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THE INFLUENCE OF PRIOR ATTITUDE TOWARD AN ISSUE ON INDIVIDUALS' PERCEPTION BIAS AND PERCEIVED CREDIBILITY ABOUT ONLINE HEALTH INFORMATION

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THE INFLUENCE OF PRIOR ISSUE ATTITUDES ON PERCEPTION BIAS AND PERCEIVED MESSAGE CREDIBILITY: ONLINE HEALTH INFORMATION ABOUT SMOKING BANS

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ABSTRACT

THE INFLUENCE OF PRIOR ISSUE ATTITUDES
ON PERCEPTION BIAS AND PERCEIVED MESSAGE CREDIBILITY:
ONLINE HEALTH INFORMATION ABOUT SMOKING BANS

By

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Due to the potential problem that individuals with a prior attitude toward an issue may not see online health information as it is originally intended, this thesis investigated how information users differently perceive online health information according to their prior attitude toward the issue of smoking bans in public places. An online survey with 321 students at Michigan State University was conducted using an online discussion board website with posts from both smoking–ban–supporting and smoking–ban–opposing sides.

Analysis of the data found that individuals with a prior attitude perceive online health information in different ways. The results exemplified confirmation bias in the case of perception bias toward the smoking–ban–supporting posts and toward the content as a whole. As regards perception bias toward the smoking–ban–opposing posts, the data provided evidence of relative hostile media perception. In addition, the smoking–ban–supporting group perceived the smoking–ban–supporting posts to be more credible than the smoking–ban–opposing group did and vice versa. However, the level of perceived credibility of the content as a whole did not significantly differ among participants.

This study contributed important ideas to our knowledge about perception bias and perceived credibility of online health information. Moreover, the findings might be useful to researchers when they aim to create persuasive online health information.

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INTRODUCTION

Use of online health information and benefits

With the rapid explosion of the Internet, the public came to use online health information to learn about health issues. According to Eastin (2001), the Internet has become the first source of health information for many people. Online health information is defined as any online information that enables individuals to have a better understanding of health and make health–related decisions. It usually covers general tips about staying healthy as well as professional information on such topics as medical treatment for specific diseases or health conditions. Compared to the health information that is delivered by traditional media, online health information provides an efficient way to guide the public on diverse health issues. In sum, recent online health information makes it possible for people to have greater access to more kinds of content related to health issues.

Following this growing use of online health information, a number of research studies have suggested how frequently people use online health information and how satisfied they are with the information (Lewis, 1996; Glowniak, 1995). These studies also maintained that online health information has great potential to improve public health by spreading health promotion, preventing disease, and supporting clinical care for individuals and the public (Sonnenberg, 1997; Strauss, 1997; Larkin, 1999). For example, Pew Internet & American Life Project's "online health search 2006" showed that most Internet users start at a search engine when they look for health information. The report estimated that 80% of the survey respondents, about 113 million adults, have searched for

online health information, and 94% of these found it easy to search for that information. "Online health search 2006" indicated that people generally perceive online health information as useful and credible, so they search for information in order to make decisions about how to treat an illness (Fox, 2006).

Prior studies in online health information and limitations

While a number of research studies repeatedly prove that online health information has effectively provided the public with tailored health messages (Abrams et al., 1996), some researchers have started to doubt whether online health information actually benefits users (McClung, 1998; Impicciatore et al., 1999; Berland et al., 2001; Eng et al., 1998; Viswanath, 2006). Especially in light of the ultimate impact of the Internet's efficacy and reach, which have been considered as salient benefits to online health information, the above researchers have demonstrated that online health information has a potentially harmful dark side as follows.

First of all, sources of online health information that are not credible or lack expertise often mislead general information users, and this fact often relates to misdiagnosis and mistreatment (Cline & Haynes, 2001). For example, McClung's study (1998) about children's diarrhea found that only 20%, 12 out of 60 websites, qualified for the American Academy of Pediatrics (AAP) recommendation for treatment. In other words, ordinary people are easily exposed to incorrect health information and follow the misleading recommendations unless they have professional knowledge regarding the treatment of childhood diarrhea.

Moreover, a study about childhood fever also found that almost 90%, 37 out of

41 websites, do not provide complete and accurate information (Impicciatore et al., 1999). The researchers systematically searched online health information through two search engines, Yahoo and Excite. Although the search engines generated the most relevant and popular search results, the information that was obtained did not provide useful tips on feverish children for parents. Thus, the researchers concluded that only a few websites provided complete and accurate online health information, even though fever in children is a common healthcare problem.

In addition, the Federal Trade Commission evaluated the appropriateness and quality of online health advertisements about six major diseases: arthritis, cancer, diabetes, heart disease, HIV/AIDS, and multiple sclerosis. They have organized "surf days," a time period of federal surveillance campaign, to identify commercial websites that may mislead online users. After only a few hours of searching, they found more than 400 websites containing potentially false or deceptive advertising claims about treatment, cure, or prevention, which reveals the potential harm of inappropriate online health information.

