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The Media's Response to Vaping: Catch-Up for a Failed Response?

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Abstract

Media coverage on vaping has become more negative and more prolific due to the recent 'vaping epidemic' that has incurred over 2,000 hospitalizations. Research on vaping has been limited. The purpose of this study is to investigate the correlations between vape use increase and media publication increase and the specific focus of the articles. Using secondary data from Monitoring the Future: A Continuing Study of the Lifestyles and Values of Youth conducted in 2016, 2017, and 2018 and data generated through qualitative coding of The New York Times articles on vaping between 2016 and 2018, we find that media publications and vape-use did increase during this time but not in synchronicity. This is expected to be a catch-up for a failed initial response. This study examined the focus of the media, which was primarily the youth.

Keywords: Vaping, Media, The New York Times, Youth

Introduction

The vaping industry with initial intentions of providing a safe alternative to smoking, has been blamed for a recent youth vaping 'epidemic' that has been linked by the media to recent vaping-related lung illnesses and deaths. Vaping is the process of inhaling vapor created through heating 'e-juice' (often flavored). These 'e-juice' (oil) often contain nicotine (NIDA 2020). Devices, which are often called 'mods', come in various styles such as 'box' style (larger box-shaped system with a container for 'e-juice on top) and 'pod' systems (device that is often pen-shaped and is usually discreet). Vaping devices have been created that allow a user to vaporize THC oil (CDC 2020). This industry was founded on the promise of providing a safe alternative to smoking (Public Health England 2019). The vaping industry dramatically expanded with Juul, one of the largest manufacturers of vaping devices, growing in revenue by nearly 800% between 2017 and 2018 (Drum 2018). The vaping industry has entered mainstream due to celebrity usage and popular media (Eason & Foley, 2014; Groening et al. 2015; Murphy & Scardino 2015; Parker 2018; Yes!Weekly 2020).

Youth have increasingly been influenced and even marketed to by the vaping industry. Juul has received negative media coverage due to their marketing and misleading safety claims toward youths (Azad 2019; Aizenman 2019). Vaping devices can deliver the product in flavors, which are often at the forefront for discussions on youth vaping (CDC 2020). The recent vaping 'epidemic' has been responsible for at least 68 deaths and over 2,000 hospitalizations in the United States. It should be noted that the CDC (Center for Disease Control) states that THC-infused e-liquid, which is often manufactured on the black market, is associated with at least 82 percent of death and injuries (CDC 2020). Studies have indicated that states with legal cannabis

had fewer vaping-related illnesses due to greater access to regulated products (Cirulis, Callahan, & Aberegg 2020).

The media has prompt regulators and the FDA to enact bans, which include complete bans and bans of selective flavors in various states and cities in the United States (McGinley 2019; Munks & Petrella 2019; Bogel-Burroughs, Richtel & Thomas 2019; West & Vielkind 2019; Siegel 2019). The FDA initiated a ban on vape-based marketing targeted towards youths and bans on flavors other than tobacco and menthol for 'pod' vaping products (U.S. Food and Drug Administration, 2020). President Donald Trump, before backtracking in favor of curbing, suggested banning flavored e-liquid juice (Scherer et al. 2019). Many of these bans were eventually blocked by judges (Pierson 2019; Hogan & Italiano 2019; Singh 2019).

The COVID-19 pandemic has presented further negative media statements as Governor Cuomo is considering a temporary ban on tobacco products, including vaping due to the reported better health outcomes of those that do not use tobacco products (Slattery 2020; Crawford 2020; Hopper 2020; Hoffman 2020). Governor Cuomo even signed the 2021 budget for New York, which includes prohibiting the sale of flavored vaping products without prior FDA approval (WRGB 2020).

Literature Review

Research on vaping has been extremely limited. Existing research has focused on delinquency, demographics, medically, and socialization (Lucherini, Rooke, & Amos 2018; Yule & Tinson 2017; McKelvey et al. 2018; Chao, Hashimoto, & Kondo 2019; Jackson et al. 2019; Maynard 2020).

Delinquency

Some research has centered around 'vapors' adoption of other high-risk behavior associated with other drugs cigarettes and cannabis (Eichler et al. 2016; Measham et al. 2016; Lippert, Corsi & Venechuk 2019). Vaping has often been utilized as an alternative to smoking tobacco but increasingly youths are adopting vaping without prior exposure to smoking (Yule & Tinson 2017; Etter 2018; Etter 2019). Delinquency research has been sparse but has focused how factors like flavors, nicotine, and marijuana contribute to youth's involvement in delinquency. Jackson's research established that youths who vaped cannabis exhibited the highest risk of delinquent involvement (Jackson et al. 2019). Further research on delinquency has compared vaping to cigarettes and alcohol. Maynard's study established that 'vapors' are less likely to engage in delinquency compared to those that had smoked cigarettes, but reported conflicting results in relation to alcohol users (Maynard 2020).

