigarettes in public (24,0% vs. 15,3%, chi-square= 38,5, $p < 0,001$). Present consumers of e-cigarettes were substantially more likely to agree or strongly agree that e-cigarettes are less harmful than cigarettes as compared to participants who had ever used them but had not used them in the previous 30 days (56,0% vs. 24,2%, chi-square[1] = 44,4, $p < 0,001$) and those that should be allowed to use e-cigarettes in public (24,0% vs. 15,3%, chi-square= 38,5, $p < 0,001$).

Exposure to e-cigarette advertisements was significantly associated with the perception of e-cigarettes among non-users of cigarettes. Participants who were not cigarette users exposed to e-cigarette advertisement were had positive perception of e-cigarettes than participants who were not exposed (20,0% vs. 6,8%; chi-square [1] = 6,1, $p < 0,05$).

Exposure to e-cigarette socially was not associated with the perception of e-cigarettes among users of cigarettes. Participants who were cigarette users exposed to e-cigarette in social environments were not have positive perception of e-cigarettes than participants who were not exposed (18,7% vs. 14,5%; chi-square [1] = 0,6, $p > 0,05$).

Susceptibility to E-Cigarette Use

Exposure to e-cigarette advertisements was significantly associated with susceptibility to e-cigarette use. Participants who were exposed to advertisement were significantly more likely to susceptible to use e-cigarettes than participants who were not exposed (48,5% vs. 25,7%; chi-square [1] = 14,4, $p < 0,001$).

Exposure to e-cigarette socially was significantly associated with susceptibility to e-cigarette use. Participants who were exposed to social environmentally were significantly more likely to susceptible to use e-cigarettes than participants who were not exposed (34,2% vs. 21,4%; chi-square [1] = 9,3, $p < 0,05$).

Nonsmokers' susceptibility to e-cigarettes was linked to their exposure to e-cigarette ads. Participants who had never used tobacco but were subjected to commercials were more likely to use e-cigarettes than those who had never used cigarettes (26,7% vs. 6,4%; chi-square [1] = 13,8, $p < 0,001$).

Exposure to e-cigarette socially was significantly associated with the susceptibility of e-cigarettes among users of cigarettes. Participants who were cigarette users exposed to e-cigarette in social environments were significantly more susceptible to use e-cigarettes than participants who were not exposed (60,4% vs. 42,2%; chi-square [1] = 6,9, $p < 0,05$).

Subjective Social Status and E-Cigarette Use

The current use of e-cigarettes was linked to subjective social status. Participants who defined their subjective social status as average were substantially more likely than those who did not to use e-cigarettes (84,0 % vs. 56,5 %; chi-square [1] = 9,2, $p < 0,05$).

Status Consumption and E-Cigarette Use

"Status consumption" was not related to existing e-cigarette use. Participants with a high status consumption susceptibility were no more likely than those who were not to use e-cigarettes (88,0% vs. 87,7%; chi-square [1] = 0,03, $p > 0,05$).

Conclusions

Marketing exposure has been linked to e-cigarette use in previous research (Auf et al., 2018; Giovenco et al., 2016; Hansen, Hanewinkel, & Morgenstern, 2018; Kreitzberg, Pasch, Marti, Loukas, & Perry, 2019). Nevertheless, there is a scarcity of data on this relationship among highly educated adults, especially those with a Eurasia ancestry.

463 (96%) of the 482 participants had heard of e-cigarettes, 146 (30%) had ever used them, 25 (5,4%) had used them every day or on certain days in the previous 30 days, and 9 (1,9%) had used them daily in the previous 30 days. As a result, the majority of those who had ever used e-cigarettes (83%) did not use it now. Participants who were still smoking cigarettes were slightly more likely than those who were not to have previously used e-cigarettes.

The current study found that 5.4% of the overall sample are currently using e-cigarettes, with 30% of those who had previously used e-cigarettes. The rate of current daily e-cigarette usage was 1,9% of the overall study, 17% of those who had ever used e-cigarettes current use, and 6,2% of those who had ever used e-cigarettes daily use. Independent variables were gender; age; household income; smoking status; exposure to e-cigarette advertising; exposure to e-cigarette use.