Secondly, in addition to the fact that online health information might be inaccurate, it is also too difficult for general users to understand as well as inaccessible to users with certain barriers, so that some individuals are not able to use it efficiently. According to the studies about problems in online health information, contrary to the general belief that it helped all individuals get diverse instruction and guidance, the illiteracy of users and their inability to adopt the new technology should be enhanced before online health information can be used appropriately and effectively.

For example, Berland and his colleagues (2001) claimed that most online health

information is designed for people who are educated to more than an 8th grade level. Considering that the average reading ability for U.S. adults is 8th grade, they worried that many health–related websites contain information that is too difficult for lay people without higher educational experiences to understand. Eng et al. (1998) have also pointed out that online health information has barriers to access for common users as well as those who were underserved by the traditional healthcare system. A recent study by Viswanath (2006) also confirmed that online health information does not improve health care service for all individuals because the Internet is still used by specific groups of people, which are higher–income, more–educated, younger, and employed groups.

Problem definition

Many researchers and organizations have been exploring alternative ways of making high–quality online health information more user friendly. Also, individuals are being educated a variety of ways to figure out credible information from a trustworthy source from the Web and to understand the limitations of online health information. However, even though these efforts have continuously increased the quality of online health information and its comprehension by users, there is still a huge gap between the actual benefits of online health information and the way those benefits are perceived by users as discussed above. In other words, most individuals perceive online health information to be useful, credible, and satisfactory although it actually does not contain sufficient health information nor is it easily understandable.

This disparity between individuals' perception about online health information and its actual benefits are increasing due to the following issues regarding the nature of

information users and online information itself. First of all, individuals have perception bias when they interpret information. Secondly, online information often refers to the controversial issues and represents the firmly held attitudes of diverse users.

1) Active information users and individuals' perception bias

While individuals' use of mass media and the gratifications from those media have long been interests of communication studies, recent mass media research studies have focused on the concept of active audience. Contrary to traditional media use, current studies explain what people do with media rather than what media do to people. For example, Bauer (1973) demonstrated the changing concept of the audience from "an aggregate of passive individuals" to "an interactive social system." Besides, Katz, Blumler, and Gurevitch (1974) stated that active audiences are able to control their own media consumption. In sum, individuals are aware of their needs and can thus evaluate diverse media channels and content before they select specific media that provides the most gratification they seek (Katz, Blumer, & Gurevitch, 1974; Palmgreen, Wenner, & Rosengren, 1985; Rubin, 2002).

In particular, researchers suggested that media users play an active role in choosing and using media – both traditional and new media – including newspaper, radio, television, and the Internet (Ko, Cho, & Roberts, 2005). After Kuehn (1994) suggested that the uses and gratification perspective can serve as an appropriate theoretical framework to explain users' psychological and behavioral tendencies in media studies, subsequent researchers also indicated that the uses and gratification approach applied to the study of computer–mediated communication, such as Internet use (Eighmey, 1997;

Lin, 1996; Morris & Ogan, 1996; Newhagan & Rafaeli, 1996).

While an active audience has been considered to react differently to the same messages depending on their characteristics, cognitive decision making literature also demonstrated that individuals have an opportunity to seek new information and reconcile it with their existing beliefs (Kuhn, 2001). In his study, lay people interpreted the information according to their pre–existing beliefs in systematic ways, so called perception biases. For example, people try to search through new information for evidence that supports their pre–existing beliefs (Chapman & Elstein, 2003) or to ignore contradictory opinions in it (Chinn & Brewer, 1993). In addition, individuals judge the new information to be less credible because they perceive it as unfavorable to their own point of view (Choi, Watt, & Lynch, 2006).

Because diverse communication takes place across cyberspace, individuals' prior knowledge of content has been considered as a significant factor impacting the way people evaluate a new message critically (Eagly & Chaiken, 1993). For example, in the study of Keselman and his colleagues (2008), individuals' prior understanding of heart disease was related to their interpretation about the new messages. Lay people who have imprecise knowledge of heart disease had searched for information on irrelevant sites to confirm their incorrect initial belief. In sum, individuals' pre–existing interests, values and prejudices are reinforced rather than challenged, and many online discussion participants simply seek out online information only from where their interests lie (Dahlberg, 2001).

Considering that individuals are able to perceive misleading information to be appropriate as they please, and the information possibly provides the most gratification

they seek, these perception biases of online health information users might be a critical problem. In sum, lay people who are unaware of the limitations of health information just feel satisfied with what they obtained, although it is not the information most relevant to their needs (Lorence & Greenberg, 2006).

2) Nature of online information and divisive issues

Moreover, the above possibility of individuals' perception bias is enlarged because online health information often consists of controversial health–related issues and represents the firmly held attitudes of each side. Lee and Leets (2002) suggested that people with an extreme opinion have been increasingly using the Internet to express their ideas, spread their beliefs, and recruit new members. For example, individuals with an extreme opinion, such as a point view on one side of a divisive issue, seek to persuade the general public of their viewpoints and post their opinions on those websites. Thus, regarding general health–related information, when lay people search for online health information through the web, they are easily exposed to diverse extreme opinions, which might contain differing extreme messages from both sides of the argument.

