The Role of Third-person Perceptions in Predicting the Public’s Support for Electronic Cigarette Advertising Regulations

Joon Kyoung Kim

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The Role of Third-person Perceptions in Predicting the Public’s Support for Electronic Cigarette Advertising Regulations

by

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ABSTRACT

Electronic cigarette (e-cigarette) use has become the most widely used nicotine product among adolescents and young adults in the United States. Although some research has shown that e-cigarettes are relatively less harmful than combustible tobacco cigarettes, the long-term health effects of e-cigarettes remain unclear. Some evidence suggests that exposure to e-cigarette marketing leads young people to try e-cigarettes. Given the increased popularity of e-cigarette use, the U.S Food and Drug Administration has implemented regulations on e-cigarette marketing since 2016. To understand the public’s support for media censorship, media scholars have examined gaps in individuals’ perceptions of media effects on themselves compared to effects on others, which refers to third-person effects. Third-person effect hypothesis posits that individuals tend to believe that others are more vulnerable to media content than they themselves are in order to maintain positive self-image. Research has shown that third-person perceptions lead individuals to support media censorship of some types of media content, such as the internet porn or violent rap music, to counter its anticipated negative effects on others. This study employs a third-person effects theoretical framework to elucidate the factors that lead individuals to support regulations of e-cigarette marketing. The findings of this study contribute to the body of knowledge about how individuals perceive media effects and how such perceptions lead to particular behaviors. Health practitioners could also benefit from this study by highlighting factors found in this study to increase the public’s support for e-cigarette marketing regulations.
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CHAPTER 1

INTRODUCTION

Use of electronic cigarettes (e-cigarettes) has rapidly increased among adolescents and young adults in the United States, becoming the nicotine product that is most often used amongst youth (Soneji et al., 2017). The U.S. Food and Drug Administration (FDA) reported that more than 5,000,000 middle and high school students used e-cigarettes in 2019 (FDA, 2020). A substantial increase in e-cigarette marketing expenditures and media users’ engagement with content depicting e-cigarettes as an alternative to tobacco have been well-documented (Collins, Glasser, Abudayyeh, Pearson, & Villanti, 2018). Many scholars have shown that exposure to e-cigarette marketing attenuates individuals’ perceptions of harm from e-cigarettes and in turn leads them to try e-cigarettes (Mantey, Cooper, Clendennen, Pasch, & Perry, 2016; Pokhrel, Herzog, Fagan, Unger, & Stacy, 2019). Although researchers have demonstrated that e-cigarettes could be less harmful than tobacco products, the long-term health effects of e-cigarettes are still unclear (Glasser et al., 2017). More recently, a growing number of researchers have found that e-cigarette use can negatively affect adolescents’ health, such as by increasing exposure to toxicants (Rubinstein, Delucchi, Benowitz, & Ramo, 2018) and increasing rates of chronic bronchitis symptoms including chronic cough and phlegm ( McConnell et al., 2017). Regarding adolescents’ use of e-cigarettes, there has been increasing concern that e-cigarette use can increase their nicotine addiction and lead them to use other tobacco products and drugs, which refers to gateway effect (Akre & Suris, 2017; Ren &
Lotfipour, 2019). Although there has been no consensus whether e-cigarette use leads adolescents to use combustible cigarettes and drugs, some research has shown that positive association between youths’ e-cigarette use and their initiation of combustible cigarettes (Berry et al., 2019) and marijuana (Wong, Lohrmann, Middlestadt, & Lin, 2020). e-cigarette use leads adolescents to use combustible cigarettes and drugs, some research has shown that positive association between youths’ e-cigarette use and their initiation of combustible cigarettes (Berry et al., 2019) and marijuana (Wong, Lohrmann, Middlestadt, & Lin, 2020).

Given the increasing concern about the popularity of e-cigarettes among adolescents and young adults with potentially negative health effects, in 2018 the FDA implemented regulations on e-cigarette marketing, including required warning statements on product packages and advertisements. The FDA also raised the minimum age to purchase tobacco products including e-cigarettes from 18 to 21 (FDA, 2019). More recently, the FDA banned the sales of youth appealing flavors such as fruit, candy, and dessert flavors on January 2, 2020 (Associated Press, 2020).

Media scholars have investigated how individuals perceive media effects on themselves and others (Xu & Gonzenbach, 2008). Researchers have shown that individuals tend to perceive greater media influences on others than themselves, which refers to third-person perceptions (TPPs). Individuals tend to display TPPs because perceiving themselves as more intelligent and less susceptible to negative media effects preserves their positive self-image (Wan & Youn, 2004). Researchers have also shown that this perceptual gap leads individuals to particular behavioral intentions, such as support for media censorship to counter the anticipated negative effects of media on vulnerable others (Chung & Moon, 2016). For instance, when individuals view others as
more vulnerable to potentially negative media content, such as Internet porn (Lee & Tamborini, 2005; Lo & Wei, 2002), gambling advertising (Youn, Faber, & Shah, 2000), violent rap music (McLeod, Eveland, & Nathanson, 1997), and prosmoking advertisements (Henriksen & Flora, 1999), they are more likely to support censorship of such content.

Since Davidson (1983) proposed the third-person effect theory, media scholars have further elaborated upon it. Scholars have investigated potential psychological antecedents, such as social distance corollary (McLeod et al., 1997), collectivism (Lee & Tamborini, 2005), self-efficacy (Lim, 2017), locus of control (Haridakis & Rubin, 2005), and issue involvement (Schweisberger, Billinson, & Chock, 2014; Shin & Kim, 2011), to better predict TPPs. Despite scholars’ efforts to find potential predictors of TPPs, factors that strengthen or weaken TPPs remain unclear (Paul, Salwen, & Dupagne, 2000). The inconsistent findings about predictors of TPPs may result from the fact that authors of previous studies tested a limited number of TPP predictors rather than examining more inclusive predictors of TPPs (Wei, Lo, & Lu, 2010).

Researchers have investigated how TPPs motivate individuals to take an action. Most TPP studies have focused on restrictive actions such as media censorship as the behavioral component of TPP (Salmon et al., 2019). Although authors of early TPP studies successfully demonstrated a positive relationship between TPPs and individuals’ support for media censorship, other scholars have failed to find an association between TPPs and restrictive actions (Chung & Moon, 2016). Some scholars have noted that individuals’ presumed media effects on others could better predict individuals’ support for media censorship (Lo & Wei, 2002). Cheng and Chen (2020) also found that
individuals’ presumed media effects better predicts their support for governmental regulations compared to TPPs.

However, empirical studies and evidence on the accountability of support for media censorship between TPPs and perceived media effects on others are limited. To fill the gap, the present study has several purposes. First, this study examined determinants of TPPs, including individuals’ perceptions of social undesirability of e-cigarette advertising, perceived harm of e-cigarettes, current e-cigarette use, and the source credibility of e-cigarette companies. Second, this study investigated individuals’ perceived source credibility of the FDA as a regulatory authority and its moderation effect on the relationship between TPPs and support for regulations on e-cigarette advertising. Authors of previous studies have not considered individuals’ perceived source credibility of regulatory authorities, although source credibility has been considered an important factor in forming individuals’ attitudes towards messages in general persuasive media content (Schmidt, Ranney, Noar, & Goldstein, 2017) and tobacco-related media content (Sternthal, Phillips, & Dholakia, 1978). Lastly, this study investigated whether perceived effects of e-cigarette advertisements on others and TPPs differently affect behavioral intentions.
CHAPTER 2

LITERATURE REVIEW

2.1 Tobacco Advertising

It has been well documented that advertising plays an important role in selling cigarettes (Bayer, Gostin, Javitt, & Brandt, 2002). The causal relationship between cigarette advertising and cigarette use has been supported by empirical evidence (Capella, Webster, & Kinard, 2011; Davis, 2008; Tye, Warner, & Glantz, 1987). By conducting a meta analysis of 52 empirical studies on the effects of cigarette advertising on consumption, Capella, Webster, and Kinard (2011) found that exposure to cigarette advertising is a significant positive predictor of cigarette smoking initiation, continuation, cigarette brand loyalty, and brand switching. Tobacco advertising has been known to affect tobacco use in many ways, such as encouraging adolescents to try tobacco products (Gilpin, White, Messer, & Pierce, 2007; Lovato, Watts, & Stead, 2011), increasing current smokers’ consumption (Feighery, Ribisl, Schleicher, Lee, & Halvorson, 2001), discouraging smokers from quitting (Basil, Basil, & Schooler, 2000), and encouraging former smokers to resume smoking (Feighery et al., 2001). The goal of tobacco marketing is to increase the appeal and acceptability of tobacco products (Calfee, 1986; Lynch & Bonnie, 1994). To achieve this goal, tobacco advertising is intended to increase audiences’ positive attitude toward tobacco products and minimize the risks they perceive as related to those products.
Tobacco advertising can affect audiences in two broad ways; either cognitively or affectively. Tobacco advertisements could convince individuals that they would benefit from using tobacco products, which refers to cognitive influence. The benefits could be individuals’ maintenance of a specific need or desire or an ideal image that the individual may want to adopt and convey to others. An affective response to tobacco products could be fostered by psychological conditioning. In other words, viewers could be more likely to accept smoking when they see cigarette advertisements as positive. To affectively influence consumers, tobacco companies incorporated images that consumers might enjoy, such as popular cartoon characters, in tobacco advertisements (Kirkpatrick et al., 2019; Pierce, Gilpin, & Choi, 1999).

2.1.1 Tobacco Advertising Regulation

Historically, tobacco industry has made substantial efforts to increase the appeal and acceptability of tobacco products via aggressive use of advertising in the U.S (Pierce & Gilpin, 1995). During World War 1, tobacco companies distributed free cigarettes to soldiers and many of them remained loyal customers after the war (Witkowski, 1991). Throughout the war, the image of cigarettes was improved by associating smoking with positive values such as dignity and courage (Sobel, 1978). Cigarette sales reached 54 billion in 1919, which tripled from 18 billion in 1914 (Witkowski, 1991). Cigarette consumption continued to increase during the Second World War and smoking became socially desirable (Nuehring & Markle, 1974). The positive image of smoking was reinforced by increasing publicity from public figures such as President Roosevelt, athletes, and movie stars (Witkowski, 1991). With the increased popularity of cigarettes, cigarette companies began to highlight their health claims. Overall cigarette sales reached
435 billion cigarettes in 1952 (Sobel, 1978). Researchers noted that this increasing popularity was strongly associated with intensive national advertising during this period (Bayer et al., 2002).

To attenuate the public’ perceptions of the risk associated with tobacco product use, tobacco companies advertised their products with explicit positive health claims until the Federal Trade Commission’s regulation went into effect in 1955 (Witkowski, 1991). Cigarette companies frequently used scientific findings and paid testimonials from medical doctors in their advertisements (Witkowski, 1991). For instance, Camel’s early advertising stated that their products are most popular among doctors (Witkowski, 1991). When scientific results were presented, advertisements tended to feature health professionals such as medical doctors and nurses (Gardner & Brandt, 2006). Tobacco companies’ health claims became prevalent in the media. Camel’s “More Doctors smoke Camels” campaign appeared in magazines and prime-time radio programs (Blum, 1983). Cigarette companies advertised their products as the safest cigarette by depicting scientific findings (Witkowski, 1991).

Increasing epidemiological studies’ confirmation of the negative health effects of smoking in 1950 increased concerns about cigarette advertising (Bayer et al., 2002; Calfee, 1986). This first FTC guidelines effected in 1955 banned cigarette companies from referring to physical health effects of smoking in cigarette advertising (Schuster & Powell, 1987). The guidelines prohibited comparative health claims and all references to “throat, larynx, lungs, nose or other parts of the body” or to “digestion, energy, nerves, or doctors” (Witkowski, 1991).
In 1964, the Surgeon General’s Advisory Committee on Smoking and Health issued a report about negative health effects of cigarette smoking. The report demonstrated that cigarette smoking has a causal association with lung cancer and the magnitude of the effects of smoking is greater than the other factors (Alberg, Shopland, & Cummings, 2014). This report allowed the FTC to expand its authorities to regulate cigarette packaging and advertising (Bayer et al., 2002). As a result, cigarette companies were required to display health warnings on cigarette packs and advertising in response to congressional legislation: “Caution—cigarette smoking may be hazardous to your health.”

The Surgeon General’s 1964 report offered momentum to the FTC to further regulate cigarette advertising in the broadcast media (Fishbein, 1977). Cigarette advertising on television and radio was banned on January 2 in 1971 (Teel, Teel, & Bearden, 1979). Regulatory agencies including the FTC and antismoking advocates claimed banning the broadcasting advertising because they believed that adolescents were more likely to be influenced by tobacco advertising than adults (Friedman, 1975). In 1987, the RJ Reynolds tobacco company debuted the Joe Camel character in its U.S. advertisements. Joe Camel, who is an anthropomorphic character with a camel’s head, appeared in magazine advertisements, billboards, and other print media. Antismoking advocates and researchers claimed that the Joe Camel carton advertisement had greater impact on children than adults (Calfee, 2000). Researchers argued that the Camel brand’s market share among teenagers skyrocketed from .5% to 33% in the three years after the Joe Camel carton advertisements were launched (DiFranza & Aisquith, 1995; DiFranza et al., 1991). Although other researchers claimed the results of such studies were unreliable
and inaccurate (Calfee, 2000; Henke, 1995), the increasing concerns about the use of cartoon characters in cigarette advertising led the company to discontinue Joe Camel advertisements.

Given the increasing concerns about tobacco industry’s youth-targeted advertising and marketing, Attorneys General from 46 states and the tobacco industry reached the Tobacco Master Settlement Agreement (MSA) to prohibit tobacco advertising targeted at children and to reimburse state governments for tobacco-related care costs such as funding for anti-smoking advertising in 1998 (Farr, Tremblay, & Tremblay, 2001). The MSA prohibits tobacco companies from using youth-targeted advertising techniques, such as the use of cartoon characters in advertisements, product placements in entertainment media, and distribution of free tobacco product samples (Gilpin, White, Messer, & Pierce, 2007; Pierce & Gilpin, 2004). In 2009, through the Family Smoking Prevention and Tobacco Control Act (ESPTCA), the United States Food and Drug Administration banned flavored cigarettes with the exception of menthol and the use of misleading terms such as “light,” “mild,” and “low tar” that were intended to lead individuals to perceive lower levels of health risks (Fix et al., 2011; Shiffman, Pillitteri, Burton, Rohay, & Gitchell, 2001).

In addition to regulations on youth-targeted advertising, considerable efforts have been made to implement other regulations on tobacco product use and advertising. Restrictions on tobacco product use in public places have been implemented to limit nonsmokers’ exposure to secondhand smoke (Laws, Prevention, & Cigarettes, 2007). Increasing tobacco tax has been an effective way to reduce cigarette sales (Amato, Boyle, & Brock, 2015). Prevention and cessation programs and anti-tobacco media campaigns
have also been considered as effective interventions to reduce tobacco use (Cokkinides et al., 2009).

2.2 Electronic Cigarette Advertising Regulation

When it comes to smokeless tobacco products such as e-cigarettes, the majority of advertising regulations for combustible cigarettes have not been applied to e-cigarette advertising (Unger, Barker, Sussman, Soto, & Baezconde-Garbanati, 2017). Regarding the sales or marketing of deemed products including e-cigarettes, the FDA’s deeming prohibits e-cigarette manufacturers and retailers from claiming reduced or modified risks, distributing free samples, and selling products to under 18 years old (FDA, 2016). The deeming states that e-cigarette companies cannot claim their products as less harmful compared to other tobacco products without FDA’s approval (FDA, 2016). E-cigarette companies are also not allowed to claim that e-cigarettes are cessation aids. Although recent research found that the one year abstinence was higher among the participants who used e-cigarettes for smoking cessation than those participants used nicotine-replacement therapy products (Hajek et al., 2019), the FDA has not approved any e-cigarette products as smoking cessation tools. In 2019, the FDA officially raised the minimum age of sale of tobacco products including e-cigarettes from 18 to 21 (FDA, 2019).

In addition, e-cigarette companies are required to display nicotine addiction warnings on packages and advertising since August 9, 2018 (FDA, 2018). According to the regulation, the warnings have to cover at least 30% of the sides of the product packaging or 20% of the advertising surface. The required addiction warning reads "WARNING: This product contains nicotine. Nicotine is an addictive chemical."
Regarding the sales of flavored e-cigarettes, the FDA banned youth-appealing flavors such as fruit, candy, and dessert flavors on January 2, 2020 (Associated Press, 2020). However, this ban applied only to flavored cartridges. E-cigarette vendors can continue to manufacture and sell flavored e-liquids, and users can use any flavor with an open tank system e-cigarette. Open tank system e-cigarettes refer to e-cigarette devices that allow users to refill nicotine liquids (Yong et al., 2019). By using open tank system e-cigarette devices, users can easily mix and customize liquids from a large range of nicotine concentrations and flavors, whereas disposable type e-cigarette products do not allow users to change or mix liquids (Chen, Zhuang, & Zhu, 2016).

### 2.2.1 Electronic Cigarette Advertising Regulation Controversy

Although the 2016 FDA’s deeming enabled the FDA to regulate e-cigarette marketing and advertising, some regulations for cigarette advertising remain unapplied to e-cigarettes such as the use of cartoon characters in advertising (Kim, Pardun, & Overton, 2019). Health advocates and researchers have claimed that new tobacco product advertisements including e-cigarettes have not been sufficiently regulated (Leventhal & Barrington-Trimis, 2018).

