HHS Public Access

Youth and young adult exposure to and perceptions of news media coverage about e-cigarettes in the United States, Canada and England.

Olivia A. Wackowski, PhD, MPH,
Center for Tobacco Studies, Rutgers School of Public Health, New Brunswick, NJ 08901, USA

Jennah M. Sontag, PhD, and
Center for Tobacco Studies, Rutgers School of Public Health, New Brunswick, NJ 08901, USA, js2486@sph.rutgers.edu

David Hammond, PhD
School of Public Health and Health Systems, University of Waterloo, Waterloo, ON N2L 3G1, Canada, dhammond@uwaterloo.ca

Abstract

News media coverage has the potential to shape awareness and perceptions of e-cigarettes, but little is known about youth and young adult exposure to e-cigarette news. We analyzed news exposure measures on Wave 1 of the ITC Youth Tobacco and E-cigarette Survey, conducted in Canada, England, and the U.S. Web-based surveys were completed by 16-19-year-olds in July/ August 2017 ($n = 12,064$). The prevalence of exposure to e-cigarette news and its perceived valence is provided. Logistic regression was used to model the odds of news exposure, and the association between news exposure and e-cigarette harm perceptions, susceptibility, and quitting intentions. Overall, 17.1% of young people reported hearing or seeing e-cigarette news at least 'sometimes' in the past 30 days. The majority of those exposed ($n = 2,052$) perceived the content of the news stories to be mostly negative (35.7%) or mixed (34.8%) about e-cigarettes, versus mostly positive (19%). Perceived exposure to mostly negative e-cigarette stories was lower among past 30-day e-cigarette users and youth in England. Participants exposed to mostly negative e-cigarette news were more likely to perceive that e-cigarettes cause at least some harm and, among past 30 day users, have intentions to quit e-cigarettes in the next month. Exposure to mostly positive news was associated with higher odds of e-cigarette susceptibility among never triers. Young people report exposure to e-cigarette news with varied perceptions of its valence. E-cigarette news exposure may shape e-cigarette harm perceptions and use intentions, as well as reflect existing beliefs and product interest.

Keywords

e-cigarettes; news; youth; young adults

Introduction

In the past several years, electronic cigarettes (or "e-cigarettes") have been a newsworthy topic given their relatively recent entry into the marketplace, disruption to the tobacco industry, controversial use for smoking harm reduction and increasing use by young people (1–3). Tobacco product news coverage, including for e-cigarettes, is important given the news media's ability to shape public awareness and perceptions of the salience of these products and of policies to regulate them (4–6).

News coverage may also inform the public about the potential risks and benefits of tobacco products including e-cigarettes, which may impact public perceptions and product use intentions (7, 8). Indeed, one experimental study found that participants who viewed negative e-cigarette news headlines reported increased beliefs about e-cigarette harms and lower beliefs about benefits compared with those exposed to positive headlines (7). This is relevant given that recent content analysis research found e-cigarette news stories to more frequently discuss potential e-cigarette risks versus benefits (e.g., use for harm reduction)(1). News coverage has also been implicated in changes in public perceptions about the relative harm of e-cigarettes versus combusted cigarettes, with one study finding that the percentage of adults in the United States who perceived e-cigarettes to be as or more harmful than cigarettes increased from approximately 13% to 40% between 2012 and 2015 (9).

Although previous studies have documented that adults are hearing about e-cigarettes in the news (10, 11) little is known about young people's exposure to e-cigarette news. This is relevant given that e-cigarette news stories frequently discuss e-cigarettes as being popular with and a potential risk for young people (1, 2). This study examines data from three countries examining youth (ages 16-17) and young adults' (ages 18-19) exposure to e-cigarette news, their perceptions of its valence, and the association between e-cigarette news exposure and e-cigarette harm perceptions and use intentions.

Methods

Data Source

Data are from Wave 1 of the International Tobacco Control Policy Evaluation Project (ITC) Youth Tobacco and E-cigarette Survey, conducted in Canada, England, and the United States. Data were collected via self-completed web-based surveys in July/August 2017 with youth aged 16 through 19. Respondents were recruited through Nielsen Consumer Insights Global Panel and their partners' panels, either directly or through their parents. Email invitations (with a unique link) were sent to a random sample of panelists (after targeting for age criteria); panelists known to be ineligible were not invited. Respondents provided consent prior to completing the survey, and received remuneration in accordance with their panel's usual incentive structure. The study was reviewed by and received ethics clearance

through a University of Waterloo Research Ethics Committee (ORE#21847) and the King's College London Psychiatry, Nursing & Midwifery Research Ethics Subcommittee. A full description of the study methods can be found in the Technical Report (http://davidhammond.ca/projects/tobacco-control/itc-youth-tobacco-ecig/).