What is more, those extreme opinions posted on websites are supported with scientific evidence from trustworthy sources. Wyatt (1997) suggested that the content of the websites may not be correct even if the original information sources were reliable, so that the determination of information from a health website is good or bad has become a critical issue. Jadad and Gagliardi (1998) also point out determining the accuracy of the information could be more challenging than the search for the information itself. In this situation, online health information users easily confused about making a decision as to

which information is credible even though credibility is assured by scientific evidences.

In recent Internet use, people with common interests have gathered virtually to share experiences, ask questions, or provide emotional support and self help advice. Individuals freely communicate with each other by posting their opinions on web–based communication channels, such as online discussion boards. For example, Yahoo! (www.yahoo.com) listed almost 300,000 online community groups in the health and wellness section as of April 2009. Considering that individuals are increasingly forming and facilitating social networks to share their own opinions through websites, it could be a problem if websites represent firmly held extreme opinions on specific controversial issues. In particular, in the case of divisive health–related issues containing arguments from both sides, lay people may be exposed to online information where certain individuals advocate for one side of an issue with some salient points, but so do their opponents in other online information.

Purpose of the study

As previous research studies have shown, there is a discrepancy between user perception about online health information and the actual benefits which user obtains through it, thus individuals with a prior attitude toward a specific topic might perceive online health information as they please. That is, when people read online health information, their perception bias based on their prior issue attitudes is likely to predispose them not to see online health information as the message is originally intended. For example, Keselman et al. (2008) suggested that an incorrect or imprecise previous attitude leads individuals to search for information from irrelevant sites, often seeking out

data to confirm their incorrect beliefs. Moreover, individuals overlook essential information while they mistakenly believe misleading information to be valuable. At the same time, they may quickly bypass information that seems too professional for their prior knowledge level because an active audience can search out extremely diverse online health information on the Web. In sum, individuals possibly perceive certain online health information to be more or less credible according to their prior health beliefs.

In light of the potential problems above related to the differential between users' perception about online health information and its actual value, information users may selectively perceive specific information to strengthen or weaken their prior issue attitudes. The fact that websites often contain extreme opinions also aggravates the potential perception bias. Therefore, how individuals with a prior attitude toward a specific topic actually perceive online health information needs to be explained.

Despite the critical harm caused by users' biased perception about online health information, little is known about how people differently perceive health information from websites. Moreover, despite substantial evidence of a huge gap between the actual benefits of online health information and how those benefits are perceived by users, the way in which people with different prior attitudes on a specific issue perceive online information differently remains relatively unexplained. Considering the fact that the Internet has become the first source of health information for many people (McMullan, 2006) and that the public can freely search for and learn about health and medical issues posted by other users (Bylund et al., 2007), understanding the public's perception toward divisive messages in online health information will lead to appropriately informing and educating the public about the health–related issues in the perspective of message senders.

Moreover, information users might understand the limitations of online health information and be able to use a common sense and good judgment when they evaluate the quality or accuracy of the information. Thus, this study investigates how online health information users perceive that information by focusing on individuals' prior issue attitudes:

RQ: Do online health information users perceive the same message differently according to their prior issue attitudes? If so, how individuals' prior issue attitudes are related to perception bias and perceived credibility of online health information?

To help comprehend the research question, this study investigates individuals' prior issue attitudes, perception bias, and perceived credibility with respect to an online discussion board about the issue of "Smoking ban in public places, such as restaurants and bars." Since smoking is largely known as the leading cause of preventable death, the topic regarding smoking ban might be helpful to promote a better health for public and to positively impact their health conditions. Besides, this topic has been an issue with a moderately high profile in the mass media, a durable shelf life, and identifiable groups of individuals with strong attitudes on one side or the other. In order to provide an online media environment to the participants, an online survey is conducted. According to the extent of their prior issue attitudes, the subjects are divided into three groups: smoking–ban–supporting group, neutral group, and smoking–ban–opposing group. Then, one–way ANOVA is performed to explain how individuals' perception bias and perceived credibility vary according to their prior issue attitudes. In addition, after controlling for

the gender and smoking status, the data is analyzed with partial correlation to find out the relationship of prior issue attitudes to perception bias as well as to perceived credibility.

Implications

This study contributes to recent research trends related to active audience because it focuses on how individuals' perception on the same message varies according to their prior attitude toward the topic. Also, with the increasing use of Internet and online health information, knowledge about how individuals perceive online health information will be directly related to understanding the effective and practical methods of health communication. From the perspective of message senders, understanding how information users perceive the messages is vital for communicating more clearly and creating more persuasive messages. Additionally, the more we understand how individuals' perception bias caused by their prior issue attitudes or issue involvement influences perceived credibility about the information they obtain, the better we can create more user friendly and personalized online health information. Although numerous studies have investigated how we can create credible health information, only a few of them have examined how users perceive the same message differently according to their prior attitude strength toward the topic. Thus, this study will be a great contribution to understanding how we can develop current online health information, not only to be more credible but also to be more persuasive to information users according to their prior issue attitudes.