Researchers have pointed out that the current FDA regulations on e-cigarette advertising are insufficient to protect users from potential health risks (Loewenstein & Middlekauff, 2017). The 2016 FDA deeming does not include any advertising regulation beyond avoiding health misleading claims (Padon, Maloney, & Cappella, 2017). Researchers also argued that the currently required warning statement primarily focusses on addiction warnings (Berry & Burton, 2019). Although addiction warnings appeared to increase viewers’ perceptions of addiction and health risk, researchers pointed that
presence of positive health claims in advertising can attenuate the effects of addition
warnings (Berry, Burton, & Howlett, 2017).

Moreover, researchers have noted that e-cigarette companies’ advertising and
marketing on social media has not been sufficiently monitored and regulated (Hébert et
al., 2017). Research has shown that e-cigarette advertisements are predominant among
social media that refer to e-cigarettes (Lazard et al., 2016; McCausland, Maycock,
Leaver, & Jancey, 2019). Researchers have also found that pro-vaping messages are
predominant on social media due to large amount of posts disseminated by the e-cigarette
industry and e-cigarette proponents (McCausland et al., 2019). E-cigarette companies
including JULL used social media influencers to attract adolescents by depicting e-
cigarette use as glamorous (McCausland, Maycock, Leaver, T., & Jancey, 2019; Vogel et
al., 2020).

More recently, the increased popularity of e-cigarettes among adolescents and
teenagers has raised substantial concerns about e-cigarette companies’ youth-targeted
marketing and advertising (Barrington-Trimis et al., 2016; Dunbar2018). The results of a
National Youth Tobacco Survey showed that 11% of high school students had used an e-
cigarette in 2017, and this number rose to 27.5% in 2019 (Cullen et al., 2019). According
to a 2019 National Youth Tobacco Survey, more than 5 million U.S. middle school and
high school students reported that they used an e-cigarette in the past 30 days (Cullen et
al., 2019). Adolescents are commonly exposed to e-cigarette advertisements on social
media and at stores that sell cigarettes (Cho2019; Mantey et al., 2015; Nicksic, Harrell,
Pérez, Pasch, & Perry, 2017). Empirical evidence has supported that youth’s exposure to
e-cigarette advertisements is positively associated with their positive attitude toward e-
cigarettes and intention to try e-cigarettes (Camenga et al., 2018; Kim, Arnold, & Makarenko, 2014; Mantey et al., 2016). Youth-targeted e-cigarette advertising appears to significantly attenuate youth’s perceived risk of e-cigarettes and susceptibility to e-cigarette use (Kirkpatrick et al., 2019).

In spite of e-cigarette companies’ consistent denial of targeting youth via advertising and other marketing strategies, recent studies have discovered that e-cigarette companies used youth appeal messages via advertising, social media posts, and emails (Jackler et al., 2019). In particular, researchers have found that e-cigarette advertisements commonly depict cartoon characters, which is prohibited for cigarette advertising by the MSA (Allem et al., 2019; Kirkpatrick et al., 2019). For example, e-cigarette companies appeared to use cartoon characters such as Pokémon Go to advertise their products on Twitter (Kirkpatrick et al., 2017).

Public health advocates and researchers have further called for more regulations on e-cigarette use and advertising to prevent youths’ nicotine addiction and progression to other substances (Leventhal & Barrington-Trimis, 2018; Wong, Lohrmann, Middlestadt, & Lin, 2020). Research has shown that youth exposure to flavored e-cigarette advertising reduced their perceived risk of e-cigarette use and increased their susceptibility to e-cigarette use (Chen et al., 2018; Pepper, Ribisl, & Brewer, 2016; Vasiljevic, Petrescu, & Marteau, 2016). Although the 2009 Family Smoking Prevention and Tobacco Control Act bans the inclusion of other flavors than tobacco and menthol in cigarettes, this regulation has not been applied to all types of e-cigarette products (Cullen et al., 2019). Given the increased concern about the appeal of flavored e-cigarettes for
youth, the FDA prohibited retailers from selling all flavors of cartridge-based e-cigarette products.

### 2.2.2 Correlates of Electronic Cigarette Regulations

When it comes to tobacco regulation, research has shown that the public’s support for regulation plays an important role in shaping tobacco control policies (Rose et al., 2015). Researchers have noted that understanding the public’s opinion regarding tobacco regulations provides governments and advocates with important information regarding the political context and implications around proposed regulations (Winickoff et al., 2016). Public opinion on tobacco policies has been considered an important element of policy development because such data can help policy makers understand challenges and suggest tips to advocates for increasing public support (Kingdon, 2003). Researchers have found that the lack of public support is associated with the failure of tobacco control policy initiatives, such as efforts to raise federal cigarette excise taxes (Blendon & Young, 1998). The lack of public support can also lead to public backlash (Harris et al., 2014).

In addition, researchers have noted that understanding the characteristics of individuals who support or oppose regulation allows regulatory authorities such as the FDA to gauge public sentiment and, potentially, develop messages that raise public support (Pearson, Abrams, Niaura, Richardson, & Vallone, 2013). To estimate the effects of anti-tobacco policies on individuals, researchers have investigated the determinants of individuals’ support for tobacco regulations. Along with demographic predictors, researchers have investigated individuals’ attitudes toward smoking and anti-tobacco policies, such as perceived harm of tobacco product use, perceived susceptibility to
smoking (Unger et al., 1999), current use of tobacco products (Young et al., 2007), and trust in government (Lee et al., 2016).

Besides demographic variables, research has generally shown that smokers, White individuals, males, and adults with lower levels of education tend to show lower levels of support for tobacco regulations (McMillen, Winickoff, Klein, & Weitzman, 2003; Winickoff et al., 2011). Researchers have found that smokers tend to display lower levels of support for anti-tobacco policies, such as taxation (Hamilton, Biener, & Rodger, 2005), banning menthol flavored cigarettes (Winickoff et al., 2011), and the Family Smoking Prevention and Tobacco Control Act (FSPTCA) signed by President Obama in 2009 (Rose et al., 2015). Among other sociodemographics, research has shown that age, level of education, and gender are associated with support for anti-tobacco policies. Researchers have found that older people are more likely to support anti-tobacco policies, such as raising the minimum age of sale for tobacco (King et al., 2015; Winickoff et al., 2016) and the FSPTCA (Rose et al., 2015). Females are also more likely to support anti-tobacco policies (Wilson, Duncan, & Nicholson, 2004; Winickoff et al., 2016). Females tend to support tobacco policies with regard to minors’ access to tobacco, penalty for selling to minors (Forster, McBride, Jeffery, Schmid, & Pirie, 1991), and raising the minimum age of sale for tobacco products (Winickoff et al., 2016).

When it comes to tobacco regulations that aim to reduce tobacco use among minors, smokers have appeared to support such regulations including restricting minors’ access to tobacco products and youth-targeted marketing and raising the minimum age of sale for tobacco (King, Jama, Marynak, & Promoff, 2015). However, having children also appears to matter. Research has shown that smokers who had no children younger
than 19 in the home were more likely to support banning smoking in cars with children (Hitchman, Fong, Zanna, Hyland, & Bansal-Travers, 2010) and smoking in parks (Klein, Forster, McFadden, & Outley, 2007). Other studies have also shown that smokers living with children under 18 years old tend to support child-related tobacco policies. Having chilared also appears to be associated with anti-tobacco policies not focusing on adolescents. Hamilton et al. (2005) showed that smokers who had any children younger than 18 in the home were more likely to support increasing cigarette taxes that are earmarked for tobacco control. McMillen et al. (2003) also found that smokers who had children living in the home displayed higher levels of support for banning smoking in public places, including child care centers and hospitals, than those without children in the home.

Individuals’ cognitive and attitudinal characteristics regarding tobacco use and tobacco policies are also important correlats of tobacco control policy support. Research has shown that individuals’ perceived harm of smoking predicts support for anti-tobacco policies (Hitchman, Fong, Zanna, Hyland, & Bansal-Travers, 2010; Unger et al., 1999). In particular, Hitchman et al. (2010) found that individuals’ beliefs about the harm of secondhand smoking to nonsmokers and negative health effects (such as asthma) on children were positively associated with support for banning smoking in cars with children. Thrasher, Boado, Sebrié, and Bianco (2009) found that smokers’ family norms against smoking were positively associated with their support for smoke-free policies. Thrasher et el.’s (2009) study indicated that smokers are more likely to support smoke-free policies when they perceive that their family members do not accept smoking and want them to quit smoking. Cook et al. (2014) also found that individuals are more likely
to support smoke-free policies when smoking is not allowed in their home. Smokers with high levels of nicotine dependence are also less likely to support smoke-free policies and taxation policies compared to smokers with lower levels of nicotine dependence (Borland et al., 2009).

Little is known about the determinants of individuals’ support for varying e-cigarette regulations. Consistent with correlates of support for smoking regulations, research has shown that smokers are less likely than non-smokers to support e-cigarette regulations (Mello et al., 2015; Unger et al., 2017). Current smokers have lower levels of support for e-cigarette regulations, such as banning e-cigarette use in public venues (Cheung et al., 2017; Tan, Bigman, & Sanders-Jackson, 2015) and e-cigarette taxation (Gorukanti, Delucchi, Ling, Fisher-Travis, & Halpern-Felsher, 2017). Research has shown that non-e-cigarette users are more likely to support e-cigarette regulations (Tan, Lee, & Bigman, 2015), whereas former or current e-cigarette users show lower levels of support for e-cigarette regulations (Mello et al., 2015; Sanders-Jackson, Tan, Bigman, Mello, & Niederdeppe, 2016).

Perceptions of e-cigarettes also appear to matter for determining individuals’ support for e-cigarette regulations. Research has shown that perceived harm of e-cigarettes is positively associated with e-cigarette regulation support (Mumford, Pearson, Villanti, & Evans, 2017; Sanders-Jackson et al., 2016). In particular, individuals’ concern about the negative health effects on vulnerable others, such as minors and nonsmokers, appeared to lead to higher levels of support for e-cigarette regulation (Mello et al., 2015; Sanders-Jackson et al., 2016). By contrast, those who believed e-cigarettes were relatively less harmful than tobacco cigarettes were less likely to support anti-e-cigarette
policies (Cheung et al., 2017) and more likely to support pro-e-cigarette policies, such as allowing e-cigarette use where smoking is prohibited (Brose, Partos, Hitchman, & McNeill, 2017).

Previous research on public support for anti-tobacco policies has focused on individuals’ attitudes toward policies but not regulatory authorities (Fix et al., 2011; Ramirez, Velez, Chalela, Grussendorf, & McAlister, 2006). Hall, Williams, and Hunt (2015) found that individuals’ attitude toward campus tobacco policy was positively associated with their support for such a policy. For instance, students who perceived that their school’s current campus tobacco policy is insufficient were more likely to support tobacco-free policy.

A few studies have investigated individuals’ attitudes or perceptions regarding regulatory authorities and the fairness of smoke-free laws (e.g., Boynton et al., 2016). Lee, Boynton, Richardson, and Goldstein’s (2016) study showed that individuals’ general trust in government was positively associated with support for anti-tobacco policies. Thrasher, Besley, and González (2010) found that individuals are more likely to support anti-tobacco policies when they believe regulatory authorities are procedurally fair and trust the fairness of outcomes of anti-tobacco policies. Regarding e-cigarettes, Sanders-Jackson et al.’s (2016) study showed that individuals who viewed e-cigarette regulations as the government’s intrusion into individual choices were less likely to support e-cigarette regulations. Research has shown that social media users generally displayed a negative attitude toward e-cigarette regulations and concerns over the harm of FDA regulations on the e-cigarette market (Lazard, Wilcox, Tuttle, Glowacki, & Pikowski, 2017).
Regarding the relationships between tobacco product use and perceptions of the FDA, research showed inconsistent results. Boynton et al. (2016) found no differences in trust in the FDA between smokers and nonsmokers. However, Kowitt et al.’s (2017) study indicated that smokers are more likely to show positive attitudes toward the FDA’s regulations on tobacco products, including e-cigarettes.

2.3 Third-person Perceptions

A substantial body of literature has shown that individuals’ perception of media effects is associated with their support for media censorship (Chung & Moon, 2016). In particular, researchers have demonstrated that individuals’ perceived media effects on vulnerable others lead to stronger support for regulating various media content such as television violence (Hoffner et al., 1999) and violent video games (Ivory & Kalyanaraman, 2009) and for state Internet control regarding political content (Bernhard & Dohle, 2014). Research has shown that individuals’ support for media censorship becomes stronger when they believe people other than themselves are more vulnerable to negative media content (Hoffner et al., 1999). Davison’s (1983) third-person effect (TPE) hypothesis postulated that individuals tend to overestimate the media’s effects on others and underestimate the media’s effects on themselves.

Ever since Davison postulated the TPE hypothesis, it has become one of the most referred-to theories in mass communication journals (Brynat & Miron, 2004). Third-person perceptions (TPPs) refer to individuals’ tendency to perceive greater media effects on others than on themselves (Davison, 1983). To explain the TPPs, Davison described the unintended effects of Japanese World War II propaganda. Although Japan intended to dissuade black U.S. soldiers from fighting in the Pacific theatre, the propaganda message
influenced White officers to pull out Black troopers. Davison suggested that this action could be based on the White officers’ perception that black troops would desert. Davison also found TPPs in his interview with West German journalists.

Davison also conducted research to demonstrate TPPs. He interviewed a number of journalists regarding the perceived effects of their editorials on others and themselves. He found that journalists tend to believe their editorials will have greater influence on readers than on themselves. By conducting a number of small experiments regarding politics, Davison found that individuals tend to perceive others as being more vulnerable to media effects.

2.4 Mechanism of the Third-Person Effect

A self-enhancement approach has been the prevailing explanation for the third-person effect phenomenon (Perloff, 1999). In this approach, researchers argue that the need for self-enhancement motivates individuals to maintain positive regard for themselves (Cho & Han, 2004). Gunther and Mundy (1993) argued that the self-enhancement motivation explains third-person effects well with regard to negative media content. Individuals can maintain and reinforce their positive self-esteem by thinking of themselves as being less vulnerable and less gullible to media influences. Research has shown that individuals tend to perceive greater levels of TPP when they view media content as negative or socially harmful (Lim, 2017). This relationship has been well-documented in studies with the context of various negative media content, such as violent rap music (McLeod et al., 1997), Internet porn (Lo & Wei, 2002), gambling advertisements (Youn et al., 2000), and electronic cigarette advertisements (Pardun, McKeever, & Bedingfield, 2017).
Researchers have investigated the TPPs of tobacco-related media content, including of tobacco advertising (Dina, Borzekowski, & Flora, 1999) and antismoking advertising or campaigns (Henriksen & Flora, 1999). Research has shown that individuals tend to perceive greater impacts of protobacco advertising on others than on themselves (Jensen & Collins, 2008). Researchers have claimed that individuals display TPPs regarding tobacco product advertising because they view tobacco products as harmful and socially unacceptable. However, when individuals view a certain tobacco product as less harmful or as being healthier (e.g., nicotine gum), they are more likely to perceive greater impacts of such content on themselves than on others (Banning, 2003). Individuals are also more likely to perceive stronger impacts of antismoking advertising on themselves than on others as they view such messages as being more socially desirable (Henriksen & Flora, 1999; Meirick, 2006). Based on previous studies’ findings on the relationship between negative media content and TPPs, the following hypothesis was investigated.

H1. Individuals will perceive greater impact of e-cigarette advertisements on others than on themselves.

2.5 Antecedents of Third-Person Perceptions

2.5.1 Social Distance Corollary

Since Davison (1983) articulated the TPE, researchers have further refined the theory by employing various other people as the referent group (Salmon et al., 2019). Individuals tend to view dissimilar others or out-group members as more susceptible to negative media messages than similar others or in-group members (Wei, Chia, & Lo, 2011). Using the social distance corollary, political affiliation (Banning, 2006), gender
(Lo & Wei, 2002), and race (David et al., 2002), researchers examined various groups as referent others to measure TPPs. Researchers have argued that TPPs would become stronger after asking individuals to estimate the media effects on their out-group members compared to the media effects on their in-group members (such as friends and family). This occurs because individuals tend to associate themselves with in-group members and disassociate themselves from out-group members. Thus, individuals could view out-group members as less intelligent and more vulnerable to persuasive media. For instance, Wei et al. (2011) found that Republican voters believed that election polls in the 2008 U.S. presidential election impacted Democratic voters more (as out-group members) than they did Republican voters (as in-group members). Researchers have used comparison groups beyond political ideology to measure TPPs (Meirick, 2005). Scharrer (2002) used comparison groups including gender, age, race, place of residence, and education to compare participants’ presumed effects of media on themselves and on others. Scharrer’s study (2002) showed that individuals viewed socially close groups as less susceptible to television violence compared to socially distant groups. For instance, male participants reported that other men would be less affected by television violence than women would be. Regarding other social distance, such as age and place of residence, the differences between socially close groups and socially distant groups were not significant. Regarding tobacco use, Pardun et al. (2017) recently found that nonsmokers perceive greater media effects on smokers than on themselves. In particular, Pardun et al. (2017) found that nonsmokers are more likely to display a negative attitude toward e-cigarettes, and this belief leads to higher levels of TPPs.
H2: Gaps in the perceived effects of e-cigarette advertising between oneself and others will increase as the social distance between the self and the comparison group increases.

2.5.2 **Message source credibility.** The perceived source credibility of a message plays an important role in persuasive communication (Schmidt, Ranney, Noar, & Goldstein, 2017). When individuals view a source of messages as being highly credible, they are more likely to be affected by the messages (Pornpitakpan, 2004). Source credibility appears to be associated with attitudinal (Pornpitakpan, 2004) and behavioral change (Jones, Sinclair, & Courneya, 2003). Research has shown that individuals tend to display more favorable attitudes toward a given message (Clow, James, Kranenburg, & Berry, 2006) and adopt recommended health behaviors (Jones, Sinclair, & Courneya, 2003) when they perceive the source as having credibility.