The current study revealed that exposure to e-cigarette advertisement was significantly associated with ever use of e-cigarettes (Mantey et al., 2016; Pokhrel, Fagan, Kehl, & Herzog, 2015). Participants who were subjected to commercials were slightly more likely than those who were not to have used e-cigarettes at any point in their lives. Besides, about one-third of the respondents were susceptible to e-cigarette use (28,8%), with a higher prevalence among current smokers (61%) than ex-smokers (13%). These findings indicate that who are exposed to e-cigarette advertisement has increased susceptibility to use e-cigarettes. These results suggest that people who are used to e-cigarette advertisements are more likely to use them. As previously mentioned, tobacco susceptibility is a well-established indicator of future tobacco use. This result raises questions about the role of electronic cigarette advertising in attracting new consumers. Unexpectedly, no connection was found between e-cigarette usage and exposure to e-cigarette advertisements in previous e-cigarette users.

The current study indicates that exposure to e-cigarette advertisement and social environmental were significantly associated with increased susceptibility of an individual's e-cigarette use. Moreover, there was a substantial and growing association between e-cigarette advertising and actual e-cigarette use. These studies show that people who are introduced to electronic cigarette ads are more likely to use them.

In the current research, the connection between e-cigarette susceptibility and tobacco use is so high. The findings from this study suggest a correlation between e-cigarette advertising consumption and product usage is of particular concern as e-cigarette advertising spending continues to grow rapidly. As a consequence, this article acts as a starting point for e-cigarette

marketing in the current marketing awareness and use literature. When adjusting for tobacco usage, the odds ratios given in this paper, which are a reasonable predictor of e-cigarette use, remain significant. Perceptions are related to actions and in the present research perceptions of e-cigarettes were connected to current use of e-cigarettes. This result indicates that mainstream e-cigarette-related marketing messages have penetrated the adult population using e-cigarettes.

We discovered an important link between susceptibility to e-cigarette advertising with perceptions and susceptibility to use e-cigarettes among adults who had never used cigarettes in our subpopulation study. Furthermore, there was an important relationship between social exposure to e-cigarettes and susceptibility to e-cigarette use by smokers. More importantly, the perception of e-cigarette does not affect exposure to e-cigarette socially among cigarette users. Surprisingly, no connection was found between e-cigarette usage and exposure to e-cigarette advertisements in past e-cigarette users.

These findings show us that e-cigarette marketing should be target different segments. To target current cigarette users, e-cigarette should be market in social environments, with real-life influencers like “Meet the Joneses” (Schaffner & Torgler, 2008). E-cigarette advertisements should target non-cigarette users to increase perception and susceptibility.

The results from this study demonstrate an association between subjective social status and e-cigarette use for current users but not past e-cigarette users. Individuals whose subjective social status is normal are more susceptible to use the e-cigarette. We discovered an important relationship between low-status consumption susceptibility and e-cigarette ever use among adults in our subpopulation research who has normal subjective social status. There was an article that used subjective social status as a control variable in its analysis but they found no association (Herrera, Wilkinson, Cohn, Perry, & Fisher-Hoch, 2018). It could be said that the motivation behind the ever use of e-cigarette is not status consumption, surprisingly contrary to the expectation (McKelvey, Baiocchi, & Halpern-Felsher, 2018).

Limitations and Further Research

This study cannot be assessed as a marketing tool to promote cigarette use even it is electronic or not. The writer of this article does never smoke in his 38 years of life. Nonetheless, this report has marketing ramifications in terms of e-cigarette legislation and preventive strategies. Especially as previous research has demonstrated that the links between cigarette marketing and adult cigarette usage are causal, with marketing exposure forecasting eventual cigarette smoking onset and prevalence. Findings in this article are subject to some limitations. Self-reporting of e-cigarette use was used, rather than chemical authentication, which could contribute to reporting bias. Furthermore, single-item assessments used to determine e-cigarette marketing sensitivity have a lower psychometric stability than multi-item tests. Longitudinal data are needed to assess further the causal relationship between marketing and e-cigarette use.

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Author Statements

Ethical Approval was given by Istinye University Ethics Committee of Social and Humanities Sciences, dated 13.12.2018, meeting no: 2018/04, decision number 4. There are no funding and competing interest.