Measures

All respondents were asked how often, if at all, they had seen or heard a news story about e-cigarettes/vaping in the past 30 days (never, rarely, sometimes, often, very often). For analysis, "e-cigarette news exposure" was defined as having seen/heard an e-cigarette story at least sometimes (versus never, rarely or don't know responses) in the past 30 days. Participants exposed to e-cigarette news were also asked whether the majority of news stories they saw/heard were "mostly negative about e-cigarettes", "mostly positive about e-cigarettes," or "about the same number of positive and negative stories."

Responses for an e-cigarette harm perception measure ("how much do you think people harm themselves when they use e-cigarettes/vape?") were dichotomized as "no or little harm" versus "some harm or at lot of harm" and e-cigarette quitting intentions ("are you planning to quit using e-cigarettes/vaping…") were dichotomized as planning to quit "within the next month" or "other response" (between 1–6 months from now, beyond 6 months, not planning to quit, don't know). Never e-cigarette triers were coded as "susceptible" to e-cigarettes if they provided any answer other than "definitely not" to measures about being curious about e-cigarettes, thinking they will try e-cigarettes in the next 12 months and trying if offered by a friend. Participants were also asked about their frequency of exposure to e-cigarette/vaping promotions in the last 30 days (never-very often), included as a control variable.

Analysis

Analyses include descriptive reporting of the prevalence of news exposure and perceived valence of e-cigarette news. Logistic regressions were used to model the odds of exposure to e-cigarette news (yes/no), and the odds of exposure to mostly negative e-cigarettes news (versus positive, neutral or don't know valence responses), including country, sex, age, race/ethnicity, past 30 day cigarette use and past 30-day e-cigarette use and ad exposure in the models. Logistic regressions were also conducted to model the odds of perceiving e-cigarettes to pose at least some harm, odds of e-cigarette susceptibility and odds of intending to quit e-cigarettes based on e-cigarette news exposure and valence, adjusting for the same control variables. Weighted estimates are shown in all cases. Sample weights were constructed based on age, sex, geographic region, race/ethnicity, and cigarette smoking status (*see Technical Report for details*). Analyses were conducted using SAS (Version 9.4).

Results

Sample

Table 1 shows demographic characteristics of the sample. Overall, 32.6% of young people had ever tried e-cigarettes and 10.7% had used e-cigarettes in the past 30 days. Almost half (48.1%) of never e-cigarette triers were susceptible to trying e-cigarettes in the future.

E-cigarette News Exposure

Across all countries, 17.1% of participants reported hearing or seeing an e-cigarette news story at least sometimes in the past 30 days (i.e., reported news exposure), while 73.4% of participants reported never or rarely seeing or hearing an e-cigarette news story, and 9.6% reported that they did not know if they had seen/heard one. News exposure was not significantly associated with sex, age group or cigarette smoking, but was with country, race/ethnicity, e-cigarette use and e-cigarette ad exposure (see Table 1). Youth in Canada (AOR=1.44) and the US (AOR=1.31) had higher odds of past 30 day e-cigarette news exposure than those in England, as did past 30-day e-cigarette users versus non-users (AOR=1.44) and those with more frequent ad exposure (Table 1). Exposure was less likely among whites versus non-whites (AOR=0.85).

Among those exposed to an e-cigarette news story at least 'sometimes' (n=2,052), participants more frequently characterized these stories as being mostly negative about e-cigarettes (35.7%) versus mostly positive (19%), while about a third (34.8%) reported the valence of news stories was about equal (i.e., "mixed valence" news), and 10.5% were unsure of the valence (data not in table). Valence was significantly associated with country, with American (AOR=1.49) youth more likely to report exposure to mostly negative e-cigarette stories compared to young people in England (see Table 1). The odds of exposure to negative e-cigarette news was also significantly higher among whites (AOR=1.49) versus non-whites and lower among past 30-day e-cigarette users (AOR=0.65), cigarette smokers (AOR=0.68) and those with some (AOR=0.58) or frequent ad exposure (AOR=0.52) (Table 1).