Researchers have posited that the perceived credibility of the organization depicting tobacco-related messages affects how individuals view those messages (Sternthal, Phillips, & Dholakia, 1978). Research has shown that individuals are more likely to display favorable attitudes toward tobacco products when they view tobacco companies as credible sources. For instance, those who view e-cigarette companies as credible sources reported lower perceived addictiveness of e-cigarettes (Case, Lazard, Mackert, & Perry, 2018). To counter tobacco companies’ messages, considerable efforts have been made to undermine the credibility of the tobacco industry (Thrasher & Jackson, 2006). Tobacco prevention messages that designed to disclose the deceitful practices of the tobacco industry could prevent adolescents’ use of tobacco products by increasing negative attitudes toward the tobacco industry (Hershey et al., 2005). Research
has shown that exposure to the national *truth* campaigns that aim to undermine the credibility of tobacco industry was associated with stronger negative attitudes toward the tobacco industry and lower likelihood to smoke among adolescents (Thrasher, Niederdeppe, Jackson, & Farrelly, 2006). Moreover, anti-industry appeared to prevent smoking among high sensational seeking and low sensational seeking adolescents (Thrasher et al., 2004).

Research has shown that source credibility is negatively associated with TPPs. Gunther (1991) found that TPPs became stronger when study respondents viewed the information source of a media message as being untrustworthy. Gunther and Mundy (1993) also found that individuals perceived greater TPPs when they viewed information in an advertisement, as compared to the same information in a news article. Individuals may think others are more vulnerable to media messages from less credible sources because they underestimate others’ capability to evaluate the sources of the presented media messages (Salmon et al., 2019).

H3. The source credibility of e-cigarette companies will be negatively associated with TPPs.

2.5.3 Social Undesirability of Media Content

Scholars have also argued that the presumed media effect’s desirability would lead to TPPs (Gunther & Mundy, 1993), and researchers have investigated the effect of prosocial and antisocial messages on TPPs (Lim, 2017). Most such studies have shown that individuals display TPPs more often when they view media messages as socially undesirable or harmful (Sun et al., 2008). Individuals apparently perceived TPPs more strongly with socially undesirable media content, such as gambling advertisements.
(Guerrero-Solé, Lopez-Gonzalez, & Griffiths, 2017; Youn, Faber, & Shah, 2000), ISIS recruitment advertising (Golan & Lim, 2016), and smoking advertising (Henriksen & Flora, 1999). In other words, individuals who view a certain media message as socially undesirable are more likely to hold TPPs and worry about such content’s negative effect on others (Lim, 2017).

However, researchers have reported no TPP or reversed TPPs when participants cannot clearly perceive a message’s social undesirability (Jang & Kim, 2018). Individuals even reported greater media effects on themselves than on others when they viewed the message as prosocial (Lim, 2017). Few studies have examined the relationship between prosocial media messages and the gaps between oneself and others in presumed media effects (Golan & Day, 2008). Research has shown that individuals perceive a greater impact from prosocial messages on themselves than on others, including from messages about responsible drinking and driving (Innes & Zeitz, 1988) and public service announcement (White & Dillon, 2000).

Research has shown that smokers have more positive attitudes toward and a higher interest in e-cigarettes than nonsmokers do (Smith, Bansal-Travers, O’Connor, Goniewicz, & Hyland, 2015). Researchers found that e-cigarette users, smokers, and those who use both combustible cigarettes and e-cigarettes (dual users) perceive lower levels of e-cigarette addiction compared to nonusers (Saddleson et al., 2015). E-cigarette users tend to hold more positive attitudes toward e-cigarettes compared to smokers or dual users (Schoren, Hummel, & Vries, 2017). Regarding types of tobacco products, smokers, e-cigarette users, and dual users believe that e-cigarettes are less harmful than combustible cigarettes (Berry, Burton, & Howlett, 2017). Researchers also found that
smokers display more favorable attitudes toward e-cigarette advertisements than nonsmokers do (Pardun et al., 2017). Studies also show that e-cigarette marketing exposure correlates with perceptions of e-cigarette use’s reduced health risks (Pokhrel, Fagan, Kehl, & Herzog, 2015). Pericot-Valverde, Gaalema, Priest, and Higgins (2017) found that current smokers, former smokers, and those who have used any smokeless cigarettes had low levels of the perceived harm of e-cigarettes. Thus, individuals’ perceived social undesirability of e-cigarette advertising probably depends on their perception of e-cigarette products’ harm. The following hypotheses were investigated:

H4. The perceived harm of e-cigarettes will be positively associated with (a) social undesirability of e-cigarette advertising and (b) TPPs.

H5. The social undesirability of e-cigarette advertising will be positively associated with TPPs.

2.5.4 Issue Relevance

Personal relevance refers to an individual’s perceived significance of an issue (Gotlieb & Sarel, 1991; Petty & Cacioppo, 1986). Individuals seek more information and evaluate a message more carefully when the message is relevant to them (Tewksbury, Moy, & Weis, 2004). Issue relevance appears to play an important role in shaping individuals’ attitudes toward media messages (Petty & Cacioppo, 1983; Visser, Krosnick & Simmons, 2003).

Researchers found that individuals who are strongly involved in an issue tend to overestimate media effects on others compared to those less involved (Perloff, 1989; Schoenbach & Becker, 1995). Smith, Ferrara, and Witt (2007) posited that individuals’ issue relevance could influence their presumed media effects regarding an issue. Highly
involved individuals could be far less likely to be influenced by media messages because they perceive themselves as more knowledgeable than others who are less involved (Gunther & Mundy, 1993). In turn, Andsager and White (2007) argued that issue relevance and interests lead individuals to perceive greater effects of media messages regarding the issue for others than for themselves.

Given the increasing popularity of e-cigarette use among minors, it is possible that individuals with teenage children are more involved in e-cigarette advertising and regulations. Compared to those who do not have adolescent children, individuals with teenagers in the household could view e-cigarette advertisements as more personally relevant and believe they are more aware of the advertisements than others. Although parents are considered essential stakeholders in tobacco policy implementation, little is known about how parents view and support e-cigarette-related regulations (Czaplicki et al., 2020). A recent study conducted by Czaplicki et al. (2020) showed that parents are more likely to support restrictions on e-cigarette marketing to minors and banning flavored e-cigarette sales.

Regarding tobacco product advertising, non-users could perceive more issue relevance than current users because they could view the tobacco industry as seeking new users and targeting those who do not currently use tobacco products. Pardun et al.’s (2017) study also showed that nonsmokers and smokers display different attitudes toward e-cigarette advertisements. In terms of concerns over e-cigarette advertisements, non-smokers showed more negative attitudes toward e-cigarette advertisements and thus perceived greater effects of those advertisements on others compared to smokers’ TPPs.

Therefore, the following hypotheses were investigated.
H6. Third-person perceptions of e-cigarette advertisements will be greater among current e-cigarette users than those who do not use e-cigarettes.

H7. Third-person perceptions of e-cigarette advertisements will be greater among individuals with a teenager in their household than those without a teenager in their household.

H8. The presence of teenagers in a household will be positively associated with social undesirability of e-cigarette advertisements.

H9: Current e-cigarette use will be negatively associated with the social undesirability of e-cigarette advertisements.

2.5.5 Other–Self Exposure Gap

Researchers have viewed individuals’ perceived exposure to media content as an important predictor of the presumed media effects on others (Eveland, Nathanson, Detenber, & McLeod, 1999; Paek & Gunther, 2007). Research has shown that individuals’ perceived exposure to media content predicts TPPs (Lim, 2017). Shen and Huggins (2013) argue that individuals tend to perceive media effects on others as stronger when they think others are frequently exposed to the media content. Shen and Huggins (2013) explained that individuals estimate others’ exposure to media messages based on their perceived exposure and that perceived others’ exposure leads to TPPs.

Researchers have begun to further investigate whether gaps in perceived exposure between oneself and others predicts TPPs. Researchers have claimed that individuals tend to believe others—more than themselves—have more frequent exposure to socially undesirable media content (Lim, 2017). By overestimating others’ exposure to socially undesirable media content, individuals could overestimate others’ vulnerability to
negative media content (Golan & Lim, 2016). Lambe and McLeod (2005) argued that individuals’ perceived exposure could predict TPP better than other predictors, such as media messages’ social desirability.

For instance, Lim (2017) examined individuals’ perceptual gap between oneself and others in exposure to cosmetic surgery marketing. Lim’s (2017) study showed that individuals tend to believe others—more than themselves—have more frequent exposure to cosmetic surgery marketing. This perceptual gap led to higher levels of TPPs (Lim, 2017).

H10: The gap in self–other exposure to e-cigarette advertising will be positively associated with TPPs.

2.6 Behavioral Components of the Third-person Effect

Researchers have noted that the third-person effect could motivate individuals or key decision-makers to act (Salmon et al., 2019). Research has shown that TPPs influence individuals’ cognitive, attitudinal, and behavioral responses regarding media effects (Chung & Moon, 2016). As Davison (1983) noted regarding white officers’ reactions to Japanese propaganda, a substantial body of literature showed a positive relationship between individuals’ TPPs and their various behavioral intentions. Salmon et al. (2019) noted that TPPs could influence individuals’ various behaviors, including supporting media censorship (restrictive behaviors) and educating others regarding potential harm from negative media content (corrective action). Empirical studies have shown that individuals’ behaviors concerning counting anticipated media effects vary across various media content.
2.6.1 Media Censorship as a Restrictive Action

Although Davison (1983) did not specify the types of behaviors resulting from TPPs when he developed the TPP concept, a substantial number of TPE studies focused on restrictive behaviors as behavioral TPE components (Chung & Moon, 2016). The restrictive behaviors tested in TPE studies mainly include individuals’ support for media censorship (Salmon et al. 2019). Gunther (1995) argued that TPPs predict support for media censorship more strongly than individuals’ presumed media effect on themselves or on others. Researchers have argued that TPPs lead to stronger support for media censorship of media messages to counter the anticipated negative media effects on vulnerable others (Chung & Moon, 2016). Researchers have hypothesized that TPPs increase intentions to support media censorship because people want to protect vulnerable others from potentially harmful media content (Xu & Gonzenbach, 2008).

Many researchers focused on individuals’ support for media censorship because many TPE studies concerned negative media content. For example, research on ISIS recruitment messages (Golan & Lim, 2016), Internet porn (Lo & Wei, 2002), and pro-smoking advertisements (Henriksen & Flora, 1999) showed a positive relationship between individuals’ TPPs and support for media censorship of such content. Regarding tobacco advertising, researchers consistently found a positive relationship between TPPs and support for regulations on tobacco advertising (Henriksen & Flora, 1999; Meirick, 2005; Pardun et al., 2017).

H11: TPPs will be positively associated with individuals’ support for regulating e-cigarette advertising.
2.6.2 Corrective Action

In addition to media censorship, a growing number of scholars have begun investigating behaviors other than restrictive behaviors (Lim, 2017). Salmon et al. (2019) noted that TPPs drive corrective behaviors. Corrective actions try to counter the effects of harmful media messages by focusing on audiences rather than on messages. Corrective actions involve correcting or contradicting anticipated biases, risks, or harms (Barnidge & Rojas, 2014; Jang & Kim, 2018) by sharing contrary information (Golan & Lim, 2016) and participating in discursive activities, such as petitions (Lim, 2017).

Research has shown that TPPs are positively associated with individuals’ corrective actions. Ye et al. (2008) found that people who perceived reality TV shows as having a more negative impact on others than on themselves displayed a greater likelihood of engaging in educational behaviors. Jang and Kim (2018) also found that TPPs regarding fake news led to support for media literacy intervention, but TPPs showed no association with support for fake news regulations. Lim (2017) also found that TPPs regarding online advertising of cosmetic surgery led individuals to engage in corrective actions, including complaining to the FTC about the ads and warning others about the potential risks of cosmetic surgery.

H12: TPPs will be positively associated with individuals’ corrective actions.

2.6.3 Predictors of Support for Regulations and Corrective Action

Despite various potential determinants of individuals’ support for regulations and corrective action, previous studies did not include such factors when testing the relationship between TPPs and behavioral intentions. Research on correlates of individuals’ support for regulations of combustible cigarettes and e-cigarettes identified
current tobacco product use (Gorukanti, Delucchi, Ling, Fisher-Travis, & Halpern-Felsher, 2017; Mello et al., 2015), socio-economic status (Kowitt, Schmidt, Hannan, & Goldstein, 2017), perceived harm of e-cigarette use (Sanders-Jackson et al., 2016), and presence of adolescents in the household (Hamilton et al., 2005; Hitchman, Fong, Zanna, Hyland, & Bansal-Travers, 2010) as predictors of support for regulations. The relationship between these factors and support for regulation appeared to vary among regulation types, such as reducing nicotine in combustible cigarettes and a flavoring ban (Kowitt, Schmidt, Hannan, & Goldstein, 2017).

Regarding the correlates of individuals’ support for e-cigarette regulations, little is known about what predicts individuals’ support for regulations limiting minors’ exposure to e-cigarette advertisements and regulations on flavored e-cigarette sales and advertisements. Therefore, the following research questions were investigated.

RQ1: What is the relationship between the presence of a teenager in the household, perceived harm of e-cigarette use, socio-demographics, and support for regulations?

RQ2: What is the relationship between the presence of a teenager in the household, perceived harm of e-cigarettes, socio-demographics, and corrective action?

### 2.7. Third-person Perceptions and the Perceived Media Effect on Others

Most TPE scholars have examined support for media censorship as a behavioral component of TPE, but research has shown inconsistent results about TPPs’ relationship to support for media censorship (Chung & Moon, 2016). Some researchers found no relationship between TPPs and support for media censorship (Jang & Kim, 2018; Lo & Wei, 2002; Price, Tewksbury, & Huang, 1998).
Although individuals’ perceived credibility of regulatory authorities plays an important role in forming regulation support, most TPE studies have not examined individuals’ perceptions regarding the credibility of regulatory authorities. Pornpitakpan (2004) argued that credibility of an organization’s message is a key factor to persuade audiences. Researchers have found that lower levels of source credibility leads to lower perceived effectiveness of regulations (Rhee & Fiss, 2014).

However, very few studies have measured and examined the relationship between source credibility of tobacco control organizations and individuals’ support for tobacco control (Schmidt, Ranney, Noar, & Goldstein, 2017). More recently, a growing number of researchers have found that beliefs about the credibility of the FDA predict individuals support for banning candy and fruit-flavored e-cigarettes (Blackman et al., 2019; Schmidt, Kowitt, Myers, & Goldstein, 2018). Thus, low perceived credibility of the FDA may moderate the relationship between TPPs and support for the FDA’s e-cigarette advertising regulations. In other words, those who do not view the FDA as a credible source for tobacco control may not support e-cigarette advertising regulations even if they worry about negative effects of e-cigarette advertising on vulnerable others. On the other hand, those who perceive FDA as credible source could be more likely to support regulations on e-cigarette advertising when they perceive greater TPPs. Thus, the following research question was investigated.

RQ3: Does the credibility of the FDA moderate the relationship between TPPs and support for regulating e-cigarette advertising?

Researchers provide various explanations for a nonsignificant relationship between third-person perceptions (TPPs) and support for media censorship. Lo and Wei
(2002) found no relationship between TPPs of internet pornography and support for media censorship. They suggested using perceived media effects on others (PME3) rather than gaps between media effects on self and others to predict individuals’ support for media censorship. Using a meta-analysis of 13 previous TPE studies, Chung and Moon (2016) also concluded that PME3 predicts support for media censorship more strongly than TPPs do.

More recently, a few studies examined the relationship between PME3 and the behavioral components of TPPs. Baek, Kang, and Kim (2019) investigated whether individuals perceive greater effects of fake news on others than themselves and how the presumed media effects predict individuals’ support for regulations on fake news. Baek et al. (2019) found that individuals believed others more than themselves would be influenced by fake news. Instead of calculating the gap between perceived effects of fake news on self and others, Baek et al. (2019) examined the relationship between PME3 and support for regulations prohibiting fake news. The results showed that PME3 is positively associated with support for regulations on fake news.

Cheng and Chen (2020) further investigated the relationship between PME3 and behavioral components of TPPs by adding individuals’ likelihood of engaging in corrective action as a behavioral component and compared a hypothetical model using PME3 with the TPP model. Using a structural equation modeling approach, the results indicated that PME3, compared to TPPs, better predicts individuals’ support for regulation sand corrective action (Cheng & Chen, 2020). The model using PME3 as a predictor of support for regulations and corrective action met statistically acceptable
model fit, whereas the model with TPPs did not. Thus, the following research question was investigated.

RQ4: What is the relationship between the perceived effects of e-cigarette advertisements on others and support for regulations and corrective action?

Figure 2.1 and Figure 2.2 present the hypothetical models.
Figure 2.1. Proposed Model with Third-Person Perceptions. Dotted lines represent negative associations
Figure 2.2 Proposed Model with the Perceived Effects of E-cigarette Advertisements on Others. Dotted lines represent negative associations.
CHAPTER 3

METHOD

3.1 Survey

To examine the hypotheses and research questions, this study employed an online survey to collect data. Third-person effect (TPE) studies have employed either surveys or experiments (Paul et al., 2010). In a meta-analysis of 121 TPE studies, Paul et al. (2017) revealed that 97 of the studies (80%) employed surveys to assess the third-person effect. According to Jie et al.’s (2008) meta-analysis of 10 TPE studies, only one employed an experiment. Perloff (1999) argued that the setting of an experiment could lead study subjects to not admit the effects of undesirable messages. It is possible that university students who participate in a third-person effect study in a university setting would be reluctant to admit to being impacted by negative media content because students are expected to have independent thinking and, thus, not be as persuaded by persuasive messages (Perloff, 1999). Also, the presence of experiment administrators and other subjects in a lab could lead participants to deny being influenced by negative media messages. Although an online experiment may resolve this limitation as subjects can take the study in nonthreatening setting, it is difficult to ensure that participants pay sufficient attention to study stimulus with the absence of an experimenter who monitors the subjects’ participation.
In addition, Duck, Terry, and Hogg (1995) found that individuals’ perceived media effects on others and themselves vary depending on the quality of messages they view. To be specific, Duck, Terry, and Hogg (1995) found that individuals perceived greater impact of public service advertisements related to AIDS on others than themselves when they viewed low quality advertisements. However, individuals reported that high quality public service advertisements related to AIDS have greater impact on themselves than others. Thus, it is possible that the participants’ perception of media effects on others and themselves vary depending on their evaluation on the perceived quality of experimental stimulus. However, conducting a survey to examine TPPs involves some limitations. Salmon et al. (2019) argued that most TPE studies were not designed to test the causal relationship between TPPs and the behavioral components of TPE studies. Salmon et al. (2019) further recommended conducting a longitudinal study to assess whether TPPs last sufficiently long to lead to actual behaviors.