Demographics

Research has indicated that males have adopted vaping more than females due to the greater public acceptance (Bostean et al. 2015; Eichler et al. 2016; Measham et al. 2016; Trumbo 2018; Mantey et al. 2019). Vaping is primarily adopted by young adults and more rapidly, college students, due to the greater openness to embracing alternative methods of drug experimentation (Bostean et al. 2015; Eichler et al. 2016). Vaping is prevalent among low-income blue-collar workers (Eichler et al. 2016; Spears et al. 2019). This is partially due to the marketing practices of vape shops, which often are located near alternative high schools (Rose et al. 2014; Miller et al. 2017; Wan et al. 2018). Race has been focused on with conflicting results. Research has stated that Asians have the lowest adoption of vaping, but there is disagreement as to whether whites or Hispanics are more likely to vape (Bostean et al. 2015; Spears et al. 2019).

Social Influence

Researchers have concentrated on social influence from parents and peers that impacts an individual's adoption of vaping (Bostean et al. 2015; Cheney, Gowin & Clawson 2018; Lippert et al. 2019). Those who vape have reported that both friends and family had influenced social acceptability and their view of vaping (Cheney et al. 2018). Individuals with tobacco-using family and peers were more likely to try vaping (Bostean et al. 2015; Lipert et al. 2019). Peers were found to be a significant influence on vaping adoption, especially among males (Sanchagrin et al. 2017).

Health

Vaping has become a significant health concern due to limited research and increased usage of vaping by youths (Lippert, Corsi & Venechuk 2019; Al-Hamdani et al. 2020). Vaping has not undergone substantial testing for health consequences for both short-term and long-term use(Cheney, Gowin & Clawson 2018). The adoption of vaping as a way to quit smoking has decreased (Ayers et al. 2017).

Cheney, Gowin, and Clawson (2018) stated that young adults who vape were 2.4 times more likely to be open to cigarette smoking. Wong's study also indicated that dual-use was common among participants in which 60% of informants had used other substances, such as alcohol, cigarettes, or even marijuana, while vaping. This study also linked 'box' mods and higher vaping frequency to greater concurrent use of other tobacco products and greater nicotine dependency (Wong et al. 2018).

Vaping is generally believed to be safe or similar to smoking conventional cigarettes, but there were 16.1% of respondents in Eichler's (2016) study believed that vaping was more

harmful to one's health than conventional cigarettes. Vaping is often marketed as a way to quit conventional cigarettes, but recent research indicates that only 29.1% of respondents stated that they used vaping devices, primarily, to quit tobacco or nicotine. Lucherini, Rooke, and Amos (2018) expressed concern that vaping could lead to normalizing attitudes towards smoking, which may lead to a greater public acceptance of smoking. This is a significant concern due to health concerns that are known about smoking tobacco (combustibles) (West 2017).

Model 1: Conceptual Framework

Model 1 above demonstrates the conceptual framework for this study. The independent variable is increased vape use, and the dependent variable is increased media publications. It is expected that increases in media publications will be significantly less than increases in vape-use.

Hypotheses

H1: Increased vape use led to increased media publications on vaping.

H2: Publications on vaping will increase drastically compared to increased vape-use.

H3: Media publications will focus on youth for theme and inclusion in an article.

H4: Youths will cluster with flavors, negative concerns, and JUUL

Methodology

Sample

This study uses data from "*Monitoring the Future: A Continuing Study of American Youth, conducted in 2016, 2017, and 2018*. These studies were conducted by the Survey Research Center in the Institute of Social Research, University of Michigan. Monitoring the Future is a continuing study of the behaviors, attitudes, and values of American secondary school students, college students, and young adults. Each year, roughly 50,000 8th-, 10th-, and 12th-grade students are surveyed (12th graders since 1975 and 8th and 10th graders since 1991). In addition, annual follow-up questionnaires are mailed to a sample of each graduating class for several years after their original participation.

This data is appropriate due to the wide range of variables within the dataset. Vaping is relatively new, which means few datasets include vaping as a variable. This data is representative of the United States. This dataset incurred two limitations, which were students dropping out (approximately 2% in 8th grade and 5% for 10th grade) and those that were absent (approximately 9% in 8th grade and 14% in 10th grade).

This study also uses data from The New York Times database through ProQuest. The search term utilized was vaping. The date range for this term was January 1st, 2016, through December 31st, 2018. This was done due to a lack of access to the 2019 *Monitoring the Future* data. It should be noted that this specific date range yields 126 results. There were many duplicates, which were removed. Crossword puzzles and simple pictures were removed. There were a few results that were excluded due to only mentioning "vaping" once or twice within an article without directly linking it to any significance. Articles that discussed pop culture or

celebrity usage were not excluded for this reason. The final count was 67 results, which provided substantial data.