Association of News Exposure and E-cigarette Harm Perceptions, Susceptibility and Quitting Intentions

Those exposed to mostly negative e-cigarette news were significantly more likely to believe e-cigarettes cause at least some harm to users compared to those not exposed to e-cigarette news (AOR=1.76, see Table 2) and also compared to those exposed to mostly positive e-cigarette news (AOR=2.23, 95% CI: 1.57, 3.2) and mixed valence news (AOR=1.47, 95% CI: 1.11, 1.93)(additional contrasts not in table). Alternatively, those exposed to mostly positive e-cigarette news had significantly lower odds of this belief relative to those exposed to negative (AOR=0.45, 95% CI: 0.32, 0.64) and mixed valence news (AOR=0.66, 95% CI: 0.47, 0.92) (contrasts not in table).

Among those who had never tried e-cigarettes, exposure to mostly positive e-cigarette news stories was significantly associated with higher odds of e-cigarette susceptibility relative to those unexposed to e-cigarette news (AOR=2.03, Table 2) and also relative to those exposed to mostly negative news (AOR=2.04, 95% CI: 1.34, 3.11) (contrast not in table). Exposure to mostly negative news stories was significantly associated with lower e-cigarette susceptibility compared to exposure to positive (AOR=0.49, 95% CI: 0.32, 0.75) and mixed valence news (AOR=0.68, 95% CI: 0.51, 0.91), but not relative to no news exposure (Table 2).

Among past 30-day e-cigarette users, only those exposed to negative valence news had a higher odds of intending to quit e-cigarettes in the next month compared to those unexposed to e-cigarette news (AOR=2.63, Table 2). The odds of intending to quit e-cigarettes were also greater among those exposed to mostly negative versus mixed valence e-cigarette news (AOR=3.40, 95% CI: 1.14, 10.16)(contrast not in table).

Discussion

This study examined young people's exposure to e-cigarette news and the perceived valence of that coverage. Overall, e-cigarette news exposure was significantly associated with e-cigarette use, ad exposure, country and race/ethnicity, and only approximately one-third of young people exposed to e-cigarette news perceived it to be about equal in terms of positive and negative coverage. E-cigarette news exposure and perceived valence was associated with e-cigarette harm perceptions, use susceptibility and quitting intentions.

The finding that e-cigarette users were less likely to report exposure to negative e-cigarette news and more likely to report exposure to positive news is perhaps unsurprising. This is likely related to confirmatory biases through which people filter and attend to information that is already consistent with their pre-existing beliefs and/or behaviors (12).

Among the three countries, youth in England were least likely to report exposure to mostly negative news coverage. This could potentially be due to coverage and references to the national Public Health England reports on e-cigarettes, which described e-cigarettes as less harmful than cigarettes and as potential harm reduction products for smokers (13, 14). This finding may also relate to why youth in England were the least likely to believe that e-cigarettes cause at least some harm.

The finding that exposure to mostly negative valence news stories was more likely to be associated with perceptions that e-cigarettes cause harm (compared to positive news) is consistent with an experimental study which found that exposure to negative e-cigarette news headlines increased beliefs about e-cigarette harms compared with exposure to positive headlines (7). Past 30 day e-cigarette users exposed to mostly negative e-cigarette news also had higher odds of intending to quit e-cigarettes in the next month. These perceptions and intentions may be shaped by the risk information in these articles. However, these findings may also in part be another case of confirmatory bias, with young people recalling and paying more attention to news that is consistent with their existing e-cigarette harm perceptions and intentions. Similarly, because this was a cross-sectional study, we are unable to determine the direction of the observed association between news exposure and e-cigarette susceptibility and quit intentions. It is possible that the news media influenced these outcomes or that individuals already interested in trying or quitting e-cigarettes were more likely to notice or intentionally seek information about e-cigarettes in the news media, or a mixture of both. Future research should explore these associations with a longitudinal design.

Additional limitations should be noted. Only one general harm perception measure was used and e-cigarette news exposure was based on participants' self-report which is susceptible to

recall bias, although the short time-frame (30 days) and low prevalence of "don't know" responses to this question increase confidence in these findings. This study did not ask where young people had seen or heard e-cigarette news and thus it is not known how news exposure and valence may have differed by source (e.g., social media versus traditional channels).

Given the substantial news coverage of e-cigarette issues and its potential influence on e-cigarette perceptions, future research should continue to track e-cigarette news exposure in these countries, as regulations (e.g. the use of product warning labels, product standards, flavor policies) and perceptions of e-cigarettes change over time. In addition, research should examine the prevalence of e-cigarette news coverage across various media channels, such as social media, and their potential impact on perceptions.

ACKNOWLEDGEMENTS

References:

1. Wackowski OA, Giovenco DP, Singh B, Lewis MJ, Steinberg MB, Delnevo CD. Content Analysis of US News Stories About E-Cigarettes in 2015. Nicotine Tob Res. 2017.