An online survey was created by using Qualtrics software and survey questions were entered into the Qualtrics survey system. The survey was published on Amazon Mechanical Turk (MTurk) to collect data. An online crowdsourcing marketplace, MTurk allows researchers recruit participants for varying compensations (Brawley & Purdy, 2016). Participants who completed the survey received a monetary incentive (70 cents) via MTurk. Researchers found that samples obtained from MTurk are more diverse and representative compared to traditional college-student samples (Behrend, Sharek, Meade, & Wiebe, 2011) and to samples obtained from other professional online panels (Woods, Velasco, Levitan, Wan, & Spence, 2015). MTurk samples have also been widely used in health-related research (Chivers, Hand, Priest, & Higgins, 2016). In health research literature, a sample obtained from MTurk has been found comparable to those collected
from other panels, and MTurk is recommended for health-related research (Mortensen & Hughes, 2018).

Studies have also shown that the MTurk sample’s response quality exceeds the sample from other professional panels, such as Qualtrics (Kees, Berry, Burton, & Sheehan, 2017). For instance, the MTurk sample more likely provided correct answers to attention-check questions compared to student samples and to samples from Qualtrics and Lightspeed (Kees, Berry, Burton, & Sheehan, 2017).

3.2 Sample

A convenience sample of e-cigarette users and nonsmokers in the United States was recruited. The sample included adults who are adults older than 20 because the FDA raised the minimum legal age to purchase tobacco products, including e-cigarettes, to 21 in December 2019 (FDA, 2019). To examine the impact of having a teenage child in the household on TPPs and support for regulations on e-cigarette advertisements, individuals who had at least one teenager in the household and those who did not have a teenager in the household were included in the sample. A total of 531 participants, including those who had a teenage child in the household \( (n = 261) \) and those who did not have a teenage child in the household \( (n = 270) \) were recruited via MTurk.

A pretest was conducted to check the validity and reliability of the survey questions, wording, and fluency in June 2020. Pretest participants were recruited via MTurk and received $.70 as monetary incentive. A total of 70 participants for the pretest was recruited. The results of the pretest indicated that all scales met acceptable scale reliability. Based on the results of the pretest, the wording of questionnaire items were revised for clarity.
Prior to launching the pretest, the Institutional Review Board’s approval from the University of South Carolina was obtained to meet ethical standards regarding the treatment of human subjects by submitting the research protocol to the Institutional Review Board. The protocol included the study’s nature, such as its purpose and the potential risk to subjects, their anonymity, and their confidentiality. To ensure the survey responses’ confidentiality, all identifiable information besides the MTurk account number was removed. Participants’ MTurk account number was also replaced by a random number after data collection.

3.3 Measurements

3.3.1 Third-Person Perceptions. TPPs were measured by asking respondents about the perceived media impact on themselves and on various groups of others—including adult e-cigarette users, adult non-e-cigarette users, teenage e-cigarette users, and teenage non-e-cigarette users. TPPs were calculated by subtracting the presumed media effects on oneself from the presumed media effects on varying others. The higher numbers represent stronger TPPs. Four TPPs were computed: between oneself and adult e-cigarette users, between oneself and adult non-e-cigarette users, between oneself and teenage e-cigarette users, and between oneself and teenage non-e-cigarette users.

A 7-point Likert-type scale adapted from prior works was used to measure TPPs (Pardun et al., 2017). Participants were asked to indicate perceived effects of e-cigarette advertisements on themselves and on varying others including adult e-cigarette users, adult non-e-cigarette users, teenage e-cigarette users, and teenage non-e-cigarette users. The questions are “E-cigarette advertisements would make me want to use e-cigarettes ($M = 4.43, SD = 1.66$),” “E-cigarette advertisements would make other adult e-cigarette users want to use e-cigarettes ($M = 4.81, SD = 1.43$),” “E-cigarette advertisements would
make other adult non e-cigarette users want to use e-cigarettes ($M = 4.74, SD = 1.48$),”
“E-cigarette advertisements would make teenage e-cigarette users want to use e-cigarettes
($M = 5.05, SD = 1.37$),” and “E-cigarette advertisements would make teenage non e-
cigarette users want to use e-cigarettes ($M = 4.98, SD = 1.37$).”

**3.3.2 Perceptual Gaps in Exposure to Electronic Cigarette Advertising.** To
measure individuals’ perceptual gaps in exposure to e-cigarette advertisements between
themselves and others, two items on a 5-point Likert-type scale anchored from 1 (never)
to 5 (always) were adapted from Rosenthal et al. (2018). The same comparison groups
used to measure TPPs were employed. The questions are “How often do you encounter e-
cigarette advertisements? ($M = 3.07, SD = 1.0$),” “How often do you think other adult e-
cigarette users encounter e-cigarette advertisements? ($M = 3.14, SD = 1.04$),” “How often
do you think other adult non e-cigarette users encounter e-cigarette advertisements? ($M =
3.16, SD = 1.08$),” “How often do you think teenage e-cigarette users encounter e-cigarette
advertisements? ($M = 3.22, SD = 1.09$),” and “How often do you think teenage non e-
cigarette users encounter e-cigarette advertisements? ($M = 3.13, SD = 1.03$).” The
perceptual gaps in e-cigarette advertisement exposure was obtained by subtracting one’s
e-cigarette advertising exposure from others’ exposure to e-cigarette advertising with
higher numbers indicating stronger gaps.

**3.3.3 Perceived harm of e-cigarettes.** Individuals’ perceived harm of e-cigarette
use was measured via five items on a 7-point Likert-type scale from 1 (strongly disagree)
to 7 (strongly agree) adopted from prior works (Waters, Mueller-Luckey, Levault, &
Jenkins, 2017). The five items are “The more I use e-cigarettes, the more I risk my
health,” “By using e-cigarettes, I risk mouth cancer,” “By using e-cigarettes, I risk lung
cancer,” “By using e-cigarettes, I risk damaging my teeth and gums,” and “Breathing
vapors from other people’s e-cigarettes is harmful to one's health” (M = 5.07, SD = 1.23, Cronbach’s α = .89).

3.3.4 Social undesirability of electronic cigarette marketing. Adapted from prior works (Jang & Kim, 2018; Lim, 2017; Sun, Shen, & Pan, 2008), the social undesirability of electronic cigarette advertising was measured by four 7-point semantic-differential scales anchored as desirable/undesirable, positive/negative, beneficial/harmful, and benign/detrimental (M = 4.72, SD = 1.49, Cronbach’s α = .91).

3.3.5 Source Credibility. Participants were asked to rate the credibility of the U.S. Food and Drug Administration and e-cigarette companies. Three 7-point semantic-differential scales adapted from prior work (Eisend, 2006; Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003) were used. The three items are dishonest/honest, insincere/sincere, and untrustworthy/trustworthy. The scale showed an acceptable reliability for source credibility of the FDA (M = 5.01, SD = 1.29, Cronbach’s α = .86) and e-cigarette companies (M = 4.49, SD = 1.58, Cronbach’s α = .90).

3.3.6 Support for Regulations on E-Cigarette Advertising. Participants’ support for two different types or regulations, including regulations limiting minors’ exposure to e-cigarette advertisements and regulations banning flavored-e-cigarette sales and advertisements, were measured using four items on a 7-point scale from the previous research (Majmundar 2019; Pardun, McKeever, & Bedingfiled, 2017). Participants were asked to rate their intentions to support regulations on e-cigarette advertisements, where teenagers could see e-cigarette advertisements using two items: “The FDA should limit advertising for electronic cigarettes in media where teens are likely to see it” and “The FDA should limit advertising for electronic cigarettes in media channels where teens are likely to see it” (M = 5.22, SD = 1.28, Spearman-Brown α = .78). The two items used to
measure participants’ support for regulations on flavored-e-cigarette sales and advertisements are “The FDA should restrict tank-style electronic cigarettes' flavorings” and “The FDA should restrict flavored e-cigarette advertisements” ($M = 5.16$, $SD = 1.28$, Spearman-Brown $\alpha = .76$).

3.3.7 Corrective action. Individuals’ likelihood to engage in corrective action was assessed using four items on a 7-point scale from prior research (Golan & Lim, 2016). The four items are “I would warn others about the health effects of electronic cigarette use,” “I would share anti-electronic cigarette campaigns with others,” “I would post a link to a news report about the problem of e-cigarette products,” and “I would submit a complaint to FDA about e-cigarette advertisements ($M = 4.83$, $SD = 1.39$, Cronbach’s $\alpha = .88$).”

3.3.8 Electronic Cigarette Use Status. Participants were asked to indicate their use of e-cigarettes in the past 30 days. Researchers operationalized individuals’ e-cigarette use by asking about their use of e-cigarette products in the past 30 days (McConnell et al., 2017). Participants who reported e-cigarette use in the past 30 days were coded as current e-cigarette users. Those who have never used e-cigarettes or have used e-cigarettes but not in the past 30 days were coded as non-e-cigarette users.

3.3.9 Presence of Teenage Child in Household. At the beginning of the survey, participants were asked to indicate the number of teenage children in their household. Those who reported that they have at least one teenage child in the household were coded as 1, and those who do not have a teenage child in the household and those who do not have a child in the household were coded as 0.
3.4 Control Variables

3.4.1 Electronic Cigarette Advertising Exposure. Individuals’ exposure to e-cigarette advertising was measured by adopting prior works (Mantey et al., 2016). Participants were asked to indicate how often they encounter e-cigarette advertising from various media, including television, magazines, newspapers, social media, and the Internet, using a 4-point scale anchored from 1 (never) to 4 (5 or more times). Participants were also asked to indicate how often they encounter e-cigarette advertising at the point of sale, such as at convenience stores and gas stations. The items were averaged ($M = 2.61, SD = 0.69$).

3.4.2 Perceived Relative Harm of E-Cigarettes Compared to Tobacco Cigarettes. Individuals’ perceived harm of e-cigarettes compared to tobacco cigarettes was directly measured by asking participants to compare the perceived harm of e-cigarettes with combustible cigarettes. Participants’ perceived relative harm of e-cigarettes compared to combustible cigarettes was measured using a 3-point Likert-type scale, including 1 (less harmful), 2 (equally harmful), and 3 (more harmful), with the option of “I do not know” adopted from a prior work (Ambrose et al., 2014). The questions is, “Is using e-cigarettes less harmful, about the same level of harm, or more harmful than smoking regular cigarettes?” ($M = 1.91, SD = 0.71$).

3.4.3 Perceived Gateway Effects of E-Cigarette Use. Participants were asked to indicate the likelihood that teenage non-e-cigarette users use combustible cigarettes or drugs as a result of using e-cigarette products. Two items are “E-cigarette use would lead teenage non-e-cigarette users to use traditional cigarettes” ($M = 4.79$, $SD = 1.63$) and “E-cigarette use would lead teenage non e-cigarette users to use drugs” ($M = 4.80$, $SD = 4.42$).
3.5 Data Analysis

This study is intended to test individuals’ perceptual gaps in the media effects on oneself and others (TPPs), what can predict the gaps, and the associations between the gap and their behavioral intentions. A set of paired t-tests were performed to confirm TPPs between oneself and varying others. TPPs were calculated by subtracting individuals’ perceived effects of e-cigarette advertising on themselves from the perceived effects of e-cigarette advertising on varying others. “Others” includes other e-cigarette users, other non-e-cigarette users, and minors. Each group was separately used as comparison groups to obtain the gaps in the perceived effects of e-cigarette advertising between oneself and others. SPSS (version 26) was used for paired t-tests and descriptive data analyses. Mplus (version 8) was used to run moderation analyses and test hypothesized models’ model fit via structural equation modeling (SEM).

3.5.1 Statistical Assumption Tests

Prior to test the proposed models, statistical assumptions, such as normality of the data and multicollinearity between predicting variables was checked. Researchers have noted that it is critical to check normality and other statistical assumptions because violating these assumptions result in inaccurate and unreliable conclusion about reality (Altman, & Bland, 1995; Driscoll et al., 2000; Hahn & Meeker, 1993). Skewness and Kurtosis tests was performed to check the normality of the data. Skewness explains the magnitude of asymmetry in a distribution (Hopkins & Weeks, 1990).

Multicollinearity among independent variables was checked using variance inflation factor (VIF) tests via SPSS regression tests. The VIF tests allow researchers to identity correlation between independent variables and the strength of the relationship. Although there is no universal agreement on VIF cutoff values, VIF values that exceed
10 are considered to indicate multicollinearity (Belsley et al., 1980; Vatcheva et al., 2016). In other words, VIF values greater than 10, indicated the obtained regression coefficients are poorly estimated due to significant multicollinearity (Midi et al., 2010).

3.5.2 Scale Reliability

To test the reliability of measures used in this study, confirmatory factor analysis (CFA) was performed. CFA is a theory driven confirmatory technique that allows researchers to test theoretically hypothesized models among observed and unobserved variables (Schreiber et al., 2006). CFA is also often used to develop measurements and check construct validity (Brown, 2006; Russell, 2002).

Although exploratory factor analysis (EFA) and CFA are widely used, CFA is a more theoretically driven technique, whereas EFA is a data driven approach without specifying number of factors or factor loadings (Brown & Moore, 2012). In CFA, the number of factors and the indicator–factor loadings are pre-specified based on strong empirical or conceptual foundation. Given the nature of this study as testing hypothetical models guided by TPE theory, it is appropriate to employ CFA rather than EFA. After running CFA, items with factor loading smaller than 0.5 were eliminated based on minimum factor loading cutoff values suggested by Hair et al. (1997).

3.5.3 Model Test

To test the proposed hypothetical model, structural equation modeling (SEM) with maximum likelihood estimation was employed. SEM has become an essential statistical technique for academics and business practitioners (McQuitty & Wolf, 2013). SEM has also become a popular statistical analysis to test theories and theory-based models in various academic disciplines (Bryan et al., 2007). When it comes to TPPs research, SEM has been widely used in various contexts, such as the imported U.S beef
controversy in Taiwan (Lo et al., 2015) and internet pornography (Lee & Tamborini, 2006; Zhao & Cai, 2008).

To test model fit, the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) was used. According to the cut-off criteria suggested by Hu and Bentler (1999), CFI needs to be no smaller than 0.95, RMSEA estimate should be smaller than 0.06, and SRMR should be smaller than 0.8.

3.5.4 Moderation Test

To answer research question3, a moderation test was performed. Participants’ perceived source credibility of the FDA was used as moderator. Prior to creating the interaction term between the source credibility and TPPs, both variables were mean centered. Mean centering is the technique used to subtract a variable’s mean from all cases on that variable and thus the variable’s new mean score is equal to zero (Iacobucci et al., 2016). Researchers have recommended to standardize including mean-centering-the predictor variables to reduce multicollinearity because regression models, including interaction terms, include both main effects and the interaction terms (Jaccard et al., 1990; Marquardt, 1980).
CHAPTER 4

RESULTS

This chapter outlines some characteristic of respondents and the results of research questions and hypothesis tests. Respondents’ socio-economic characteristics and other information regarding their perceptions of and use of tobacco products including e-cigarette use. Prior to reporting the results of research questions and hypotheses tests, the results of the proposed model fit test via structural equation model are reported as well as multicollinearity test results. Findings from each hypothesis test and research questions are followed with some interpretation of the results.

4.1 Demographic Information of the Participants

The data was collected between June 18 and June 22, 2020. A total of 600 responses was initially collected. The validity of the responses was checked by using three questions regarding the presence of a teenage child in the household. At the beginning of the survey, participants were asked to answer a series of questions regarding their children. Participants were asked to indicate whether there was a teenager in their household, the total number of children in their household, and the ages of their oldest and youngest children. A total of 69 participants provided incorrect answers. For instance, some participants indicated that they had a teenage child in their household; however, when they were asked to provide their youngest and oldest children’s ages, they reported that their oldest and youngest children were older than 20 or under 10, respectively. After eliminating these responses, a total of 531 responses remained.
Of the 531 participants, 261 (49.2%) reported that they had a teenage child in their household, and 270 (50.8%) indicated that they did not have a teenage child or that all of their children were older than 20 or younger than 10 years old. On average, participants had one child \((M = 1.47, SD = 0.85)\), with the average age of their oldest child being 10.48 \((SD = 7.91)\). Of the 531 participants, 293 (55.2%) were male and 234 (44%) were female. Four participants (0.8%) did not provide their gender. The average age of participants was 39.62 years old \((SD = 9.3)\) ranging from 21 to 70. Of the participants, 395 (74.4%) were White, followed by African American \((n = 66, 12.4\%)\), Hispanic \((n = 31, 5.8\%)\), Asian \((n = 23, 4.3\%)\), and others \((n = 16, 3\%)\).