The following chapter introduces the issue of smoking bans in public places as a divisive health issue. Subsequently, concepts and previous literature regarding perception

bias – such as confirmation bias and hostile media perception – and perceived credibility are discussed to provide a theoretical framework for the study and to generate hypotheses.

LITERATURE REVIEW AND HYPOTHESES

Divisive health issue: smoking bans in public places

For some issues, a large number of people may have strong previous viewpoints. For other less salient topics, a fewer number of people may be interested. Considering the main purposes of this study are to examine how individuals' prior issue attitudes are related to perception bias, and individuals' perceived credibility of online health information, this study advances the controversial topic related to "Smoking ban in public places, such as restaurants and bars." To test perception bias and perceived credibility toward online health information, this study searched for an issue with a moderately high profile in the mass media, a durable shelf life, and identifiable groups of individuals with strong attitudes on one side or the other. Among diverse divisive issues, "smoking ban in public place" might be a good example of such a divisive health–related argument where individuals might feel differently when they judge new online health information.

Moreover, smoking bans in public places has been one of the hottest issues in the state of Michigan (York, 2009). For instance, the Campaign for Smokefree Air (CSA) is currently working to pass legislation in 2009 to make all public places in Michigan smokefree, including restaurants, bars, and casinos. The State Senate and the House of Representatives are also in negotiations about a smoking ban for the state of Michigan. According to Barbeau et al. (2007), while both sides are having a difficult time coming to an agreement, public places smoking policies have suggested as a divisive issue among members who smoke and those who do not. In particular, when the Michigan Senate voted to end smoking in bars and restaurants, the voices on either side of the debate grew

more intense.

In addition, the message that smoking harms the public health has been widely known and disseminated by the anti–smoking campaign for decades. While the most people have known for some time that smoking can cause lung cancer, as well as many other risks and illnesses, the exposure of non–smokers to the second–hand smoke has been highlighted since the late 1980s by the US National Research Council (1986). Evidence for how smoking is bad for those around smoker has been found that the cancer risk from non–smoking spouses and children living with smokers increased almost double in occupational settings (IARC, 1986; Jones, 1999; CEPA, 1999). For example, The American Medical Association has reported that more than 40,000 people in the United States annually die from the effects of second–hand smoke. They also found that second–hand smoke increases the non–smokers' risk of death from heart disease and diverse types of cancer by 25%.

In this situation, people who are in favor of a state–wide smoking ban argue that second–hand smoking critically harms public health. Second–hand smoking is defined as the involuntary and passive tobacco inhalation by non–smokers. As a combination of sidestream smoke and mainstream smoke, it includes smoke from the end of a lighted cigarette, pipe, or cigar, but also exhaled smoke from smokers (National Toxicology Program, 2005). Because smoke lingers in the atmosphere for a couple of hours even after a cigarette has been extinguished, non–smokers are involuntarily exposed to the same nicotine and other toxic chemicals as smokers. Therefore, the more non–smokers breathe in second–hand smoke, the higher possibility is for them to be exposed to the danger of diverse diseases, including cancer, respiratory infections and asthma (Ries et al.,

2004). According to the 2000 National Household Interview Survey (NHIS), about 25% of the U.S. population is exposed to second–hand smoke. Compared to the 1992's data which shows 35.6% of individuals were exposed to second–hand smoking, it is obvious that the exposure of second–hand smoking has decreased. However, second–hand smoking still remains a major public health threat as it is the third leading cause of death in the U.S., while it is preventable (Wilson & Thomson, 2002).

On the other hand, people who are against a state–wide smoking ban doubt that second–hand smoke is truly a health hazard. First, very few of the research studies have been investigated secondary smoke as a major topic, and those research studies have not come up with the statistical significance necessary to be acceptable as anything more than chance or research bias. For example, according to a Congressional Research Service Report (1995), the statistical evidence does not appear to support a conclusion that there are substantial health effects from passive smoking, which means second–hand smoking showed no measurable harm at all. Besides, the massive WHO IARC study (1998) concluded that the risk to a non–smoker living and working with smokers for an extended length of time (40–50 years) was still statistically insignificant. Therefore, people against a smoking ban argue that second–hand smoking is not as harmful as it is made out to be. Second, there is an issue regarding an individual's right to make a decision to go into either a smoking place or non–smoking place. Thus, a smoking ban at the national or state level could be an infringement of the individual's right to smoke. Third, a smoking ban can affect individual's property right because loss of economic benefits for business owners, such as restaurants and bars, is explicitly expected if smokers are not able to use those places while they smoke.

As discussed above, the smoking–ban–supporting side of the divide, which represents people in favor of a state–wide smoking ban, says second–hand smoking is a critical threat to public health and personal responsibility. However, the other side, the smoking–ban–opposing group, sees the issue as an intrusion on personal rights and property rights. They also doubt that the statistics used in second–hand smoking research studies were significant and that second–hand smoking is actually a serious harm to public health. Since advocates on both sides of the issue produce arguments through the form of online health information to insist on their opinion and to persuade lay people, both sides argue their point of view by showing data from professional sources and trustworthy organizations. As a result, general information users are exposed to the opinions of both sides, and likely to feel confused in making a decision as to which side is more believable. Moreover, online information users are likely to perceive the same messages differently according to their prior issue attitudes. Therefore, this study settled on the controversial issue over the smoking bans in public places, such as bars, restaurants, and workplaces.