Dependent Variable

The dependent variable in this study is media publications on vaping. Media publication was divided into three different categories (2016, 2017, and 2018). Articles for all three years were added to each category (2016 = 9, 2017= 7, 2018=51). These were later converted into a singular variable (media publications) in order to establish correlations between other variables.

Independent Variable

The independent variable for this study is vape use. This was sorted based on the year (2016, 2017, or 2018). The question “To "vape" is to use a device such as a vape-pen, an e-cigarette, an e-hookah, or e-vaporizer to inhale a mist into the lungs. Have you ever vaped?” was coded dichotomously (0-No and 1-Yes). Vape use was recoded into a singular variable in order to establish correlations between other variables.

Data Analysis

This research examines data using the statistical analysis software SPSS to produce an output of frequencies, cross-tabulations with the chi-square statistic for testing hypothesis, and correlation coefficients for establishing the strength and direction of the relationships among independent and dependent variables.

Qualitative coding was conducted through QDA miner, which is a qualitative data analysis software for coding. Articles from the New York Times were converted to word document files. These files were then added to QDA Miner. Articles were coded with 26 possible codes to be assigned. A full list of these codes can be found in the appendix. A full list

of the documents with dates of publication can also be found in the appendix. Once an article was coded, the information was entered into SPSS with 0= no mention, 1= mention, 2= headline/theme of the story.

Description of Results

Descriptive Results

Chart 1 indicates the percentages of articles that included a mention of a particular code. This table recorded 2 (theme/headline) into 1 (Mention). 73.1 percent included code "Youth," 67.2 percent included code "Flavors," 61.2 percent included code "Vaping Alternative," 49.3 percent included code "Regulations," 49.3 percent included code "JUUL," 46.8 included code "Marketing," 32.8 percent included code "Bans," and 7.5 percent included code "Celebrity Usage."

Chart 2 indicates the percentages of articles that included only codes that were themes of an article. Non-mention and mentions were recoded as 0 while the theme was recoded as 1. 29.9 percent included code "Youth", and 11.9 percent included code "Juul", 11.9 percent included code "FDA", 9 percent included code "Vaping Alternative", 1.5 percent included code "Positive", 6 percent included code "Negative Concerns", 4.5 percent included code "Marketing", 3 percent included code "Flavors", and 3 percent included code "Regulations", Other codes are included in the chart located in the appendix.

Chart 3 indicates the percentages of Monitoring the Future 2016, 2017, and 2018 that indicates the percentages of youths that had tried vaping. 7.4 percent of youths vaped in 2016, 25.6 percent in 2017, 30.9 in 2018. This represents an overall percent change of 317.57. From

the years 2016 to 2017, the percent change was 245.95, and from the years 2017 to 2018 percent change of 20.7.

Chart 4 represents the number of publications from the New York Times of a total of 67 based on the year. 2016 had nine publications (13.4 percent), 2017 had seven publications (10.4 percent), and 2018 had 51 publications (76.1%). This represents an overall percent change of 467.91. From the years 2016 to 2017, the percent change was -22.39%, and from 2017 to 2018, the percent change was 631.73.

Associations Among Variables

Table 1 represents the Pearson correlations between every code studied. A Pearson correlation coefficient was calculated for the relationship between youth and flavors. A strong, positive, statistically significant correlation between these variables was found ($r=0.795$; $p<0.01$). The codes youths and negative concerns had a weak, positive, statistically significant correlation ($r=0.360$; $p<0.01$). The codes youths and Juul had a moderate, positive, statistically significant correlation ($r=0.530$; $p<0.01$).

Table 1 represents additional variables that the variable youth had strong, statistically significant correlations. A negative correlation with celebrity was found ($r=-0.469$; $p<0.01$). A positive correlation with marketing was found ($r=0.580$; $p<0.01$). A positive correlation with vaping alternative was found ($r=0.554$; $p<0.01$). A positive correlation with FDA was found ($r=0.490$; $p<0.01$).

Table 2 represents the correlations between vape use, media publications, and date. These correlations are not statistically significant, given an $N=3$ in this calculation of three years. A strong, positive correlation exists between vape use and media publications ($r=0.644$). A strong,

positive correlation exists between vape use and date (r=0.953). A strong, positive correlation exists between data and media publications (r=0.845).

Test of Hypothesis

The first hypothesis tested was increased vape use correlated with increased media publications on vaping. Table 6 indicates that that overall percent change for vape use was 317.57, and for media publications, the overall percent change was 467.91. A strong, positive, statistically insignificant correlation exists between vape use and media publications (r=0.644). Hypothesis one is supported.

The second hypothesis tested was that publications on vaping would increase drastically compared to increased vape-use. The previous hypothesis demonstrated that, while both increased drastically, media publications had a 150.34 percent greater percent change. These results are also aided by comparing correlations between "date" with vape use and media publications. Vape use and date had a strong, positive correlation (r=0.953). Media publications and "date" had a strong, positive correlation (r=0.845). Hypothesis two is supported though this will require further discussion due to the decrease in media publications from 2016 to 2017.