Regarding e-cigarette use, 218 (41.1%) participants reported that they used e-cigarettes during the past 30 days. During the past 30 days, participants encountered e-cigarette advertisements 1–4 times on television \((n = 336, 63.3\%)\), 1–4 times in magazines \((n = 314, 58.4\%)\), 3 times or more in newspapers \((n = 258, 58.6\%)\), 3 times or more on social media \((n = 329, 62\%)\), 3 times or more on the internet other than social media \((n = 323, 60.8\%)\), 3 times or more at the places where tobacco products are sold \((n = 346, 65.1\%)\), and 3 times or more at the stores where an electronic cigarette equipment is sold \((n = 330, 62.1\%)\). Full characteristics of participants are shown in Table 4.1.

4.2 Test of Third-Person Perceptions

Prior to the testing of the research questions and other hypotheses, H1 was first tested to examine whether individuals displayed greater impacts of e-cigarette advertisements on others than themselves. Other adult e-cigarette users, adult non-e-cigarette users, teenage e-cigarette users, and teenage non-e-cigarette users were used as the comparison groups. Paired sample \(t\)-tests were performed to compare participants’
perceived impacts of e-cigarette advertisements on the self with the impacts of e-cigarette advertisements on each comparison group. The participants reported a greater impact of e-cigarette advertisements on adult e-cigarette users ($M = 4.81$, $SD = 1.43$), $t(530) = 5.96$, $p < .001$, adult non-e-cigarette users ($M = 4.74$, $SD = 1.48$), $t(530) = 5.08$, $p < .001$, teenage e-cigarette users ($M = 5.05$, $SD = 1.37$), $t(530) = 9.0$, $p < .001$, teenage non-e-cigarette users ($M = 4.98$, $SD = 1.37$), $t(530) = 8.27$, $p < .001$, versus themselves ($M = 4.43$, $SD = 1.66$). Thus, H1 was supported.

H2 predicted that TPPs would increase as the social distance of the comparison group increased. Four groups (adult e-cigarette users, adult non-e-cigarette users, teenage e-cigarette users, and non-e-cigarette users) were used as comparison groups to test whether participants perceived greater effects of e-cigarette advertisements on each comparison group compared with themselves. The participants were divided into two groups based on their e-cigarette use. Those who used e-cigarettes in the past 30 days were coded as current e-cigarette users ($n = 218$, 41.1%), and those who had not were coded as non-e-cigarette users ($n = 313$, 58.9%). A series of paired sample $t$-tests were performed (See Table 4.2). Non-e-cigarette users perceived greater effects of e-cigarette advertisements on adult e-cigarette users ($M = 4.65$, $SD = 1.50$), $t(312) = 6.41$, $p < .001$, adult non-e-cigarette users ($M = 4.54$, $SD = 1.55$), $t(312) = 6.04$, $p < .001$, teenage e-cigarette users, ($M = 4.95$, $SD = 1.44$), $t(312) = 8.85$, $p < .001$, and teenage non-e-cigarette users, ($M = 4.84$, $SD = 1.44$), $t(312) = 8.24$, $p < .001$, compared with the effects on the self ($M = 4.07$, $SD = 1.81$). Four TPPs were calculated by subtracting the perceived effects of e-cigarette advertisements on the self from each comparison group. A series of paired sample $t$-tests were used to examine whether individuals’ perceived
gaps in the effects of e-cigarette advertisements between a comparison group and themselves became larger when the social distance from the self of the comparison group increased. The results of the paired sample t-tests indicated that non-e-cigarette users’ TPPs became larger when teenagers were used as the comparison group. TPPs between the self and teenage e-cigarette users ($M = 0.77$, $SD = 1.65$) were larger than the TPPs between the self and adult e-cigarette users ($M = 0.47$, $SD = 1.38$), $t(312) = 3.84$, $p < .001$. The same pattern was detected when adult and teenage non-e-cigarette users were used as the comparison group. Non-e-cigarette users displayed higher gaps between the self and teenage non-e-cigarette users ($M = 0.77$, $SD = 1.65$) compared with the TPPs between themselves and adult non-e-cigarette users ($M = 0.47$, $SD = 1.38$), $t(312) = 4.18$, $p < .001$. When adult e-cigarette users and non-users were used as comparison groups, the gaps in the perceived effects on the self and each group were not significant, $t(312) = 1.46$, $p = .15$, and the same was true between teenage e-cigarette users and non-users, $t(312) = 1.43$, $p = .16$.

Regarding current e-cigarette users, they displayed higher effects of e-cigarette advertisements on teenager e-cigarette users ($M = 5.21$, $SD = 4.94$), $t(217) = 3.07$, $p < .01$ and teenager non-e-cigarette users ($M = 5.17$, $SD = 1.25$), $t(217) = 2.66$, $p < .01$ compared with the effects on the self ($M = 4.94$, $SD = 1.26$). However, current e-cigarette users’ TPPs did not differ when the comparison groups were other adult e-cigarette users ($M = 5.05$, $SD = 1.3$), $t(217) = 1.16$, $p = .25$ and non-users ($M = 4.94$, $SD = 1.35$), $t(217) = 0.74$, $p = .46$. Given the absence of TPPs when the comparison groups were adult e-cigarette users and non-users, current e-cigarette users’ perceived gaps in the effects of e-cigarette advertisements between the self and teenage e-cigarette users were compared.
with the gaps between the self and teenage non-e-cigarette users. No difference was found between the TPPs between the self and teenage e-cigarette users \((M = 0.26, SD = 1.26)\) and the TPPs between the self and teenage non-e-cigarette users \((M = 0.22, SD = 122)\), \(t(217) = 0.47, p = .64\). Thus, H2 was supported.

4.3 Model Test

A structural equation model with maximum likelihood estimation was specified in order to test the remaining hypotheses and research questions. Prior to the testing of the proposed model, multicollinearity between the exogenous variables was assessed using a variance inflation factor (VIF) test. The results of the tests indicated that all VIF values were smaller than the recommended cutoff value of 10 (Belsley, Kuh, & Welsch 1980).

Several criteria were used to assess whether the data fit the hypothesized model. Specifically, this study adopted Hu and Bentler’s (1998) proposed cutoff values for model fit indices. In order for the model to be deemed as providing an adequate fit, the comparative fit index (CFI) should be at or near a value of .95, with neither the root mean square error of approximation (RMSEA) or standardized root mean square residual (SRMR) exceeding a value of .08.

Based on these apriori cutoff values, the proposed model showed a satisfactory model fit, \(\chi^2 (310) = 632.49, p < .001, \chi^2/df = 2.04, CFI = .96, RMSEA = .04\), with a 90% confidence interval ranging from .04 to .05, and with SRMR = .07 (See Figure 4.1). Table 4.3 shows the correlations among variables in the proposed model. Of the sociodemographic variables, education levels and age were included to predict individuals’ support for regulations or their likelihood to engage in corrective action. Other variables, including income, race, political ideology, and gender, were excluded in
the model because the variables were not associated with any endogenous variables. The confirmatory factor analysis results are provided in Table 4.4.

4.4 Research Questions and Hypothesis Tests Results

4.4.1 Perceptual Component of Third-Person Perceptions

H3 predicted that the source credibility of e-cigarette companies would be negatively associated with TPPs. The results of the SEM indicated that the source credibility of e-cigarette companies was negatively associated with TPPs, $\beta = -.18, p < .001$. Thus, H3 was supported.

H4 concerned the relationships between the perceived harm of e-cigarette use and (a) the social undesirability of e-cigarette advertisements, as well as (b) TPPs. The perceived harm of e-cigarette use appeared to be a positive predictor of the social undesirability of e-cigarette advertisements, $\beta = .34, p < .001$. However, the perceived harm of e-cigarette use was not associated with TPPs, $\beta = .04, p = .43$. H4 was partially supported.

Recall that H5 posited that the perceived negativity of e-cigarette advertisements would be positively associated with TPPs. The social undesirability of e-cigarette advertisements was positively associated with TPPs, $\beta = .10, p < .05$, indicating that individuals tend to perceive a greater impact of e-cigarette advertising on others than themselves when they view e-cigarette advertisements as more socially harmful content. Thus, H5 was supported.

H6 and H7 investigated whether having a teenager in the household or e-cigarette use predicts TPPs. To test H6 and H7, a two-way analysis of variance (ANOVA) was performed. For the purposes of conducting this analysis, the presence or absence of a
teenager in the household and e-cigarette use were both dummy coded (1 = yes, 0 = no) into new variables. Both variables and their interaction term were entered as predictors in the two-way ANOVA with TPPs serving as the dependent variable. Results of the two-way ANOVA indicated the variables in the model accounted for statistically significant variance in TPPs $F(3, 527) = 39.47, p < .01$. Further inspection of the results that current e-cigarette use has a significant main effect on TPPs, $F(1, 527) = 38.67, p < .001$, Thus, there was support for H6, which predicted that e-cigarette users ($M = 0.22, SD = 1.22, n = 218$) would display lower levels of TPPs of e-cigarette advertisements compared with non-e-cigarette users ($M = 0.77, SD = 1.65, n = 313$).

There was no difference in TPPs between participants who had a teenager in the household ($M = 0.53, SD = 1.49, n = 261$) and those who did not have a teenager in the household ($M = 0.56, SD = 1.54, n = 270$). H7 was not supported. In addition, the result of the two-way ANOVA showed there was no interaction effect between the existence of a teenager in the household and e-cigarette use on TPPs, $F(1, 527) = 0.25, p = .62$.

H8 predicted that having a teenager in the household would be positively associated with the social undesirability of e-cigarette advertisements. As shown in the structural model, the path leading from having a teenager in the household to the social undesirability of e-cigarette advertisements was not statistically significant, $\beta = .02, p = .64$. Thus, H8 was not supported.

Recall that H9 predicted there would be a negative relationship between current e-cigarette use and the social undesirability of e-cigarette advertisements. Current e-cigarette use was negatively associated with the social undesirability of e-cigarette advertisements, $\beta = -.10, p < .05$. Thus, H9 was supported.
Previous studies showed that individuals were more likely to perceive TPPs when they believed that others than themselves more often encountered negative media messages. Accordingly, H10 posited that the gap in self–other exposure to e-cigarette advertising would show a positive relationship with TPPs. The results of the proposed model test indicated that individuals perceived greater TPPs when they believed that others encounter e-cigarette advertisements more often than they did, $\beta = .25, p < .001$. Thus, H10 was supported.

4.4.2 Behavioral Components of Third-Person Perceptions

H11 and H12 examined the relationships between TPPs and individuals’ behavioral intention to counter the anticipated negative results of exposure to e-cigarette advertisements. Individuals’ support for varying regulations on e-cigarette advertisements and sales, as well as their corrective action intentions were used as behavioral outcomes from TPPs.

H11 predicted that TPPs would be positively associated with individuals’ support for regulations on e-cigarette advertising. E-cigarette advertising was divided into two types of regulations, including regulations on e-cigarette advertisement in media where teenagers are likely to see e-cigarette advertisements, and regulations on flavored-e-cigarette sales and advertisements. TPPs were positively associated with support for regulating media where teenagers can see e-cigarette advertisements, $\beta = .11, p < .01$. However, TPPs were not associated with individuals’ support for regulations on flavored-e-cigarette sales and advertisements, $\beta = .06, p = .15$. Thus, H11 was partially supported.

H12 posited that TPPs would be positively associated with individuals’ likelihood of engaging in corrective action. The results of the model test indicated that TPPs were
negatively associated with corrective action, $\beta = -0.07$, $p < 0.05$, indicating that individuals would be less likely to engage in corrective action when they viewed others as more vulnerable to e-cigarette advertisements compared with themselves. The results were counter-hypothetical. Thus, H12 was not supported.

RQ1 investigated the determinants of support for regulations besides TPPs. Having a teenager in the household was not associated with support for regulating media where teens can see e-cigarette advertisements, $\beta = -0.03$, $p = 0.46$, as well as support for regulating flavored-e-cigarette sales and advertisements, $\beta = -0.02$, $p = 0.67$. The perceived harm of e-cigarette use was positively associated with support for regulating e-cigarette advertisements where teenagers can see e-cigarette advertisements, $\beta = 0.58$, $p < 0.001$, regulating flavored-e-cigarette sales and advertisements, $\beta = 0.61$, $p < 0.001$, and the likelihood of engaging in corrective action, $\beta = 0.54$, $p < 0.001$.

Current e-cigarette use was negatively associated with regulations on the sales and advertisements of flavored-e-cigarettes, $\beta = -0.09$, $p < 0.05$. However, e-cigarette use was not associated with support for regulating e-cigarette advertisements in the media where teenagers can see e-cigarette advertisements, $\beta = -0.04$, $p = 0.36$, as well as the likelihood of engaging in corrective action, $\beta = -0.06$, $p = 0.06$.

Regarding socio-economic characteristics, the participants’ age, income, gender, education levels, race, and political ideology, along with teenagers’ likelihood of using drugs as a result of e-cigarette use were entered into the proposed model. Dummy coding was used for gender (1 = female, 0 = male), and race (1= White, 0 = other). Two dummy-coded variables were created to examine whether being Democrat (1 = Democrats, 0 =
other) or Republican (1 = Republican, 0 = other) is associated with the behavioral components of TPPs.

Age ($\beta = .11, p < .01$) and perceived teenagers’ likelihood of using drugs as a result of e-cigarette use ($\beta = .16, p < .01$) was positively associated with support for regulating e-cigarette advertisements in media where teenagers can see the advertisements. Other variables were not associated with support for regulating e-cigarette advertisements in the media where teenagers can see the advertisements. Participants’ education levels ($\beta = .09, p < .05$), age ($\beta = .09, p < .05$) and perceived teenagers’ likelihood of using drugs as a result of e-cigarette use ($\beta = .27, p < .001$) was positively associated with support for regulations on flavored-e-cigarette sales and advertisements.

RQ2 questioned what predicts individuals’ likelihood of engaging in corrective action. The same variables used to answer RQ1 were employed. Participants’ perceived likelihood that teenagers would use drugs as a result of e-cigarette use ($\beta = .60, p < .001$), having a teenager in the household ($\beta = .08, < .05$), and perceived harm of e-cigarette use ($\beta = .29, p < .001$) were positively associated with the likelihood of engaging in corrective action. Other variables were not associated with their likelihood of engaging in corrective action.

4.5 Moderation Test Results

RQ3 questioned whether individuals’ perceptions of the FDA’s credibility moderate the relationship between TPPs and the behavioral components of TPPs. Haye’s (2013) PROCESS macro for SPSS was used to test the moderation effects. PROCESS model 1 was used to test moderation effects of perceived credibility of the FDA on
relationships between TPPs and support for regulation or likelihood to engage in corrective action. Prior to testing moderation effects, participants’ perceptions of the FDA’s credibility and TPPs were mean-centered to reduce multicollinearity between the credibility and TPPs.

The results of moderation tests indicated that perceived credibility of the FDA did not moderate the relationship between TPPs and support for regulations on e-cigarette advertisements in media where teenagers are likely to see them ($b = .004$, $SE = .03$, $p = .87$). In the regression model ($R^2 = .2$, $F[3, 527] = 45.02; p < .001$), TPPs ($b = .13$, $SE = .03$, $p < .001$) and perceived credibility of the FDA ($b = .43$, $SE = .04$, $p < .001$) were positively associated with support for regulating e-cigarette advertisements in media where teenagers can see them. The results indicate that individuals would be more likely to support regulations banning e-cigarette advertisements in the media where teenagers can encounter them if they trust the FDA and view teenage non-e-cigarette users as more vulnerable to e-cigarette advertisements compared to themselves. The perceived credibility of the FDA did not moderate the relationship between TPPs and support for regulations on flavored e-cigarette sales and advertisements ($b = .03$, $SE = .03$, $p = .33$). In the regression model ($R^2 = .14$, $F[3, 527] = 27.8; p < .001$), the perceived credibility of the FDA ($b = .35$, $SE = .05$, $p < .001$) and TPPs ($b = .09$, $SE = .03$, $p < .05$) was positively associated with support for regulating flavored e-cigarette sales and advertisements.

Regarding corrective action, the perceived credibility of the FDA moderated the relationship between TPPs and the likelihood to engage in corrective action ($b = .07$, $SE = .03$, $p < .05$). In the regression model ($R^2 = .25$, $F[3, 527] = 57.72; p = .001$), perceived
credibility of the FDA significantly predicted the likelihood to engage in corrective action ($b = .50$, $SE = .04$, $p < .001$), whereas TPPs did not predict the likelihood to engage in corrective action ($b = -.06$, $SE = .04$, $p = .11$). The results of the moderation test indicated that those with low perceptions of the FDA’s credibility would be less likely to engage in corrective action if they perceive greater effects of e-cigarette advertisements on teenagers who do not use e-cigarette users than themselves. In terms of those with high perceptions of the FDA’s credibility, their likelihood to engage in corrective action increased as their TPPs increased. In other words, those who perceive greater TPPs and credibility of the FDA would be most likely to engage in corrective action, whereas those who perceive greater TPPs but lower credibility of the FDA would be least likely to engage in corrective action. Figure 4.2 and Table 4.5 show the result of the moderation effect of perceived credibility of the FDA on the relationship between TPPs and corrective action.