Prior issue attitudes

The concept of attitude has been broadly defined as a construct that implies an individual's positive or negative view of the attitude object, such as a person, place, thing, issue, or event. In several studies, prior issue attitudes were considered as a main cause which induces people to interpret incoming stimuli as congruent with the perceiver's preconceptions (Lord, Ross, & Lepper, 1979) or hostile against their side (Vallone, Ross, & Lepper, 1985). Although other terms, such as issue–involvement or partisanship, used

in the previous studies, Perloff (1989) interpreted prior attitude as stemming from ego–involvement of participants with the topic and groups of highly involved, so called partisans. In addition, Giner–Sorolla and Chaiken (1994) pointed out that prior beliefs could act as a judgmental heuristic and influence perception and memory in a way that emphasizes the contrary nature of the world. The current study conceptualized the prior issue attitudes to include all those concepts of prior beliefs, issue–involvements, partisanships, preconceptions, or expectancies. Considering prior issue attitudes as what target audience participants have in mind when evaluating the influence of information, individuals' prior issue attitudes might cause a perception bias and a different perceived credibility when subjects estimate obtained information.

Perception bias

Perception bias has been considered to negatively influence individuals when they attempt to make unprejudiced decisions or interpret information objectively (Friedlander & Phillips, 1984; Silverman, 1992). Among diverse types of perception bias – such as confirmation bias, hostile media perception, overconfidence bias, race bias, gender bias, familiarity bias, and anchoring – this study has focused on two representative perception bias in media studies: confirmation bias and hostile media perception. Since these two phenomena affect individuals' media exposure and perceptions of media bias in the contradictory way, this study investigated how individuals differently perceive the media content by addressing these two perception biases.

As noted earlier, while perception biases of lay people make them interpret the

information by their pre–existing beliefs in systematic ways, confirmation bias explains the way people try to search for evidence supporting their pre–existing beliefs from new information. On the other hand, hostile media perception demonstrates that individuals perceive new information to be unfavorable to their prior beliefs. In particular, when it comes to the online health information, which is often controversial and contains diverse firmly held opinions of both sides, the current study assumes that these two perception biases could appropriately demonstrate the research question as to how individuals' perceptions about online health information vary according to their prior attitude toward an issue.

1) Confirmation bias

Research studies on motivated information processing have suggested that pre–existing attitudes and preferences affect the selection, perception, acceptance, and recall of messages in diverse contexts and situations (Baumeister & Newman, 1994; Biek, Wood, & Chaiken, 1996; Chaffee, Saphir, Graf, Sandvig, & Hahn, 2001; Ditto & Lopez, 1992; Kunda, 1990; Lodge & Taber, 2000; Snyder & Campbell, 1980). As Nickerson (1998) defines it, confirmation bias connotes the seeking or interpreting of information in ways that support pre–existing attitudes, beliefs, expectations, or a hypothesis. In other words, confirmation bias is a tendency to search for or interpret new information to confirm one's preconceptions and to avoid information and interpretations which contradict prior beliefs. Thus, people sometimes seek out, notice, recall, and process information to confirm their own prior issue attitudes. At the same time, people sometimes ignore, fail to remember, forget, and undervalue information which

contradicts their opinion.

Wason (1960) first demonstrated confirmation bias in a study in which subjects were asked to find out a rule from a series of three–number strings. Participants started with the number string '2–4–6', and asked to find out what the rule is. When subjects check their assumptions by announcing some examples of different number string, they were informed whether their answers were correct or not. Although the rule was just any three numbers increasing in magnitude, most participants were highly confident that the rule was numbers increasing by two and they did not offer disconfirming number strings, such as increasing by one. Through this experiment, he demonstrated those who believe that they had already discovered a rule were more likely to suggest confirming examples and ignored disconfirming ones. Mahoney and DeMonbreun (1978) also replicated his finding that even scientists showed a tendency to confirm rather than disconfirm their pre–existing belief as non scientists do. Additionally, according to Snyder and Swann (1978), people tended to seek confirming information even when the source of their belief was not credible. Later studies also confirmed that people lend greater weight to information that supports their prior beliefs than to information that counters them (Shaklee & Fischhoff, 1982; Skov & Sherman, 1986).

As Hogarth (1980) has stated, confirmation bias is a systematic information processing shortcut and possibly results in judgment errors. Individuals attempt to confirm their pre–existing belief by truncating the cognition process to select known information when they are exposed to both already known information and opposing information (Shaklee & Fischhoff, 1982). Therefore, in regards to the individuals dealing with diverse online information, they are likely to perceive it based on their pre–existing

attitude or preference. That is, based on previous studies of confirmation bias, online health information users with pre–existing attitudes and preferences might ignore opposing information. At the same time, they might confirm their prior issue attitudes by interpreting information in ways that support prior issue attitudes.