The third hypothesis tested was that media publications would focus on youth for theme and inclusion in an article. It can be observed from chart two that youth was the theme of an article 29.9 percent of the time. This was the most frequent theme as the FDA and Juul both were the themes 11.9 percent of the time, which was the second most frequent. Youths were mentioned in 73.1 percent of articles.

The fourth hypothesis tested was that youths would cluster with flavors, negative concerns, and JUUL. It can be observed from chart three that youths had a strong, statistically

significant, positive correlation (r=0.795). A weak, statistically significant, positive correlation was found between youths and negative concerns (r=0.36). A moderate, statistically significant, positive correlation was found between youth and Juul (r=0.53).

Discussion

Summary

This study was motivated by the limited research on vaping as a whole despite a dramatic increase in the popularity of vaping and the uncertain long-term consequences of vaping. Research on vaping has been extremely limited with a focus on delinquency, demographics, medical, and socialization (Lucherini, Rooke, & Amos 2018; Yule & Tinson 2017; McKelvey et al. 2018; Chao, Hashimoto, & Kondo 2019; Jackson et al. 2019; Maynard 2020). This study establishes that vaping literature has identified a specific narrative for their articles. The media has focused largely on youths (mentioned= 73.1 percent, theme= 29.9 percent). The most significant finding was that vape use and media publications increased significantly, but not with one another at first. This study has investigated an area of research that has been relatively untouched.

Hypothesis one, increased vape use, was correlated with increased media publications (r=0.644). It should be noted that this is not statistically significant given the n=0 (p=0.554). Media publications did not increase at the same rate. Articles actually decreased as youth vaping increased dramatically. 2016 to 2017 had a 22.39 percent drop (9 to 7 articles). Youth vape use increased 245.95 percent (7.4 percent to 25.6 percent) during this time. The media, in response to this, seem to significantly increase their coverage of vaping by 631.73 percent (7 to 51 articles). This dramatic increase as a response to increases in vape use led to an overall increase of 467.91

percent for media publications compared to an overall increase of 317.57 percent. This establishes that media coverage of vaping has exceeded actual youth vaping increases, but this may be due to a failed response in 2017.

Hypothesis two, media publications did increase more than youth vaping use when looking at percent changes (vape use: 317.57 percent overall, media publications: 467.91 percent overall). It should be noted that these items did not increase together as evident in hypothesis one, which is further shown with correlation values of each item compared to date (vape use and date = 0.953, media publications, and date = 0.845). This shows more consistency in the increase in youth vaping. This shows that media coverage has increased far more than actual vaping use. One could claim that this coverage is not needed for the increase that had occurred. Hypothesis one discusses how this increase may stem from an apparently failed response in 2017. The media had only focused on youths as a theme in two stories in 2017(one was an observatory section), which included the following quote.

"The concern is that it may represent a new route for exposure to nicotine and marijuana."

- Dr. Compton (Dec. 14 2017).

Hypothesis three, youths were dominant in both theme (29.9 percent) and inclusion in an article (78.1). This was the most used code for both categories. This is significant due to media being able to shape public opinion on a topic.

Articles primarily touched on vaping with passing mentions on the positives (mentions: 32.8 percent, theme: 1.5 percent). It should be noted that the article that positives were the theme occurred in 2016.

> *[The American approach] "is the same as asking, 'What are the relative risks of jumping out a fourth story window versus taking the stairs?' …These guys are saying: 'Look, these stairs, people could slip, they could get mugged. We just don't know yet.' " E-cigarettes are much less harmful because they do not have the deadly tar found in regular cigarettes."*
>
> *-Daniel Wikler, Havard School of Public Health (Nov. 2 2016).*

The media's current focus on youth usage of vaping instead of pushing for some of its positives as a way to counter a one side story. This growing focus on just negatives of vaping is highlighted below.

> *"I'm afraid that we're going to be hooking a new generation of kids on nicotine, with potentially unknown risks,"*
>
> *– Dr. Rubinstein, University of California – San Francisco (Apr. 2 2018).*

> *"The first time they use it, they feel the nicotine, they're more likely to stick with it." [But for teenagers] "it's a bad thing because it really does create the addiction potential that you don't have with normal electronic cigarettes."*
>
> *-Michael Siegel, Boston University (Apr. 25 2018).*

"The images are alarming, and it's easy to see how a child could confuse these e-liquid products for something they believe they've consumed before,"

-Dr. Gottlieb, FDA commissioner (May 2 2018).

"They say they've changed from the days of Joe Camel, But look at what's happening right now, on our watch and on their watch. They must demonstrate that they're truly committed to keeping these new products out of the hands of kids."

-Dr. Gottilieb, FDA commissioner (Sep. 13 2018).