RQ4 investigated whether perceived effects of e-cigarette advertisements on teenagers who do not use e-cigarettes (PME3) would better predict the behavioral components of TPPs. TPPs in the proposed model were replaced with the perceived effects of e-cigarette advertisements on teenagers who do not use e-cigarettes, and the model fit was tested using SEM. The result of SEM indicated that the model with PME3 fit the data ($\chi^2 [310] = 678.26, p < .001$) with the CFI = .95, the RMSEA = .05, a 90% confidence interval ranging from .04 to .05, and the SRMR = .07. However, regarding the relationships between the behavioral components, PME3 showed different patterns in the relationships between TPPs and behavioral components. Figure 4 presents the result of the model with PME3. While TPPs were not associated with support for regulations on
flavored e-cigarette sales and advertisements, PME3 was positively associated with support for regulations ($b = .14, p < .01$). PME3 also showed a positive relationship with the likelihood to engage in corrective action, whereas TPPs displayed a negative relationship with likelihood to engage in corrective action. Regarding support for regulations on e-cigarette advertisement in the media where teenagers can see them, both PME3 and TPPs positively predicted support for regulations. Figure 4.3 presents the realized model.
Table 4.1. Demographic Characteristics of Participants

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<td>234</td>
<td>44%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>4</td>
<td>0.8%</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
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<td></td>
</tr>
<tr>
<td>White</td>
<td>395</td>
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</tr>
<tr>
<td>African American</td>
<td>66</td>
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</tr>
<tr>
<td>Hispanic or Latino</td>
<td>31</td>
<td>5.8%</td>
</tr>
<tr>
<td>Asian</td>
<td>23</td>
<td>4.3%</td>
</tr>
<tr>
<td>Multi-Racial or other</td>
<td>16</td>
<td>3%</td>
</tr>
<tr>
<td>Education</td>
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<tr>
<td>Less than high school</td>
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<td>0.8%</td>
</tr>
<tr>
<td>High school graduate</td>
<td>19</td>
<td>3.6%</td>
</tr>
<tr>
<td>Some college</td>
<td>38</td>
<td>7.2%</td>
</tr>
<tr>
<td>Two-year college degree</td>
<td>26</td>
<td>4.9%</td>
</tr>
<tr>
<td>Four-year college degree</td>
<td>294</td>
<td>55.4%</td>
</tr>
<tr>
<td>Some graduate work</td>
<td>36</td>
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</tr>
<tr>
<td>Master’s degree</td>
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</tr>
<tr>
<td>Doctorate or Professional degree</td>
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<td>1.1%</td>
</tr>
<tr>
<td>Household income</td>
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<tr>
<td>Less than 20,000</td>
<td>27</td>
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</tr>
<tr>
<td>$25,000 - $34,999</td>
<td>61</td>
<td>11.5%</td>
</tr>
<tr>
<td>$35,000 - $49,999</td>
<td>115</td>
<td>21.7%</td>
</tr>
<tr>
<td>$50,000 - $74,999</td>
<td>178</td>
<td>33.5%</td>
</tr>
<tr>
<td>$75,000 - $99,999</td>
<td>106</td>
<td>20%</td>
</tr>
<tr>
<td>More than $100,000</td>
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<td>8.3%</td>
</tr>
<tr>
<td>Electronic cigarette use</td>
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<td></td>
</tr>
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<td>Never used e-cigarettes</td>
<td>144</td>
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</tr>
<tr>
<td>Did not use e-cigarette in the past 30 days</td>
<td>169</td>
<td>3.8%</td>
</tr>
<tr>
<td>Occasional user (less than once a week)</td>
<td>46</td>
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<tr>
<td>Once a week</td>
<td>140</td>
<td>26.4%</td>
</tr>
<tr>
<td>Daily user</td>
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<td>6%</td>
</tr>
<tr>
<td>Electronic cigarette advertising exposure</td>
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<td></td>
</tr>
<tr>
<td>Media Type</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Television</strong></td>
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<td></td>
</tr>
<tr>
<td>Never</td>
<td>98</td>
<td>18.5%</td>
</tr>
<tr>
<td>1-2 times</td>
<td>179</td>
<td>33.7%</td>
</tr>
<tr>
<td>3-4 times</td>
<td>157</td>
<td>29.6%</td>
</tr>
<tr>
<td>5 times or more</td>
<td>79</td>
<td>14.9%</td>
</tr>
<tr>
<td>Do not know</td>
<td>18</td>
<td>3.4%</td>
</tr>
<tr>
<td><strong>Magazines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>101</td>
<td>19%</td>
</tr>
<tr>
<td>1-2 times</td>
<td>147</td>
<td>27.7%</td>
</tr>
<tr>
<td>3-4 times</td>
<td>168</td>
<td>31.5%</td>
</tr>
<tr>
<td>5 times or more</td>
<td>90</td>
<td>16.9%</td>
</tr>
<tr>
<td>Do not know</td>
<td>26</td>
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<td><strong>Newspapers</strong></td>
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<td>Never</td>
<td>135</td>
<td>25.4%</td>
</tr>
<tr>
<td>1-2 times</td>
<td>111</td>
<td>20.9%</td>
</tr>
<tr>
<td>3-4 times</td>
<td>139</td>
<td>26.2%</td>
</tr>
<tr>
<td>5 times or more</td>
<td>119</td>
<td>22.4%</td>
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<tr>
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<td>5.1%</td>
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<tr>
<td><strong>Social media</strong></td>
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<td></td>
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<tr>
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<td>60</td>
<td>11.3%</td>
</tr>
<tr>
<td>1-2 times</td>
<td>117</td>
<td>22%</td>
</tr>
<tr>
<td>3-4 times</td>
<td>182</td>
<td>34.3%</td>
</tr>
<tr>
<td>5 times or more</td>
<td>147</td>
<td>27.7%</td>
</tr>
<tr>
<td>Do not know</td>
<td>25</td>
<td>4.7%</td>
</tr>
<tr>
<td><strong>Internet other than social media</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>50</td>
<td>9.4%</td>
</tr>
<tr>
<td>1-2 times</td>
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<td>3-4 times</td>
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<td>29.9%</td>
</tr>
<tr>
<td>5 times or more</td>
<td>164</td>
<td>30.9%</td>
</tr>
<tr>
<td>Do not know</td>
<td>32</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Stores where tobacco products are sold</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>42</td>
<td>7.9%</td>
</tr>
<tr>
<td>1-2 times</td>
<td>107</td>
<td>20.2%</td>
</tr>
<tr>
<td>3-4 times</td>
<td>202</td>
<td>38%</td>
</tr>
<tr>
<td>5 times or more</td>
<td>144</td>
<td>27.1%</td>
</tr>
<tr>
<td>Do not know</td>
<td>36</td>
<td>6.8%</td>
</tr>
<tr>
<td>Stores where e-cigarette equipment is sold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Never</td>
<td>55</td>
<td>10.4%</td>
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<tr>
<td>1-2 times</td>
<td>109</td>
<td>20.5%</td>
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<tr>
<td>3-4 times</td>
<td>176</td>
<td>33.1%</td>
</tr>
<tr>
<td>5 times or more</td>
<td>154</td>
<td>29%</td>
</tr>
<tr>
<td>Do not know</td>
<td>37</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>531</strong></td>
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</tr>
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</table>
Table 4.2 Paired Sample T-test Results between Presumed Effects of E-cigarette Advertisements on Self and Others

<table>
<thead>
<tr>
<th>Groups</th>
<th>Comparison groups</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-cigarette users</td>
<td>Self</td>
<td>4.94</td>
<td>1.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adult e-cigarette users</td>
<td>5.05</td>
<td>1.30</td>
<td>1.16</td>
<td>.25</td>
</tr>
<tr>
<td></td>
<td>Adult non-users</td>
<td>4.94</td>
<td>1.35</td>
<td>0.74</td>
<td>.46</td>
</tr>
<tr>
<td></td>
<td>Teenage e-cigarette users</td>
<td>5.21</td>
<td>1.25</td>
<td>3.07</td>
<td>&lt; .01</td>
</tr>
<tr>
<td></td>
<td>Teenage non-users</td>
<td>5.17</td>
<td>1.26</td>
<td>2.66</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Non-users</td>
<td>Self</td>
<td>4.07</td>
<td>1.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adult e-cigarette users</td>
<td>4.65</td>
<td>1.50</td>
<td>6.41</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>Adult non-users</td>
<td>4.54</td>
<td>1.55</td>
<td>6.04</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>Teenage e-cigarette users</td>
<td>4.95</td>
<td>1.44</td>
<td>8.85</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>Teenage non-users</td>
<td>4.84</td>
<td>1.44</td>
<td>8.24</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Teenage child</td>
<td>Self</td>
<td>4.52</td>
<td>1.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adult e-cigarette users</td>
<td>4.72</td>
<td>1.50</td>
<td>1.72</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>Adult non-users</td>
<td>4.75</td>
<td>1.45</td>
<td>2.14</td>
<td>&lt; .05</td>
</tr>
<tr>
<td></td>
<td>Teenage e-cigarette users</td>
<td>5.00</td>
<td>1.25</td>
<td>3.95</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>Teenage non-users</td>
<td>4.98</td>
<td>1.35</td>
<td>3.88</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>No teenage child</td>
<td>Self</td>
<td>3.66</td>
<td>1.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adult e-cigarette users</td>
<td>4.57</td>
<td>1.32</td>
<td>4.44</td>
<td>&lt; .001</td>
</tr>
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<td></td>
<td>Adult non-users</td>
<td>4.20</td>
<td>1.40</td>
<td>3.10</td>
<td>&lt; .01</td>
</tr>
<tr>
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<td>Teenage e-cigarette users</td>
<td>4.91</td>
<td>1.30</td>
<td>6.09</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>Teenage non-users</td>
<td>4.57</td>
<td>1.32</td>
<td>4.68</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>
Table 4.3 Correlation Results

<table>
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<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perceived harm of e-cigarette use</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Social undesirability</td>
<td>.31***</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Advertisement exposure gaps</td>
<td>-.003</td>
<td>.05</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Perceived credibility of e-cigarette companies</td>
<td>.04</td>
<td>-.33***</td>
<td>-.10*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. TPPs</td>
<td>.06</td>
<td>.19***</td>
<td>.28***</td>
<td>-.25***</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Support for limiting teenagers’ ads exposure</td>
<td>.53***</td>
<td>.22***</td>
<td>.01</td>
<td>.01</td>
<td>.13**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Support for flavored e-cigarette sales and ads ban</td>
<td>.57***</td>
<td>.22***</td>
<td>.05</td>
<td>.05</td>
<td>.09</td>
<td>.64***</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Corrective action</td>
<td>.54***</td>
<td>.05</td>
<td>-.02</td>
<td>.36***</td>
<td>-.09*</td>
<td>.50***</td>
<td>.61***</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>9. Perceived credibility of the FDA</td>
<td>.32***</td>
<td>-.06</td>
<td>-.03</td>
<td>.46***</td>
<td>-.05</td>
<td>.43***</td>
<td>.35***</td>
<td>.48***</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01, ***p < .001
Table 4.4 Factor and Item Loadings for Independent and Dependent Variables

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived harm of e-cigarette use</td>
<td>.74</td>
</tr>
<tr>
<td></td>
<td>.79</td>
</tr>
<tr>
<td></td>
<td>.80</td>
</tr>
<tr>
<td></td>
<td>.85</td>
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<td>.85</td>
</tr>
<tr>
<td></td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td>.84</td>
</tr>
<tr>
<td>Social undesirability of e-cigarette ads</td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td>.84</td>
</tr>
<tr>
<td>Credibility of e-cigarette companies</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>.86</td>
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<tr>
<td></td>
<td>.88</td>
</tr>
<tr>
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<td>.90</td>
</tr>
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<td>Credibility of the FDA</td>
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<td>.84</td>
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<tr>
<td></td>
<td>.84</td>
</tr>
<tr>
<td>Gateway effects</td>
<td>.75</td>
</tr>
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<td></td>
<td>.80</td>
</tr>
<tr>
<td>Support for regulations on media and channel</td>
<td>.78</td>
</tr>
<tr>
<td></td>
<td>.83</td>
</tr>
<tr>
<td>Support for regulations on flavor e-cigarettes</td>
<td>.80</td>
</tr>
<tr>
<td></td>
<td>.78</td>
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<tr>
<td>Corrective action</td>
<td>77</td>
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</tr>
<tr>
<td></td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td>.80</td>
</tr>
</tbody>
</table>

Note: CFA Model Fit: $\chi^2 (247) = 425.43, p < .001, CFI = .98, RMSEA = .04, 90\% CI: 0.03 to 0.04, SRMR = .03.$
Table 4.5 Result of Moderation Test

<table>
<thead>
<tr>
<th>Predictors</th>
<th>$b$</th>
<th>SE</th>
<th>$t$</th>
<th>$P$</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPPs</td>
<td>-.06</td>
<td>.04</td>
<td>-1.6</td>
<td>.11</td>
<td>[-.12, .01]</td>
</tr>
<tr>
<td>FDA credibility</td>
<td>.50</td>
<td>.04</td>
<td>12.06</td>
<td>&lt; .001</td>
<td>[.42, .58]</td>
</tr>
<tr>
<td>TPPs x FDA credibility</td>
<td>.07</td>
<td>.03</td>
<td>2.54</td>
<td>&lt; .05</td>
<td>[.02, .12]</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>57.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$p$</td>
<td>&lt; .001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 4.1 Result of Structural Equation Modeling.

Note: Only significant paths are shown. All path coefficients are standardized.
Figure 4.2 Moderation effects of perceived credibility of the FDA on the relationship between TPPs and corrective action
Figure 4.3 Model with the Perceived Effects of E-cigarette Advertisements on Others. 
Note: Only significant paths are shown. All path coefficients are standardized. 
Model Fit: $\chi^2 \ (310) = 678.26, \ p < .001, \ CFI = .95, \ RMSEA = .05, \ 90\% \ CI: \ 0.04 \ to \ 0.05, \ SRMR = .07.$
CHAPTER 5

DISCUSSION

Using third-person effects as a theoretical background, this dissertation investigated the role of individuals’ perceived media effects on the self and others in predicting their behavioral intentions. This dissertation contributes to the body of third-person effect literature, including its perceptual and behavioral components, as well as the mass communication literature. The findings also offer practical implications for future tobacco control measures and campaigns designed to prevent tobacco product use by teenagers.

This chapter discusses the results’ theoretical implications, including the determinants of TPPs, as well as individuals’ intentions to support regulations and engage in corrective action. The relationships between TPPs and individuals’ support for regulations and corrective action are discussed as practical implications. Based on these arguments, this chapter provided suggestions for future studies and tobacco control measures.

5.1 Third-Person Perceptions of Electronic Cigarette Advertisements

Consistent with the findings of previous third-person effects research, this study’s results demonstrated that individuals perceived greater media effects on others compared to themselves in the context of health related media content. The TPP literature posits that individuals perceive greater impacts of media messages when they infer persuasive intent from the messages (Scherr & Müller, 2017). By overestimating the impact of
persuasive media effects on others over the self, individuals maintain positive self-images (Hoffner et al., 2001). Regarding health product advertising, individuals believe others are more vulnerable than themselves to e-cigarette advertisements (Pardun et al., 2017), prescription drug advertisements (DeLorme, Huh, & Reid et al., 2006), and alcohol product placement in youth oriented films (Shin & Kim, 2011).

This study’s respondents perceived a greater impact of e-cigarette advertisements on others than on themselves, and they indicated that exposure to e-cigarette advertisements makes others use e-cigarettes. The gaps in the perceived effects of e-cigarette advertisements on the self and others varied depending on the social distance between the respondent and the comparison groups. TPP researchers incorporate social distance corollaries into studies to examine whether TPPs become stronger as social distance from the self to the comparison groups increases (Meirick, 2005). Previous research operationalized the social distance corollary based on respondents’ characteristics, such as political orientation (Wei et al., 2011), geographic distance (Paek et al., 2005), and smoking status (Pardun et al., 2017). However, previous studies did not sufficiently include those known to be susceptible to a give media messages in comparison groups, such as youths, whom alcohol and tobacco advertising could target. In recent years, concern has increased regarding youths’ vulnerability to e-cigarette advertisements, as e-cigarette companies have incorporated many youth targeting strategies into their advertisements (Jackler & Ramamurthi, 2017; Lee et al., 2017).

Thus, this dissertation included two aspects of social distance, e-cigarette use and age, to examine the role of the social distance corollary in increasing TPPs. The results indicate that the magnitude of individuals’ TPPs varies depending on their characteristics
and comparison groups. Current e-cigarette users did not differentiate among the effects of e-cigarette on themselves, other adult e-cigarette users, and adult e-cigarette nonusers. In addition, current e-cigarette users’ perceptions of the effects of e-cigarette advertisements on current teenage e-cigarette users did not differ from their perceptions regarding the effects of e-cigarette advertisements on teenager e-cigarette nonusers. These results indicate that e-cigarette users perceive greater impacts of e-cigarette advertisements on others based on the age of the comparison groups rather than their e-cigarette use status.

Respondents who did not currently use e-cigarettes perceived greater effects of e-cigarette advertisements on all comparison groups regardless of the groups’ current e-cigarette use status and age. Despite the differences in TPPs between current e-cigarette users and nonusers, both groups appeared to perceive a greater impact of e-cigarette advertisements on teenagers than on themselves. The results may indicate that adults do not view other adults as less capable of judging e-cigarette advertisements and thus do not necessarily perceive greater effects of e-cigarette advertisements on others than on themselves. Moreover, this perceptual gap could result from the fact that e-cigarettes are tobacco products whose use by minors is prohibited. In other words, adults perceive greater effects of e-cigarette advertisements on teenagers than on adults because they view e-cigarette products and advertisements as inappropriate for teenagers.

5.1.1 Predictors of Third-Person Perceptions

This dissertation further examined other factors than the social distance corollary to predict individuals’ TPPs. Based on findings reported in the TPP literature, this study investigated the social undesirability of e-cigarette advertisements, the credibility of e-
cigarette advertisements, and the gaps in perceived exposure to e-cigarette advertisements between the self and others.