2. Yates K, Friedman K, Slater MD, Berman M, Paskett ED, Ferketich AK. A Content Analysis of Electronic Cigarette Portrayal in Newspapers. Tob Regul Sci. 2015;1(1):94–102. [PubMed: 26229974]

3. Rooke C, Amos A. News media representations of electronic cigarettes: an analysis of newspaper coverage in the UK and Scotland. Tob Control. 2014;23(6):507–12. [PubMed: 23884011]

4. McCombs ME. Measuring the cumulative agenda-setting influence of the mass media. 1975 12 39 P Edrs: Ed 120 797; Hc.

5. Menashe CL, Siegel M. The power of a frame: an analysis of newspaper coverage of tobacco issues--United States, 1985-1996. J Health Commun. 1998;3(4):307–25. [PubMed: 10977260]

6. Clegg Smith K, Wakefield M, Edsall E. The good news about smoking: how do U.S. newspapers cover tobacco issues? J Public Health Policy. 2006;27(2):166–81. [PubMed: 16961195]

7. Tan ASL, Lee CJ, Nagler RH, Bigman CA. To vape or not to vape? Effects of exposure to conflicting news headlines on beliefs about harms and benefits of electronic cigarette use: Results from a randomized controlled experiment. Prev Med. 2017;105:97–103. [PubMed: 28882742]

8. Wackowski OA, Manderski MTB, Lewis MJ, Delnevo CD. The Impact of Smokeless Tobacco Risk Information on Smokers' Risk Perceptions and Use Intentions: A News Media Experiment. Health Commun. 2017:1–8.

9. Majeed BA, Weaver SR, Gregory KR, Whitney CF, Slovic P, Pechacek TF, et al. Changing Perceptions of Harm of E-Cigarettes Among U.S. Adults, 2012-2015. Am J Prev Med. 2017;52(3): 331–8. [PubMed: 28341303]

10. Pepper JK, Emery SL, Ribisl KM, Brewer NT. How U.S. adults find out about electronic cigarettes: implications for public health messages. Nicotine Tob Res. 2014;16(8):1140–4. [PubMed: 24755397]

11. Wackowski OA, Bover Manderski MT, Delnevo CD. Smokers' sources of e-cigarette awareness and risk information. Prev Med Rep. 2015;2:906–10. [PubMed: 26576338]

12. SM J Seeking congruency or incongruency online? Examining selective exposure to four controversial science issues. Science Communication.. 2014;36(2):142–64.

13. McNeill A, Brose LS, Calder R, Hitchman SC, Hajek P, & McRobbie H (2015). E-cigarettes: an evidence update A report commissioned by Public Health England. London: Public Health England Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733022/Ecigarettes_an_evidence_update_A_report_commissioned_by_Public_Health_England_FINAL.pdf.

14. McNeill A, Brose LS, Calder R, Bauld L & Robson D (2018). Evidence review of ecigarettes and heated tobacco products 2018. A report commissioned by Public Health England. London: Public Health England Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/684963/Evidence_review_of_e-cigarettes_and_heated_tobacco_products_2018.pdf.

Table 1.

Sample characteristics and prevalence of exposure to e-cigarette news in past 30 days by country

	Sample Demographics (n=12,064)	Prevalence and Odds of Exposure to E-cigarette News in Past 30 days, all respondents			Prevalence and Odds of Exposure to Mostly Negative E-cigarette News[1], among those exposed to news			Prevalence and Odds of Exposure to Mostly Positive E-cigarette News[2], among those exposed to news		
	%	%	AOR	95% CI	%	AOR	95% CI	%	AOR	95% CI
Country										
Canada	33.2	16.7	1.44	1.22, 1.69	37.8	1.32	0.98, 1.78	14.9	0.68	0.46, 1.01
US	33.9	18.5	1.31	1.12, 1.52	37.6	1.49	1.12, 1.98	20.3	0.83	0.58, 1.17
England	32.9	15.9	ref		30.4	ref		21.4	ref	
Sex										
Male	53.4	17.3	1.10	0.97, 1.25	34.8	1.00	0.80, 1.24	20.8	1.23	0.92, 1.64
Female	46.6	16.8	ref		36.3	ref		16.6	ref	
Age										
16–17	47.7	16.7	1.05	0.93, 1.19	35.9	0.99	0.79, 1.25	17.2	0.81	0.60, 1.09
18–19	52.3	17.4	ref		35.0	ref		20.4	ref	
Race/ethnicity										
White	71.1	16.4	0.85	0.74, 0.97	37.8	1.49	1.17, 1.90	16.8	0.56	0.41, 0.75
Other/mixed	28.9	18.8	ref		31.1	ref		23.5	ref	
Past 30day e-cigarette use										
Yes	10.7	24.3	1.44	1.14, 1.81	25.3	0.65	0.43, 0.99	35.9	1.66	1.09, 2.53
No	89.3	16.2	ref		37.3	ref		15.8	ref	
Past 30day cigarette use										
Yes	16.8	19.9	1.04	0.84, 1.29	25.5	0.68	0.46, 0.99	36.7	2.67	1.80, 3.99
No	83.2	16.5	ref		37.9	ref		14.5	ref	
Freq of Ad Exposure										
often/very often	18.4	38.6	13.27	10.22, 17.22	31.5	0.52	0.32, 0.85	22.0	1.54	0.73, 3.25
sometimes	31.1	20.3	5.29	4.10, 6.81	34.7	0.58	0.36, 0.94	17.0	1.22	0.57, 2.61
rarely	30	10.8	2.45	1.87, 3.19	43.7	0.86	0.51, 1.46	17.9	1.30	0.59, 2.84
never	20.5	4.8	ref		46.6	ref		14.6	ref	