Hypothesis four, youths did cluster significantly with flavors ($r=0.795$; $p<0.01$) and Juul ($r=0.53$; $p<0.01$) but not with negative concerns ($r=0.36$; $p<0.01$). Youths also clustered with more items than hypothesized including marking ($r=0.58$; $p<0.01$), vaping alternative ($r=0.554$; $p<0.01$), regulation ($r=0.597$; $p<0.01$), and FDA ($r=0.499$; $p<0.01$). It should be noted that youths vaping was not coded as a negative concern. This was reserved for mentions of addiction, lung illness, and cognitive delays.

Media publications on vaping explicitly focused on regulatory measures of the FDA. This was often due to the unknown nature that is associated with vaping. Vaping, being relatively recent, lacks long-term research on potential health hazards. This is evident with the following quote.

"E-cigarettes cannot be simply categorized as either beneficial or harmful."

– David Eaton, of the University of Washington (Jan. 24 2018).

Marketing is often mentioned in many of the articles due to the concern for malicious marketing towards youths. This concern is evident with Juul's Instagram marketing and their safety demonstration in middle and high schools (Azad 2019; Aizenman 2019). Juul had responded to this with the following quote. The second quote highlights issues that Juul may have ignored.

"antithetical to the company's mission."

-James Monsees, Juul co-founder (Aug. 27 2018).

"We do not want underage kids using our products. Our marketing is directed toward adults, tested with adults. And I do think it's worth noting: All of the things you see on social media, we have absolutely nothing to do with. We actively try to take these things down. But unless there's an infringement of our intellectual property it's quite difficult." -Ms. Gould (Apr 8 2018).

"We are working with the F.D.A., lawmakers, parents and community leaders to combat underage use, and we will continue working with all interested parties to keep our product away from youth."

– Juul (Apr. 25 2018).

"First, they just knew it was being bought for resale, … Then, when they saw the social media, in fall and winter of 2015, they suspected it was teens."

- the former Juul senior manager (Aug. 27 2018).

Flavors were often focused on due to research that suggests that flavors entice youths to try vaping (Eichler et al. 2016; Measham, O'Brien & Turnbull 2016). The FDA has heeded this concern with a ban on flavors in pod-based systems (U.S. Food and Drug Administration, 2020). This fear of flavors is evident below.

"the sale of candy-flavored tobacco before nicotine addiction claims a new generation of young people."

-Dr. Melissa Welch, American Heath Association spokeswoman (Jun. 7 2018).

Articles briefly mentioned vaping as an alternative to smoking. 2016 included more discussion on vaping as an alternative, as illustrated below. Older individuals tended to adopt this approach, while youths tended to vape without prior smoking exposure (Yule & Tinson 2017; Etter 2018; Etter 2019).

"We may well have missed, or are missing, the greatest opportunity in a century… The unintended consequence is more lives are going to be lost."

–David B. Abrams, senior scientist at the Truth Initiative (Nov. 2 2016)

This focus on flavors and marketing makes significant connections to current literature that is focused on flavors and marketing (Eichler et al. 2016; Measham, O'Brien & Turnbull 2016; Jackson et al. 2019).

Limitations

A strength of this study was using the *Monitoring the Future 2017* dataset. This dataset was nationally representative, which can be generalized to the United States population. The sample size was relatively large, which was beneficial. To be able to use one dataset that provided a good range of data on youths of the United States was a strength. A limitation of this study was that there were large portions of missing data in many categories. Finally, this dataset was cross-sectional data and thus was not able to make inferences to causality.

A strength of using The New York Times database in order to gather articles is that it was highly feasible to create a manageable list of articles from a reputable news source. This focus on The New York Times also creates a limitation due to only being able to evaluate the media using one news source. This also led to only 67 cases to code, which does not provide a substantial amount of data to avoid insignificant findings.

Suggestions for Future Research

For future research, researchers should expand on this research, which would include evaluating other news sources such as the Washington Post. Future research should also examine the differences that occur in 2019 when Monitoring The Future 2019 is accessible.

Conclusion

Research on media publications has shown an increase that is similar to the increase in vape use in the youth population. This research also establishes that the media has focused intensely on youth usage with an added focus on regulations, FDA, flavors, and marketing. Media coverage of a topic is important due to the ability to influence public policy. The media can influence public opinion and influence how vape companies market their products to consumers. This research seeks to establish an initial contribution on the study of vaping and the media.