TPP researchers have consistently found that individuals’ TPPs become stronger when they view media messages as socially harmful, whereas TPPs become weaker when individuals view media messages as socially desirable (Jensen & Hurley, 2005). Eveland and McLeod (1999) pointed out that some TPP studies assumed the social desirability of media messages rather than measuring the concept. Huh et al. (2004) also argued that TPP researchers did not consider the fact that individuals’ views of media messages can be mixed. Huh et al. (2004) also pointed out that failing to measure media messages’ social desirability could result in nonsignificant relationships between TPPs and support for media censorship.

Individuals’ perceptions of tobacco product advertisements desirability might vary among individuals, particularly depending on their use of the products. Pardun et al.’s (2017) study also showed that nonsmokers tend to display more negative attitudes toward e-cigarette advertisements than current smokers do. This gap also led to stronger TPPs of e-cigarette advertisements. Participants in this study, including current e-cigarette users ($M = 4.53, SD = 1.36$) and e-cigarette nonusers ($M = 4.86, SD = 1.57$), viewed e-cigarette advertisements as having a negative impact on society. The social undesirability of e-cigarette advertisements was positively associated with TPPs, indicating that individuals perceive greater effects of e-cigarette advertisements on others than on themselves when they consider e-cigarette advertisements negative messages. The result can be explained by the self-serving bias, which is among the most predominant arguments used to explain the mechanisms of TPPs (Gunther & Mundy,
According to the self-serving bias argument, individuals tend to believe others are more negatively influenced than themselves by media messages as a way of maintaining and enhancing positive self-image. Participants in this study also perceived higher effects of e-cigarette advertisements on others than on themselves when they viewed e-cigarette advertisements as socially harmful. By viewing others as more gullible and vulnerable to e-cigarette advertisements as negative messages, individuals protect their positive self-images.

Participants who were current e-cigarette users displayed lower levels of social undesirability regarding e-cigarette advertisements compared to participants who were e-cigarette nonusers. Although both current e-cigarette users and nonusers generally viewed e-cigarette advertisements as socially harmful, current e-cigarette users showed lower levels of social undesirability regarding e-cigarette advertisements and TPPs compared to e-cigarette nonusers. These results are consistent with the argument based on the self-serving bias because current e-cigarette users and nonusers infer different levels of social undesirability from e-cigarette advertisements. Specifically, current e-cigarette users do not need to view others as more vulnerable to e-cigarette advertisements because they do not view e-cigarette advertisements as negative messages. However, e-cigarette nonusers are more likely to perceive e-cigarette advertisements as having a greater impact on others than on themselves to maintain their positive self-image as less gullible and less vulnerable to negative media messages.

This dissertation also investigated how the perceived credibility of media message source affects TPPs. In the TPP literature, individuals tend to perceive greater TPPs when they view a message’s source as less credible. Gunther (1991) explained that
lower source credibility leads to higher TPPs because individuals underestimate others’ ability to evaluate the source’s credibility critically when they view a message. In other words, individuals tend to believe that they are capable of evaluating the source credibility of a given message critically, but they think others will not pay sufficient attention to the source or are incapable of judging the credibility of a message’s source critically. Source credibility’s effects on TPPs are well supported by empirical studies (Salmon et al., 2019).

By manipulating the source of messages such as newspaper articles and advertisements in experimental studies (e.g., Banning & Sweetser, 2007), researchers have found that individuals’ TPPs increase when source credibility decreases. However, previous studies assumed source credibility rather than measuring study participants’ perceived credibility. For instance, in an experimental study, Gunther and Mundy (1993) used news articles as credible sources and advertisements as less credible sources. In other words, they assumed and operationalized source credibility as the credibility of the media platforms on which the study subjects viewed the messages without measuring the subjects’ perceptions regarding each platform’s credibility. Banning and Sweetser (2007) also compared online news to print newspapers to examine the impact of source credibility on TPPs and found that individuals tend to display higher TPPs of negative media messages such as television violence when they view the messages on online news platforms compared to print newspapers. Although the credibility of media platforms could vary among individuals, previous studies assumed participants would consider a certain medium less credible than others would.
Previous studies focused on the credibility of the media platforms conveying a given message rather than the credibility of those who create the messages or the message itself. For health related products and messages, source credibility is an important influence on individuals’ perceptions of and attitudes toward health products and related advertisements (Kareklas et al., 2015; Lemanski & Villegas, 2015).

Little is known about the relationship between the credibility of tobacco companies and individuals’ perceptions of tobacco products or tobacco advertising. Researchers have instead focused on the source credibility of antismoking messages (Reinhard et al., 2014; Schmidt et al., 2016) or health warning labels (Cantrell et al., 2013; Thrasher et al., 2012). Source credibility increases individuals’ likelihood to accept antismoking messages and negative attitudes toward tobacco products (Reinhard et al., 2014). However, researchers have not sufficiently measured the credibility of tobacco companies regarding tobacco product advertising. Moreover, little is known about the relationship between source credibility and individuals’ attitudes toward and perceptions of e-cigarette use (Case et al., 2018).

Few studies have measured and tested the relationship between message credibility and TPPs. Wei et al. (2010) examined whether the credibility of health related news decreases individuals’ TPPs and found that individuals perceive news of tainted food product recalls as having a greater impact on themselves than on others when source credibility is low.

By measuring the source credibility of e-cigarette companies and individuals’ perceptions regarding the effects of e-cigarette advertisements on others and themselves, this study demonstrated that source credibility affects individuals’ view of e-cigarette
advertisements. The study’s results indicate that individuals tend to perceive that e-cigarette advertisements have a greater impact on others than on themselves when they view e-cigarette companies as less credible sources. The results can be explained by the self-serving bias, as individuals view themselves as less vulnerable to negative media messages and more capable than others of judging the sources of media messages. Although few studies have examined individuals’ attitudes toward media messages to predict TPPs, future studies should consider source credibility based on this study’s findings. Moreover, source credibility might be particularly important in health product advertisements because individuals’ views of companies could precede their attitudes toward advertisements. In other words, individuals could develop attitudes toward health product advertisements based on their trust in the companies that produce the product. To protect their positive self-image, individuals could overestimate the impact of media messages on others than on themselves.

Because a growing number of researchers have begun to include and test perceptual gaps in the exposure to messages between the self and others, this study examined the relationship between the self–other exposure gap and TPPs. Consistent with previous studies’ findings, participants in this study reported that others than themselves are more frequently exposed to e-cigarette advertisements. The TPP literature posits that individuals estimate others’ exposure to media messages based on their exposure to such messages and tend to overestimate others’ exposure to negative media messages (Lambe & McLeod, 2005; Shen & Huggins, 2013).

This exposure gap between the self and others was positively associated with TPPs, which is consistent with previous studies’ findings. The results of this study
indicate that individuals perceive a greater impact of e-cigarette advertisements on others than on themselves when they think others encounter e-cigarette advertisements more frequently. In line with the self-serving bias, individuals might underestimate their exposure to e-cigarette advertisements compared to others’ exposure to maintain their positive self-image. By underestimating their exposure to negative media messages, they protect their self-image as someone who is less likely to encounter negative media messages and who is less vulnerable to such messages. In addition, it is reasonable that individuals perceive greater media effects on those who encounter media messages often. For example, if advertisements for an adult product or service are prohibited in media where minors could encounter such advertisements, individuals might not think minors will be exposed to the advertisements more often than they will. Individuals might also overestimate others’ exposure to negative media messages because they view others are more gullible and attracted to negative media messages and assume that others pay more attention to negative media messages compared to themselves.

5.1.2 Behavioral Components of Third-person Perceptions

Although TPPs have been well documented in previous research, the relationship between TPPs and the behavioral components of TPPs remains unclear (Chung & Moon, 2016). As most TPP research focused on negative media messages, researchers tended to hypothesize that TPPs lead individuals to support governmental regulations on negative media messages. More recently, researchers reported no significant relationship or they reported a negative relationship between TPPs and support for media censorship (Cheng & Chen, 2020).
The relationships between TPPs and support for regulations are mixed in this study. This dissertation examined two types of regulations, regulations designed to limit teenagers’ exposure to e-cigarette advertisements and regulations on the sales and advertisements of flavored e-cigarettes. TPPs were positively associated with support for regulating e-cigarette advertisements in the media where teenagers are likely to encounter e-cigarette advertisements, whereas TPPs were not associated with support for regulations on flavored-e-cigarette advertisements.

The discrepancy may result from the comparison group used to calculate TPPs in this study. It is probable that individuals with higher TPPs are more likely to support regulations to limit youths’ exposure to e-cigarette advertisements because the comparison group consisted of teenage non-e-cigarette users. Participants may be more likely to support teenager-related regulations than other regulations because they perceive that exposure to e-cigarettes is likely to lead teenagers to use e-cigarettes, relative to themselves. Also, it is possible that current e-cigarette users do not want to sacrifice their rights to choose flavored e-cigarette products to counter negative impacts of e-cigarette advertisements on teenagers. Some individuals may view regulations on flavoring and flavored e-cigarette product advertisements as governmental intrusion into consumer rights.

Regarding regulations on flavored-e-cigarette sales and advertisements, TPPs did not predict individuals’ intentions to support the regulations. The result may indicate that participants do not believe that regulating flavored e-cigarette sales and advertisements protects teenaged non-e-cigarette users from negative impacts of e-cigarette advertisements.
Most TPP research on tobacco advertising has focused on support for media censorship as a behavioral outcome of TPPs (e.g., Pardun et al., 2017). However, it is worth investigating individuals’ likelihood to engage in corrective action as public health advocates demand more youth e-cigarette prevention actions (Bold, Kong, Cavallo, Camenga, & Krishnan-Sarin, 2017; Singh et al., 2020; Zeller, 2019). In recent years, a growing number of health organizations, such as Truth Initiatives and the FDA, have implemented anti-e-cigarette campaigns to educate youth about the risks of e-cigarette and other tobacco product use (Roditis et al., 2019). For instance, Truth Initiatives launched the “FinishIt” campaign to decrease youth tobacco product use (Hair et al., 2019). The campaign aimed to reach youth and young adults aged 15–21 years by disseminating the prevention messages through television and social media (Cantrell et al., 2018).

Although TPPs were positively associated with support for regulations on e-cigarette advertisements in the media where teenagers can see e-cigarette advertisements, TPPs were negatively associated with participants’ likelihood to engage in corrective action. The results indicated that individuals are less likely to warn others about the risks involving e-cigarette use when they perceive teenager non-e-cigarette users are more vulnerable to e-cigarette advertisements than themselves. This negative association may result from the extent to which individuals perceive anti-e-cigarette campaigns and other corrective actions to be effective. Individuals may perceive that limiting teenagers’ exposure to e-cigarette advertisements is a more appropriate measure to prevent teenagers’ e-cigarette use. Also, individuals may view educating and warning others about e-cigarette use and related health risks as insufficient to decrease teenagers’
vulnerability to e-cigarette advertisements and, in turn, to display lower levels of likelihood to engage in corrective action.

5.2 Determinants of Support for E-cigarette Advertisement Regulations

This dissertation included more variables that are predictive of support for regulations, in addition to TPPs. It is possible that previous studies failed to find a significant relationship between TPPs and support for regulations because previous studies did not include other important determinants of individuals’ intentions to support regulations. Borrowing determinants of individuals’ support for regulation from tobacco control literature, this study examined whether TPPs predict support for regulations of e-cigarette advertisements after controlling for other determinants of support for regulations. Although previous studies identified tobacco-related variables as predicting individuals’ support for tobacco-related regulations, such as perceived harm of tobacco products and current tobacco product use, TPP studies have neither included nor controlled for such determinants.

This dissertation included individuals’ perceived harm of e-cigarette use and socio-demographical variables as determinants of support for tobacco control. After including these potential determinants, TPPs were positively associated with support for regulating e-cigarette advertisements in the media where teenagers are likely to encounter e-cigarette advertisements. Among the control variables, age, perceived harm of e-cigarette use, and perceived teenagers’ likelihood to use combustible cigarettes and drugs positively predicted support for limiting teenagers’ exposure to e-cigarette advertisements. The results indicated that those who are older and view e-cigarette use as harmful, in general and for teenagers, are more likely to support regulations limiting
teenagers’ exposure to e-cigarette advertisements when they perceive greater effects of e-cigarettes on teenager non-e-cigarette users than on themselves. However, other potential predictors, such as current use of combustible cigarettes, current use of e-cigarettes, and education, were not associated with support for regulations. Although previous studies found current use of combustible cigarettes or e-cigarettes to be a negative predictor of support for e-cigarette regulations, smokers in this study neither supported nor opposed regulations on e-cigarette advertisements compared to nonsmokers. It is probable that perceived harm of e-cigarette use, more than current use of tobacco products, is a determinant of support for e-cigarette regulations. In other words, perceived harm of e-cigarette use may vary, depending on individuals’ use of tobacco products and these perceptions affected by current tobacco product use are, in fact, associated with support for regulations.

Regarding support for regulations on flavored-e-cigarette sales and advertisements, TPPs were not associated with support for regulations on flavored-e-cigarettes when other predictors were included in the model. Perceived harm of e-cigarettes, including the gateway effect and age, still appeared as a positive predictor of support for regulations. Also, individuals’ education level was positively associated with support for regulations on flavored-e-cigarettes. The result may indicate that those who have attained higher levels of education are more aware of teenagers’ susceptibility to flavored e-cigarettes and advertisements and are therefore more likely to support regulations on e-cigarette flavoring. However, current e-cigarette use was negatively associated with support for regulations on flavored-e-cigarettes. The results may indicate that current e-cigarette users do not necessarily oppose regulations to protect vulnerable
teenagers, whereas they oppose regulations that may affect their e-cigarette use, including their choice of e-cigarette products. Given the significant determinants of support for tobacco control, it is possible that a nonsignificant relationship between TPPs and support for regulations may result from overlooking determinants other than TPPs in predicting support for regulations. In other words, the role of TPPs in predicting support for regulations may be overestimated in previous TPP research, due to a failure to consider other determinants of support for regulations.

Given the nonsignificant relationship between TPPs and support for media censorship in previous studies, the current study examined whether perceived credibility of the FDA moderates the relationship between TPPs and support for regulations on e-cigarette advertisements. The results of moderation tests showed that TPPs and the credibility of the FDA independently predicted support for regulations, without a moderation effect. The results indicated that individuals are more likely to support regulations on e-cigarette advertisements in the media where teenagers can see e-cigarette advertisements when they perceive teenage non-e-cigarette users are more vulnerable to e-cigarette advertisements and view the FDA as a credible source.

Although TPPs were not associated with support for regulations on flavored e-cigarette sales and advertisements in the model that does not include the credibility of the FDA, TPPs emerged as a significant predictor of support for regulations on flavored e-cigarette sales and advertisements when the credibility of FDA was included. The result indicates that there may be confounding effects between TPPs and the credibility of the FDA on individuals’ intentions to support regulations on flavored e-cigarettes. Thus,
perceived credibility of the FDA should be included in TPP research to better understand the relationship between TPPs and support for regulations.

5.3 Perceived Media Effects on Others and Behavioral Components

More recently, TPP researchers suggested using the perceived media effects on others instead of TPPs to predict support for regulations or to test mediation effects of TPPs between the social undesirability of media messages and support for regulation. The results of this study indicated that the relationship between the perceived effects of e-cigarette advertisements on others (PME3) and support for regulations differ from the relationship between TPPs and support for regulations. Although TPPs were not associated with support for regulating flavored e-cigarette sales and advertisements, PME3 was positively associated with support for regulations. The discrepancy may be interpreted to mean that individuals would support regulations on flavored e-cigarettes based on the magnitude of the anticipated negative impact of e-cigarette advertisements on others, not necessarily on the gaps between the effects of e-cigarette advertisements on others and self. In other words, the results indicate that individuals would be more likely to support regulations on flavored e-cigarette sales and advertisements as their perceived impact of e-cigarette advertisements on teenager non-e-cigarette users increases.

Regarding individuals’ likelihood to engage in corrective action, few studies examined whether PME3 is a stronger predictor of corrective action than TPPs (Cheng & Chen, 2020). Previous studies assumed that the direction of the relationship between PME3 and corrective action is the same as the relationship between TPPs and corrective action. However, the results of this study showed that PME3 and TPPs can motivate individuals to take different actions. Although TPPs were negatively associated with
individuals’ likelihood to engage in corrective action, PME3 was positively associated with corrective action. This may indicate that individuals are likely to engage in corrective action when they anticipate a negative impact of media messages on others. However, individuals are less likely to engage in corrective action when they view larger gaps between the anticipated media effects on others and on themselves. It is probable that individuals view corrective action as insufficient when they perceive greater differences in the effects of media messages between others and themselves.

5.4 Practical Implications

The goal of this dissertation is to investigate the role of TPPs, along with that of other factors, in predicting individuals’ support for regulations on e-cigarette advertisements and intentions to engage in corrective action to counter anticipated negative effects of e-cigarette advertisements on society. This study provides practical suggestions for health professionals to raise individuals’ support for tobacco control, including e-cigarette regulations and anti-tobacco campaigns. By identifying the determinants of individuals’ support for regulations on e-cigarette advertisements and likelihood to engage in corrective actions, this study furnishes help to health professionals to design more effective ways to increase public support for regulations and campaigns.