Therefore, drawing on the previous research studies on confirmation bias, this study advances the following hypotheses:

H1: Online health information users with a prior issue attitudes are likely to perceive the content as congruent with their own point of view, that is to say,

a) The smoking–ban–supporting group is likely to perceive the content as congruent with their own point of view, which is in favor of a smoking ban.

b) The smoking–ban–opposing group is likely to perceive the content as congruent with their own point of view, which is opposed to a smoking ban.

2) Hostile media perception

Demonstrating the attitude–influenced psychological mechanism of audience, hostile media perception studies have explained what actually happens in people's minds that leads them to sense media content as biased and hostile to their viewpoint on an issue. Pointing out a wide range of possible cognitive and perceptual processes, hostile media perception suggests that an audience with strong attitude toward an issue tends to perceive media content as biased against their own point of view, even if the content is well–balanced.

Vallone, Ross, and Lepper (1985) first suggested that hostile media perception explains the tendency for a highly involved audience to judge mass media coverage as

unfavorable to their own point of view. When they showed balanced news coverage of the 1982 Beirut massacre to pro–Arab and pro–Israeli undergraduates, both groups of participants judged the content as biased in favor of the opposite side and as produced by a person of opposing opinion. Further, both sides estimated that the news coverage contained a lower percentage of favorable references to their own point of view.

While a number of researchers have shown that hostile media perception appears across diverse types of controversial issues (Christen, Kannaovakun & Gunther, 2002; Dalton, Beck, & Huckfeldt, 1998; Matheson & Dursun, 2001), Gunther and Schmitt (2004) added empirical evidence that is particularly relevant to media content. That is, individuals with a strong prior issue attitudes tend to perceive media coverage as unjustly slanted against their opinion even if the message of the media is impartial. In their experiment, participants were provided with both a newspaper article and a student essay, which contained the same balanced content. However, participants perceived the newspaper article as biased while they perceived the student essay as impartial.

In regards to the role of the individual's strength of opinion, Perloff (1989) insisted that individual's high involvement with a topic is a main cause of hostile media perception, and Gunther and Liebhart (2006) also maintained that the individual's ego–involvement with the topic is positively related to the perceived bias in the news content. That is, those who have a strong attitude or opinion toward an issue perceive mass media content to be partial against their own opinions although media coverage does not include any presence of bias. Among those individuals with high involvement with a topic, this tendency to make biased evaluations of media content was also confirmed even though the coverage was clearly unbalanced (Gunther et al. 2001). Gunther and his colleagues

described this phenomenon as relative hostile media perception, by which people on both sides may see the media content to actually be positioned in the same directions, but each side sees the slant as relatively more disagreeable to or less in agreement with their own position.

In hostile media perception studies, researchers also have highlighted the concept of active audience in regards to partisans (Schmitt et al., 2004). They define partisans as "highly involved individuals who hold strong and deeply felt opinions on a specific issue." Traditionally, partisan groups and their members have actively expressed their viewpoint by picketing, making threats, and demonstrating. Recent active audience with an extreme opinion has been increasingly using the Internet to express their ideas by searching for the information and creating online communities and discussion forums on the Web. As Hagel and Armstrong (1996) stated, the fastest growing phenomenon on the Web is the posting of evaluations, opinions, or experiences using diverse online communication tools, such as Web forums, blogs, instant messaging tools, and social networking sites.

As noted earlier, individuals are exposed to diverse opinions of the issue online, and people with an extreme opinion are increasingly using the online media to express their ideas. In regards to the previous research studies in hostile media perception, online health information users with strong prior attitude on one side of the issue might perceive new information to be biased against their prior issue attitudes. Thus, this study advances the following hypotheses:

H2: Online health information users with a strong prior issue attitudes are likely to perceive the content as favorable to the opinions of the opposite side, that is to say,

a) *The smoking–ban–supporting group is likely to perceive the content as favorable to the smoking–ban–opposing point of view.*

b) *The smoking–ban–opposing group is likely to perceive the content as favorable to the smoking–ban–supporting point of view.*

Perceived credibility

Perceived credibility can be defined as believability, the extent to which individuals perceive the information represent their own belief (Tseng & Fogg, 1999). For example, Zanna and Del Vecchio (1973) demonstrated that credibility is enhanced when individuals perceive the position taken by television news to match their own prior issue attitudes. They suggested that television news is perceived as less credible when the audience does not hear what it would like to hear. A subsequent study by Johnson and Kaye (2002) also supported the conclusion that in regards to online media, the similarity of individuals' prior attitude to the media is likely to predict its perceived credibility. In sum, the perception about the similarity between individuals' prior issue attitudes and the obtained information are positively related to their perceived credibility of the content.

As perceived credibility result from evaluating multiple dimensions simultaneously, prior credibility studies branch into three overlapping categories: source credibility, media credibility, and message credibility (Sundar, 1999). First, source credibility explains how characteristics of a source influence the way individuals perceive a message to alter pre–existing attitudes to certain topics (Metzger et al. 2003). According to Hovland and Weiss (1951), sources with expertise and trustworthiness produce a more positive attitude and induce more behavioral compliance than less credible sources do.