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Appendix

QDA Miner Codes

Pop Culture	**Celebrity Usage**	**Marketing**	**Flavors**	**High Nicotine**	**THC**	**Vaping As Alt**
Death/Illness	**Battery Safety Concerns**	**Positive**	**Negative**	**Vaping Leads To Smoking**	**Regulations**	**Tax**
Bans	**FDA**	**Exemptions**	**Black Market**	**Youth**	**Circumvent Regulations**	**Big Tobacco / Big Ecig**
Big Pharma	**Political Donations**	**JUUL**	**Non-JUUL**	**Opinion Section**		

Dates Utilized

20160505	20170419	20180218	20180611	20181003	20181117	20181221
20160506	20170511	20180402	20180622	20181008	20181118	20181223
20160507	20170620	20180404	20180625	20181008	20181124	20181223
20160707	20171024	20180408	20180809	20181010	20181128	20181227
20160903	20171212	20180409	20180826	20181026	20181129	20181227
20161028	20171214	20180425	20180827	20181102	20181211	20181227
20161102	20180124	20180425	20180904	20181109	20181211	20181230
20161107	20180125	20180502	20180913	20181114	20181219	
20161114	20180127	20180503	20180917	20181116	20181219	
20170128	20180211	20180607	20180930	20181117	20181220	