5.4.1 Support for Regulations on E-cigarette Advertisements

Public health advocates have long shown concern about the increasing popularity of e-cigarette use among adolescents and teenagers. Health professionals have pointed out minors’ vulnerability to e-cigarette companies’ marketing and advertising. However, little is known about whether concerns about minors’ vulnerability to e-cigarette
advertisements motivates the public’s support for regulations on e-cigarette advertisements. By borrowing theoretical arguments from third-person effect literature, this study demonstrates that individuals are more likely to support e-cigarette regulations designed to limit teenagers’ exposure to e-cigarette advertisements when they view those teenagers who do not use e-cigarettes as more vulnerable to e-cigarette advertisements than themselves. However, in terms of regulations on e-cigarette flavoring, the difference in perceived effects of e-cigarette advertisements between others and self was not associated with individuals’ intentions to support regulations on flavored e-cigarette sales and advertisements. This discrepancy can be explained by the population that the regulations aim to protect or affect. It is possible that participants support regulations designed to protect teenagers because they view teenagers as vulnerable to e-cigarette advertisements, compared to themselves. However, when adult non-e-cigarette users were used as a comparison group to calculate TPPs, the relationship between TPPs and support for regulations on e-cigarette advertisements in the media where teenagers can see e-cigarette advertisements was not significant. It is also possible that participants did not associate flavored e-cigarettes with teenagers’ vulnerability to e-cigarette advertisements. Although public health advocates have argued that flavoring in tobacco products appeals to minors and leads them to use tobacco products, the public may not be aware of minors’ susceptibility to flavored tobacco products and advertisements. Thus, those who support flavoring and flavored tobacco product advertisements ban should aim to increase public awareness of minors’ susceptibility to flavored tobacco products.

Among other determinants of support for regulations on e-cigarette advertisements, perceived harm of e-cigarettes and perceived likelihood for teenage non-
e-cigarette users to use combustible cigarettes and drugs as a result of using e-cigarettes positively predicted support for regulations. The results indicated that individuals are more likely to support regulations on e-cigarette advertisements when they perceive greater health risks caused by e-cigarette use. Also, perceived harm of e-cigarette use was positively associated with the social undesirability of e-cigarette advertisements.

Individuals’ perceived gateway effect of e-cigarette use on teenagers appeared to positively predict their support for regulations on e-cigarette advertisements. Although TPPs were not associated with support for regulations on flavored e-cigarette sales and advertisements, the perceived gateway effect was positively associated with a ban on flavoring and flavored e-cigarette advertisements. Gateway effects of e-cigarette use on minors’ use of other tobacco products and drugs have been discussed in the context of increasing concern about the popularity of e-cigarette use among minors. However, little is known about how the public views gateway effects and whether their view of gateway effects of e-cigarette use motivates them to support regulations on e-cigarettes. Although the gateway effects of e-cigarette use may need more empirical evidence, there have been increasing numbers of cases suggesting that teenagers use drugs via the e-cigarette device, including refillable cartridges. This study provides empirical support for the relationship between minors’ use of drugs, such as marijuana via e-cigarette devices, and individuals’ support for e-cigarette regulations. Thus, those who aim to raise the public’s support for regulations on e-cigarette sales and advertising should increase the public’s awareness of risks of e-cigarette use and likelihood that teenagers non-e-cigarette users start using other tobacco products and drugs as a result of using e-cigarette products.
5.4.2 Anti-tobacco Messages and Campaigns

In addition to support for regulations, dissertation examined how TPPs predict individuals’ likelihood to engage in corrective action to counter anticipated negative effects of e-cigarette advertisements on others. Although previous TPP research on tobacco advertising has focused on individuals’ support for regulation as a behavioral outcome, this study included individuals’ likelihood to engage in corrective action when they view others as more vulnerable to e-cigarette advertisements. More specifically, this study tested whether TPPs increase individuals’ likelihood to inform and warn others about health risks of e-cigarette use and submit a complaint to the FDA about e-cigarette advertisements.

However, the results of this study showed that TPPs are negatively associated with individuals’ likelihood to engage in corrective action. This relationship may result from participants’ perceived effectiveness of corrective action to decrease minors’ vulnerability to e-cigarette advertisements. It is possible that individuals view corrective action as insufficiently strong to protect teenagers from their vulnerability to e-cigarette advertisements, as they perceive a greater gap in the effects of e-cigarette advertisements between self and others. Participants indicated that they are less likely to share anti-e-cigarette messages with others when they view teenage non-e-cigarette users as more vulnerable to e-cigarette advertisements than themselves. It is possible that those who perceive teenagers as more vulnerable to e-cigarette advertisements than themselves view regulations limiting teenagers’ exposure to e-cigarette advertisements as more efficient than disseminating anti-e-cigarette messages.
Therefore, emphasizing minors’ susceptibility to e-cigarette advertisements in campaign messages may not be an effective strategy to increase public support for anti-e-cigarette campaigns. To motivate the public to disseminate anti-e-cigarette messages, health professionals should include information about how disseminating anti-e-cigarette messages may increase teenagers’ vulnerability to e-cigarette advertisements and e-cigarette companies’ other marketing techniques. Individuals who perceive greater TPPs may engage in more corrective action if they view corrective action as a way to protect teenagers from the negative effects of e-cigarette advertisements that is as effective as regulations on e-cigarette advertisements.

Consistent with other factors than TPPs predicting support for regulations, individuals’ perceived harm of e-cigarette use and the gateway effects on teenager non-e-cigarette users were positively associated with individuals’ likelihood to engage in corrective action. Moreover, having a teenage child in the household was positively associated with likelihood to engage in corrective action. It is noteworthy that having a teenaged child in the household was associated with likelihood to engage in corrective action, but not support for regulations. Perhaps, those who have a teenager child in their household are more personally engaged in the issue of e-cigarette advertisements and teenagers’ e-cigarette use and this increased personal involvement in the issue may motivate them to disseminate the information about negative health effects of e-cigarette use more actively. Thus, those who promote anti-e-cigarette messages and campaigns may disseminate messages and campaigns via parents with teenaged children by addressing how their campaigns and anti-e-cigarette messages prevents teenagers’ e-cigarette use.
5.5 Limitations and Future Research

This dissertation has limitations. First, this study employed a cross-sectional survey to test study hypotheses and research questions. As Salmon et al. (2019) pointed out, it is uncertain whether the relationships between TPPs and behavioral components of TPPs, such as support for regulations, are sufficiently enduring. Although the results of this study showed that TPPs lead individuals to support regulations on e-cigarette advertisements in the media where teenagers can see e-cigarette advertisements, TPPs may not last long enough to lead individuals to take an action to counter negative effects of e-cigarette advertisements on teenagers after participation in this study. Future researchers should conduct a longitudinal survey and examine whether individuals perceive TPPs regarding the effects of e-cigarette advertisements at different points of time and the extent to which the relationship between TPPs and support for the regulations lasts across different points in time.

Second, this study did not measure perceived effects of particular e-cigarette advertisements. Researchers have found that e-cigarette companies incorporate various youth appeal advertising techniques in their advertising strategies, such as use of cartoon characters, youth-appeal flavoring, and sponsoring music concerts or sports events. It is possible that individuals’ TPPs vary, depending on messages in e-cigarette advertisements. Third, this study did not examine whether individuals perceive greater TPPs from a certain media platform, such as social media, than other media platforms. Individuals may perceive different effects of e-cigarette advertisements, based on where the advertisements are presented. Future studies should include different e-cigarette advertisement messages and test whether individuals’ TPPs and support for regulations
vary, depending on message types and the media platforms where such messages are presented.

Fourth, the results of this study rely on correlations rather than causal relationships. Although this study found significant relationships between TPPs and theoretical predictors of TPPs, more studies are needed to test the causal relationships between TPPs and factors in forming TPPs. For instance, it remains unclear which features of e-cigarette advertisements lead individuals to perceive social undesirability of e-cigarette advertisements. To test the causal relationship between TPPs and social undesirability of e-cigarette advertisements, experimental studies are needed. Future researchers can manipulate youth appeal in e-cigarette advertisements by randomly assigning participants to either e-cigarette advertisements showing a cartoon character or e-cigarette advertisements without a cartoon character. By manipulating the presence of a cartoon character in e-cigarette advertisements, researchers can examine whether the presence of a cartoon character in e-cigarette advertisements leads viewers to perceive higher TPPs and intensifies support for regulations banning the use of cartoon characters in e-cigarette advertisements.

Fifth, it should be noted that the data were collected during the COVID-19 outbreak. It is possible that the unusual circumstances caused by the coronavirus pandemic affected a few key measures of this study. Because many states and cities remained under lockdown while the data were collected, participants’ perceived self-exposure to e-cigarette advertisements and their perceptions of others’ exposure to such advertisements might have been different from before the coronavirus outbreak. It is also possible that participants might have more frequently encountered e-cigarette
advertisements on social media or the internet, as individuals were required to stay at home and minimize contact by executive orders. Furthermore, individuals’ perceived credibility of the FDA, which is another important concept used in this study, might have been influenced by the unusual conditions caused by the pandemic. Due to increasing coronavirus cases followed by increasing deaths and economic recession, governments have begun to lose public trust (Ingraham, 2020). Because this study tested the moderation effects of individuals’ perceived credibility of the FDA on the relationship between TPPs and support for regulations on e-cigarette advertising, the absence of a significant moderation effect could have resulted from participants’ decreased trust in the government and government agencies. Therefore, the findings of this study might have been different if the data had been collected after the coronavirus pandemic. Follow-up studies are needed to test if the results of this study are valid and consistent when data are collected after the coronavirus pandemic.

5.6 Conclusion

Despite some limitations, this dissertation addressed the role of TPPs in predicting individuals’ support for regulations on e-cigarette advertisements and their likelihood to engage in corrective action. The findings of this dissertation provide theoretical contributions to the third-person effect literature. In addition to examining the determinants of TPPs from literature, this study investigated other factors that may impact TPPs, such as presence of vulnerable individuals in the household and current use of health product. The results of this study elucidated the role of TPPs in forming individuals’ behavioral intentions to counter negative effects of e-cigarette advertisements, after controlling for other antecedents of support for regulations and
likelihood to engage in corrective action. The results indicated that individuals’ perceived risks of health products should be considered when testing the relationship between TPPs and support for regulations on health product advertisements.

By examining the determinants of TPPs and individuals’ behavioral intentions, this dissertation has several practical implications. The findings of this study suggest that TPPs and individuals’ perceived effects of e-cigarette advertisements on teenagers lead individuals to take different actions. By connecting theoretical arguments from mass communications with health communications, particularly tobacco control, this dissertation may help health practitioners and creators of campaign messages better understand what affects individuals’ view of health product advertisements and their support for regulations on advertisements and health campaigns. By understanding the role of perceived media effects, along with other determinants of support for regulations and campaigns, health practitioners and communication professionals can better communicate with the public regarding health risks, thereby increasing public acceptance of their messages.
References


APPENDIX A

SURVEY QUESTIONNAIRE

My name is Joon Kyoung Kim, and I am a doctoral student in the School of Journalism and Mass Communications at the University of South Carolina. I am interested in learning about your opinion about electronic cigarette advertisements. You will be asked to complete an online survey. This will take approximately 10 minutes of your time.

Upon completion of the survey, you will receive 70 cents ($0.70) reward on Amazon Mechanical Turk for your participation. The Amazon Mechanical Turk system does not allow the researcher to make partial payments for incomplete responses. Therefore, only participants who complete the survey will receive the 70 cents ($0.70) reward from Amazon Mechanical Turk.

All information will be kept completely confidential. Your MTurk worker ID will not be shared with anyone outside of the research team. It will also be removed from the data set. You will never be identified in any presentations or papers that we might submit for publication.

I am inviting you to participate in a research study. Involvement in the study is voluntary. This means you can choose whether to participate and that you may withdraw from the study at any time without penalty.

If you have any questions, concerns or complaints about the research please contact the primary investigator, Joon Kyoung Kim via email jk4@email.sc.edu or the study supervisor Dr. Sei-Hill Kim via kim96@mailbox.sc.edu.

I am 18 years of age or older, and I wish to participate in this research study.

By continuing I agree to participate in this research study OR by clicking here I agree to participate in this research study.
Have you heard of **electronic cigarettes**?
1. Yes
2. No

Do you have a teenager child (10-19 years old) in your household?
1. Yes
2. No

Are you parents?
1. Yes
2. No

The following are questions about your children.

How many children do you have in your household? Please enter a number only.
________________________________________________________________

What is your oldest child's age? Please enter a number only.
________________________________________________________________

What is your oldest child's age? Please enter a number only.
________________________________________________________________

What is your youngest child's age? Please enter a number only.
________________________________________________________________

The following are questions about your electronic cigarette use.

Have you ever tried **electronic cigarettes**?

1. I have never tried electronic cigarettes.
2. I have tried electronic cigarettes, but I did not use electronic cigarette during the past 30 days.
3. I use electronic cigarettes less than weekly, but at least occasionally.
4. I use electronic cigarettes less than daily, but at least once a week.
5. I am a daily electronic cigarette user.
In the past 30 days, how often did you see e-cigarette advertisements in the following media or places?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once or Twice</th>
<th>3 - 4 times</th>
<th>5 or More</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Magazines</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Newspapers</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Social media (e.g., Facebook, Twitter)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Internet (other than social media)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Places where tobacco products are sold (e.g., convenience stores)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Stores where electronic cigarettes/vaping equipment is sold (e.g., vape shops)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td></td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Somewhat disagree</td>
<td>Neither agree nor disagree</td>
<td>Somewhat agree</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------</td>
<td>---------</td>
<td>-------------------</td>
<td>----------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>The more I use e-cigarettes, the more I risk my health.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>By using e-cigarettes, I risk mouth cancer.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>By using e-cigarettes, I risk lung cancer.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>By using e-cigarettes, I risk damaging my teeth and gums.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Is using e-cigarettes less harmful, about the same level of harm, or more harmful than smoking regular cigarettes?

1. Less harmful than smoking regular cigarettes.
2. About the same level of harm.
3. More harmful than smoking regular cigarettes.
4. I don't know.
Please indicate the nature of impact *e-cigarette advertisements* may have upon society.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Desirable</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>Undesirable</td>
</tr>
<tr>
<td>Positive</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>Negative</td>
</tr>
<tr>
<td>Beneficial</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>Harmful</td>
</tr>
<tr>
<td>Benign</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>Detrimental</td>
</tr>
</tbody>
</table>
The following are questions about your opinion about e-cigarette companies and the U.S. Food and Drug Administration.

Please indicate your view of e-cigarette companies' credibility.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insincere</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Untrustworthy</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Undependable</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Sincere

Trustworthy

Dependable

Please indicate your view of the FDA's credibility.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insincere</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Untrustworthy</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Undependable</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Sincere

Trustworthy

Dependable
Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th></th>
<th>Extremely unlikely</th>
<th>Neither likely nor unlikely</th>
<th>Extremely likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-cigarette use would lead me to use traditional cigarettes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-cigarette use would lead <strong>other adult e-cigarette users</strong> to use traditional cigarettes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-cigarette use would lead <strong>other adult non e-cigarette users</strong> to use traditional cigarettes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-cigarette use would lead <strong>teenage e-cigarette users</strong> to use traditional cigarettes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-cigarette use would lead <strong>teenage non e-cigarette users</strong> to use traditional cigarettes.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Extremely unlikely</th>
<th>Neither likely nor unlikely</th>
<th>Extremely likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-cigarette use would lead me to use drugs (e.g. marihuana).</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>E-cigarette use would lead <strong>other adult e-cigarette users</strong> to use drugs (e.g. marihuana).</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>E-cigarette use would lead <strong>other adult non e-cigarette users</strong> to use drugs (e.g. marihuana).</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>E-cigarette use would lead <strong>teenage e-cigarette users</strong> to use drugs (e.g. marihuana).</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>E-cigarette use would lead <strong>teenage non e-cigarette users</strong> to use drugs (e.g. marihuana).</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>About half the time</th>
<th>Most of the time</th>
<th>Very often</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you encounter e-cigarette advertisements?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do you think <strong>other adult e-cigarette users</strong> encounter e-cigarette advertisements?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do you think <strong>other adult non e-cigarette users</strong> encounter e-cigarette advertisements?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do you think <strong>teenage e-cigarette users</strong> encounter e-cigarette advertisements?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do you think <strong>teenage non e-cigarette users</strong> encounter e-cigarette advertisements?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th>Option</th>
<th>Strongly disagree</th>
<th>Neither agree nor disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-cigarette advertisements would make me want to use e-cigarettes.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>E-cigarette advertisements would make other adult e-cigarette users want to use e-cigarettes.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>E-cigarette advertisements would make other adult non e-cigarette users want to use e-cigarettes.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>E-cigarette advertisements would make teenage e-cigarette users want to use e-cigarettes.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>E-cigarette advertisements would make teenage non e-cigarette users want to use e-cigarettes.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Neither agree nor disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The FDA should limit advertising for electronic cigarettes in media where teens are likely to see it.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The FDA should limit advertising for electronic cigarettes in media channels where teens are likely to see it.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The FDA should restrict tank-style electronic cigarettes' flavorings.</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The FDA should restrict flavored e-cigarette advertisements.</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Q30 Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Neither agree nor disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would warn others about the health effects of electronic cigarette use.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I would share anti-electronic cigarette campaigns (e.g., FDA's) with others.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I would post a link to a news report about the problem of e-cigarette products.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I would submit a complaint to FDA about e-cigarette advertisements.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
What is your age? (Please use numbers. Ex: 31.)

________________________________________________________________

What do you consider your primary race?

1. Black or African American
2. Hispanic or Latino
3. White or Caucasian
4. Asian
5. American Indian or Alaska Native
6. Native Hawaiian or Other Pacific Islander
7. Multi-Racial

What is the highest level of education you have completed?

1. Some high school, but did not finish
2. Completed high school
3. Some college, but did not finish
4. Two-year college degree/A.A./A.S.
5. Four-year college degree/B.A./B.S.
6. Some graduate work
7. Completed Masters or professional degree
8. Doctoral degree or advanced graduate work

What is your household income?

1. Less than $20,000
2. $20,000 to $34,999
3. $35,000 to $49,999
4. $50,000 to $74,999
5. $75,000 to $99,999
6. $100,000 to $149,999
7. $150,000 to $199,999
8. $200,000 or more

Generally speaking, how would you identify yourself politically?

1. Democrat
2. Republican
3. Independent
4. No preference
What is your gender?
1. Male
2. Female