That is, source credibility significantly influences an individual's attitude and behavior responses and thus acts as a key element for message effectiveness in regards to individuals perception.

Although source plays a significant role in determining persuasive effectiveness, recent credibility studies regarding online health information have demonstrated that individuals pay little attention to the source. According to Bates and his colleagues (2006), individuals evaluated the quality of online health information without focusing on source credibility. Whether the message was attributed to a highly credible national organization or to a general website, the difference in source did not have a significant effect on user evaluations of the quality of the information. Moreover, Eysenbach and Kohler (2002) also demonstrated that individuals do not check the "about us" section of websites where they could evaluate the credibility of a source. In sum, online health information users make little use of source credibility when they assess the credibility of online health information.

Secondly, media credibility investigates the characteristics of the channel by which messages are delivered (Slater & Rouner, 1996). Typically, these studies have explored which media – such as newspaper, radio, or television – are better perceived as a believable source of information and therefore more efficiently deliver a persuasive message than the others. For example, Johnson and Kaye (1998) found that online media was more likely to be perceived as having greater credibility than newspapers when Internet use first began to spread. Schweiger (2000) countered that although the credibility of the Web was fairly high among the general public, newspapers were rated ahead of it. Additionally, Kiousis (2001) explored perceptions of news credibility for

television, newspapers, and online news and argued that newspaper had the highest credibility, followed by online news and television news, respectively.

Finally, message credibility concerns the perceived credibility of a message itself (Kiousis 2003). Instead of measuring the credibility of the Internet as a whole or examining the credibility of sources, Sundar and Nass (2001) studied message credibility by measuring peoples' perceived credibility of online news stories. In sum, studies about message credibility were not focused on how the channel or the source is related to the perceived credibility. Instead, message credibility focuses solely on the message itself.

In spite of the categorization of credibility discussed above, recent studies suggested that individuals evaluate diverse overlapping criteria when perceiving the credibility of information. For example, Eysenbach and Kohler (2002) stated that information users know they need to evaluate the credibility of a website by looking for the source, a professional design, scientific evidence, language, and ease of use, as well as content itself. Fogg and his colleagues (2002) suggested that site sponsor, contact information, currency of information, customer service response time, and site structure were the most influential in perceptions of the credibility of information.

Therefore, instead of using any of above three specific credibility categories, source credibility, media credibility, and message credibility, recent online health information studies have examined overall perceived credibility which operationalized the credibility indicating whether information and information sources are believable (Bucy, 2003). Considering perceived credibility is generally agreed to the results from characteristics of source, media and message, perceived credibility examined the degree to which individuals see the content as conveying trustworthy, believable, accurate, or

expert information. As a result, mass communication scholars started to consider credibility by measuring diverse factors, such as accuracy, fairness, lack of bias, completeness, depth, and trustworthiness (Flanagin & Metzger, 2001; Johnson & Kaye, 2002).

As individuals have different prior issue attitudes before they are exposed to media content, they generally perceive differently for the media and indicate different perceived credibility according to their perception bias. Therefore, in regards to the previous research studies in perceived credibility, this study advances the following hypotheses:

H3: Online health information users' prior issue attitudes are related to the perceived credibility about the content, that is to say,

a) The smoking–ban–supporting group is likely to perceive the opinions of the smoking–ban–supporting side to be more credible than the smoking–ban–opposing group does.

b) The smoking–ban–opposing group is likely to perceive the opinions of the smoking–ban–opposing side to be more credible than the smoking–ban–supporting group does.

METHOD

Design

This study was designed to test how individuals' perception bias and perceived credibility about online health information vary according to their prior issue attitudes. In order to examine this research question, the current study employed an online survey which measured participants' prior issue attitudes, perception bias, and perceived credibility on the issue of "Smoking ban in public places." This online survey required about 15–20 minutes to complete.

Prior issue attitudes were calculated based on participants' responses to three questions and was manipulated to classify three different groups (smoking–ban–supporting group VS neutral group VS smoking–ban–opposing group). After being exposed to the created online discussion board website, participants also asked questions about the perceptions regarding the stimulus – perception bias and perceived credibility.

Participants

To empirically test the relationships proposed by the research question and the three hypotheses, a survey was conducted online from April 19 to April 26, 2009 regarding the issue of "Smoking ban in public places." The data for this study were collected from undergraduate and graduate students attending three different introductory communication classes at Michigan State University. The instructors of those classes assigned extra credit points for each completed survey to encourage students to take the survey.

As shown in Table 1, the four demographic measures were age, grade, race, and gender. Respondents were asked the year of birth to minimize confusion which comes from the different types of age system. Whereas the prior survey asked about individual's highest level of education, modified survey included year in school. Thus, they were asked to select current grade among "Freshman, (Undergraduate, First grade)," "Sophomore (Undergraduate, Second grade)," "Junior (Undergraduate, Third grade)," "Senior (Undergraduate, Fourth grade)," and "Graduate student." Participants were asked their gender and chose their race from the following list: "Caucasian," "African American," "Hispanic or Latino," "Asian," "Multi–racial," "Others." Participants who chose "Others" were asked to specify their race.