Chart 1

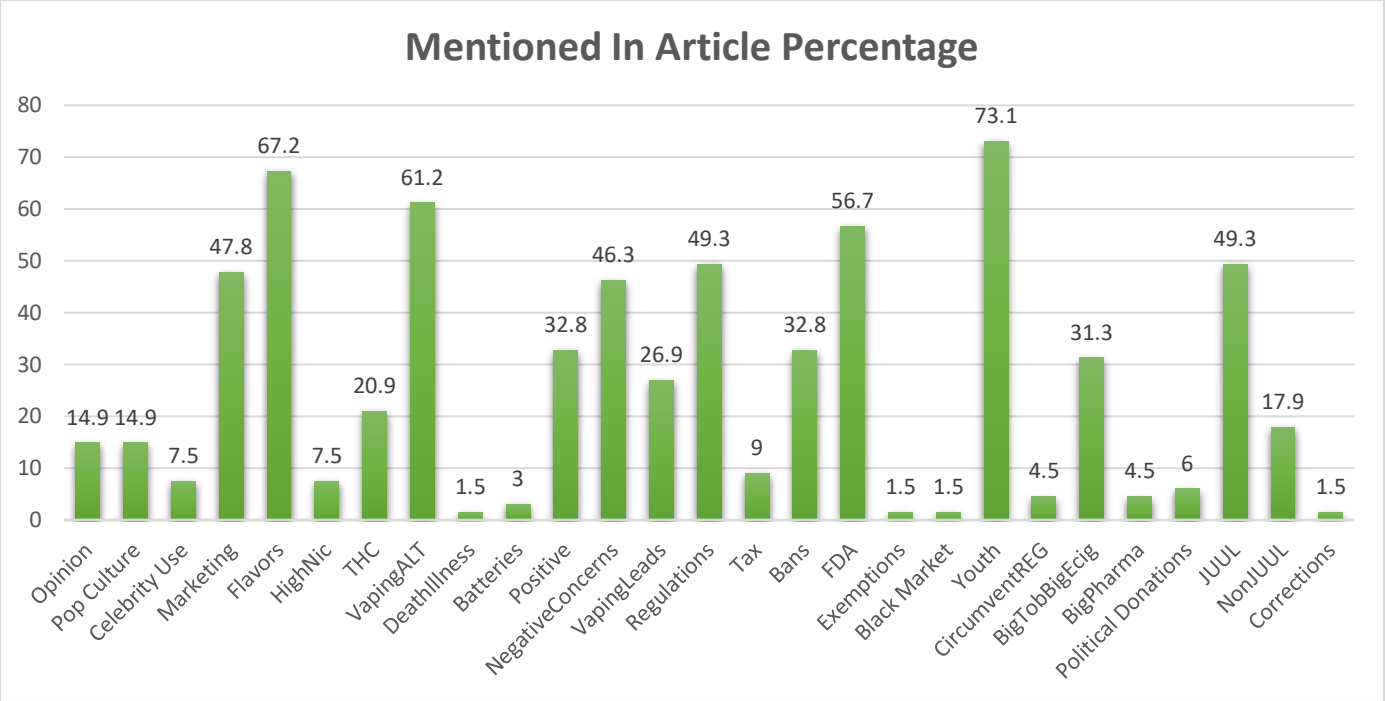


Chart 2

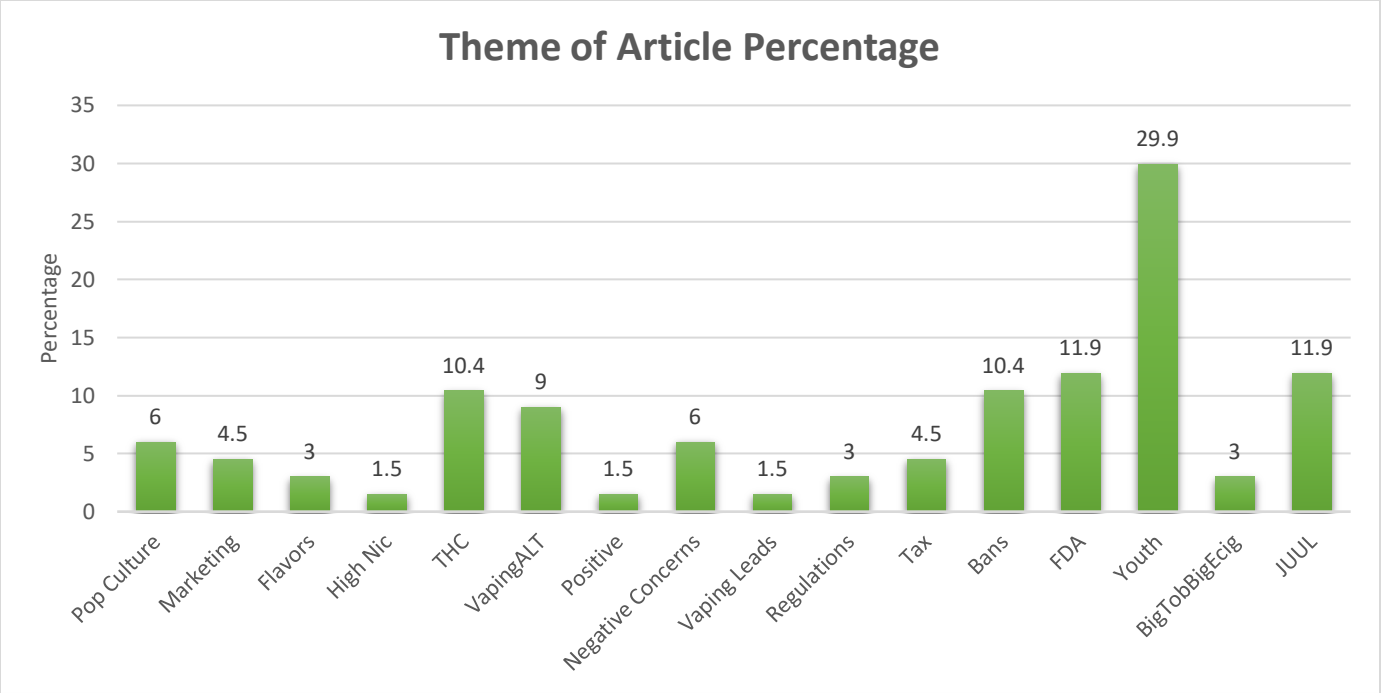
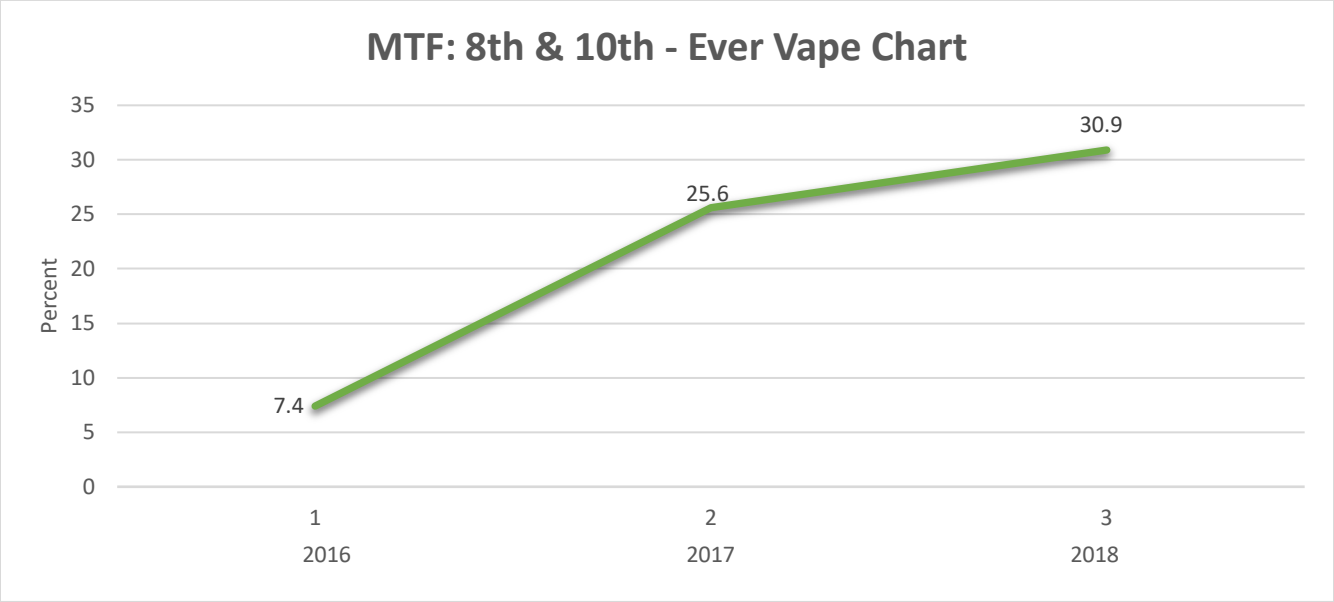