[1] = versus positive, mixed, don't know

[2] = versus negative, mixed, don't know

Table 2.

Association between e-cigarette news exposure and valence and e-cigarette harm perceptions, susceptibility, and quitting intentions

	Prevalence & Odds of Perceiving E-cigarettes to cause at least some harm to users, among all respondents			Prevalence and Odds of E-cigarette Susceptibility, among never triers			Prevalence and Odds of Intending to Quit E-cigarettes, among past 30 day users		
	%	AOR	95% CI	%	AOR	95% CI	%	AOR	95% CI
News Exposure									
Mostly negative exposure	72.5	1.76	1.42, 2.19	47.6	0.99	0.80, 1.23	17.9	2.63	1.12, 6.19
Mostly positive exposure	45.0	0.79	0.59, 1.06	70.3	2.03	1.39, 2.95	16.7	2.01	0.82, 4.92
Mixed/don't know	63.6	1.20	0.98, 1.47	60.8	1.46	1.18, 1.80	7.9	0.77	0.33, 1.83
Not exposed	59.3	ref		46.4	ref		8.8	ref	
Country									
Canada	65.1	1.81	1.58, 2.06	47.5	0.90	0.78, 1.03	8.8	0.91	0.40, 2.08
US	64.0	1.84	1.63, 2.09	46.7	0.93	0.82, 1.06	10.2	0.92	0.46, 1.82
England	50.7	ref		50.3	ref		10.7	ref	
Sex									
Male	58.0	0.87	0.79, 0.96	48.7	1.01	0.91, 1.13	11.8	1.68	0.92, 3.08
Female	62.4	ref		47.5	ref		7.23	ref	
Age									
16-17	65.0	1.39	1.25, 1.54	46.8	0.94	0.84, 1.04	9.2	0.78	0.43, 1.40
18-19	55.7	ref		49.6	ref		10.5	ref	
Race/ethnicity									
White	60.4	1.25	1.12, 1.40	45.5	0.69	0.61, 0.78	9.0	0.63	0.33, 1.20
Other/mixed	58.7	ref		53.9	ref		13.5	ref	
Past 30day ecig use									
Yes	32.4	0.36	0.29, 0.45	87.3	8.07	4.73, 13.77			
No	63.5	ref		46.2	ref				
Past 30day cigarette use									
Yes	41.1	0.60	0.50, 0.73				10.5	1.05	0.60, 1.82
No	63.7	ref					9.3	ref	
Freq of Ad Exposure									
often/very often	59.4	1.04	0.87, 1.25	55.2	2.05	1.71, 2.45	10.4	0.59	0.20, 1.73
sometimes	60.3	1.00	0.86, 1.17	54.0	2.08	1.78, 2.43	9.14	0.68	0.26, 1.80

	Prevalence & Odds of Perceiving E-cigarettes to cause at least some harm to users, among all respondents		Prevalence and Odds of E-cigarette Susceptibility, among never triers		Prevalence and Odds of Intending to Quit E-cigarettes, among past 30 day users	
rarely	56.8	0.84	0.72, 0.98	49.6	1.81	1.56, 2.11	9.3	0.66	0.24, 1.84
never	61.8	ref		35.5	ref		12.6	ref	

*
Significant contrasts between mostly negative versus mostly positive, negative versus mixed/don't know, and positive versus mixed/don't know categories are presented in text only with their respective confidence intervals