Chart 3



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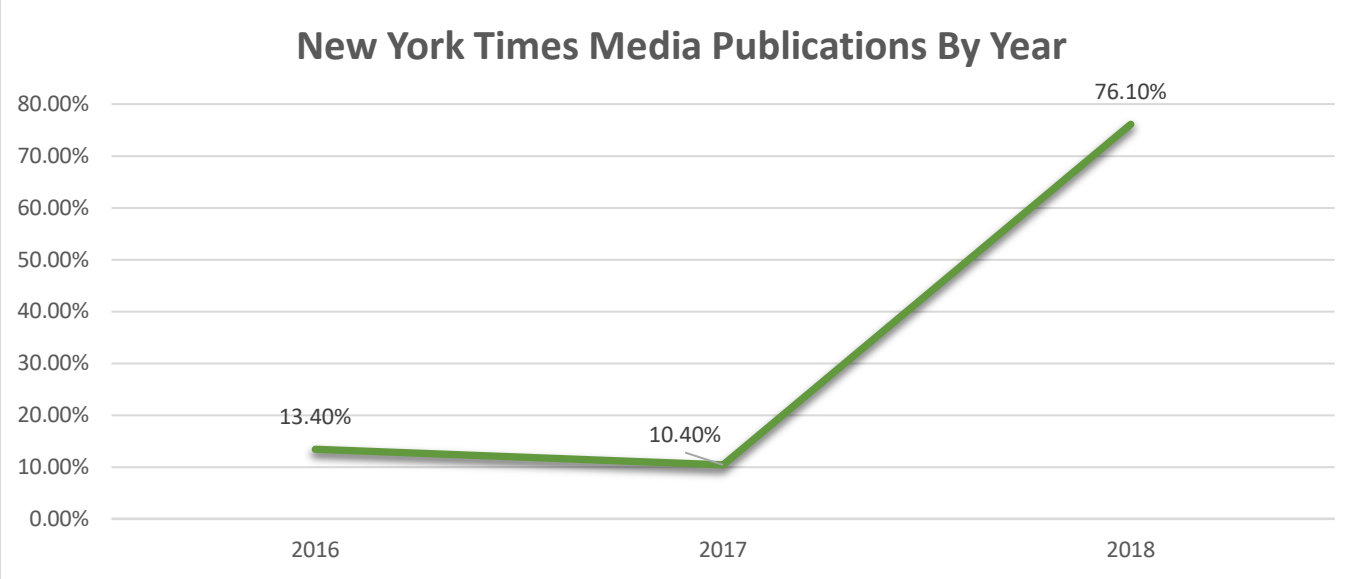

Table 1

Correlations

		PopCulture_Binary	CelebrityUse_Binary	Marketing_Binary	Flavors_Binary	VapingALT_Binary	DeathIllness_Binary	NegativeConcerns_Binary	Regulations_Binary	Bans_Binary	FDA_Binary	Youth_Binary	BigTobBigEcig_Binary	JUUL_Binary
PopCulture_Binary	Pearson Correlation		.519**	-.065	-.242*	-.182	.294*	-.221	-.161	-.114	-.226	-.313**	.078	-.078
CelebrityUse_Binary	Pearson Correlation			-.272*	-.406**	-.357**	-.035	-.264*	-.280*	-.199	-.325**	-.469**	-.192	-.280*
Marketing_Binary	Pearson Correlation				.669**	.455**	.129	.251*	.373**	.222	.534**	.580**	.191	.552**
Flavors_Binary	Pearson Correlation					.552**	.086	.330**	.498**	.286*	.608**	.795**	.130	.625**
VapingALT_Binary	Pearson Correlation						-.155	.493**	.539**	.231	.602**	.554**	.406**	.417**
DeathIllness_Binary	Pearson Correlation							-.114	-.121	-.086	-.141	.075	-.083	.125
NegativeConcerns_Binary	Pearson Correlation								.223	.244*	.267*	.360**	.276*	.104
Regulations_Binary	Pearson Correlation									.455**	.499**	.597**	.493**	.283*
Bans_Binary	Pearson Correlation										.226	.352**	.555**	.138
FDA_Binary	Pearson Correlation											.490**	.266*	.499**
Youth_Binary	Pearson Correlation												.264*	.530**
BigTobBigEcig_Binary	Pearson Correlation													-.151
JUUL_Binary	Pearson Correlation													

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2

Correlations

		VapeUse	MediaPub	Date
VapeUse	Pearson Correlation		.644	.953
	Sig. (2-tailed)		.554	.195
	N		3	3
MediaPub	Pearson Correlation			.845
	Sig. (2-tailed)			.359
	N			3