A total of 321 participants participated in this study (67.0% female and 33.0% male; mean age = 21.17; 72.9% Caucasian, 8.1% African American, 0.6% Hispanic, 14.6% Asian, and 4.4% other). Although student samples had a limitation in representing the general population, the sample criteria appear to be acceptable because student samples were more reflective of current internet users who are used to diverse ways of selecting credible online health information from a trustworthy source (LaRose et al., 2001). Moreover, using previous studies as a guide (Giner–Sorolla and Chaiken, 1994), student samples would be acceptable in the current study to measure how individuals' attitude affect their perception regarding the content since student samples consist of individuals with variety level of prior issue attitudes including neutral subjects. In their study, student samples were used to suggest that prior beliefs may lead people to prejudge information and explored perception toward media content. Finally, this relatively homogeneous group relates to more internally reliable analysis.

Table 1

Frequency Distribution of Age, Race, and Gender of Participants (n=321)

Demographics	*Participants (n=321)* F	%
Gender		
Male	106	33
Female	215	67
Age		
19 yrs	7	2.2
20 yrs	106	33
21 yrs	131	40.8
22 yrs	40	12.5
23 yrs	14	4.4
24 yrs	9	2.8
25 yrs	6	1.9
27 yrs	3	0.9
28 yrs	3	0.9
30 yrs	2	0.6
Grade		
Freshman	0	0
Sophomore	7	2.2
Junior	158	49.2
Senior	128	39.9
Graduate	28	8.7
Race		
Caucasian	234	72.9
African American	26	8.1
Hispanic	2	0.6
Asian	47	14.6
Other	12	3.8
Total	321	

Protection of human subjects

Consideration of protection of human subjects was addressed by applying to the Michigan State University's Institutional Review Board before conducting human subject research. The ethical principles and standards outlined by the American Psychological Association (2009) for human subject research were adhered to. Subjects who agreed to

participate in the research were asked to do so, and they were able to quit the survey when they become uncomfortable or disoriented during the survey. Participants' answers and results were also treated with strict anonymity.

Stimulus materials

Using previous studies as a guide (Gunther & Schmitt, 2004), an online discussion board website was constructed as online health information. To increase external validity, real issue and real arguments of both smoking–ban–supporting group and smoking–ban–opposing group were used in this study. This stimulus was assembled from the public's posts of several recent news articles as well as diverse posts from online discussion forums about the topic. Created website entitled "How do you feel about a Smoking bans in public places, such as restaurants and bars?" in the template of an online discussion board.

The constructed content consisted of two parts. At the beginning, an introductory section that briefly explained the divisive surrounding of the issue of smoking ban in public place, such as restaurants and bars. Then, posts for and against the smoking ban from several actual online arguments were arranged. In order to prevent bias which might be caused by the order of arguments, two different types of stimuli were created. Type 1 starts from the post of the smoking–ban–supporting group and then comes with opinions of the smoking–ban–opposing group in turns. For type 2, the post of the smoking–ban–opposing group comes first, and opposite postings followed in rotation. In an effort to produce a balanced content, this study took care to make a minimum modification for all those six posts to be equal in length and similar in style. That is, all posts were quoted

from existing online posts, and minor modifications made only for language flow and syntax demand.

Containing actual opinions from both smoking–ban–supporting and smoking–ban–opposing posts, attempts to create a believable online discussion board appeared to be successful, as no participants found the stimulus fictitious until they were debriefed. In addition, the created website was revised until all of the judges agreed it was balanced as containing opinions of both sides equally. Finally, it was pre–tested with 28 non–partisan judges who held a balanced position on the issue of smoking bans in public places. The check of measure of perception bias revealed a mean of .11 (SD = .79), close to the neutral midpoint on a 7 point scale where –3 means "extremely biased in favor of smoking ban" and where 3 means "extremely biased against smoking ban."

Procedure

The survey proceeded in the order of introduction, consent form, random assignment (participants would not notice this stage), the first part of survey (questions on demographic information, smoking status, and prior attitudes toward the issue of "Smoking ban in public places."), stimulus exposure, the second part of survey (questions on perception bias and perceived credibility), and debriefing information.

Participants first read and signed a consent form that stated the survey as questions of evaluating the online information related to the issue of smoking bans in public places. Participants were also informed that their participation would result in extra credit. In the first part of survey, questionnaire examined the position and degree of attitude toward the issue of smoking bans in public places. To verify the participants'

position and strength of attitude, an online survey including filter questions asked questions related to how much participants support or oppose smoking bans in public places. Later, based on the first part of survey, participants were categorized to be three groups, smoking–ban–supporting group, neutral group, and smoking–ban–opposing group.

After finishing the first part of survey, the issue of smoking ban in public place was introduced and participants were asked to read the stimulus, an online discussion board website. Since the content contains both positions of opinions about the issue, it was considered to be balanced. As discussed above, in order to prevent bias which might be caused by the construction of the content, two different types of stimuli were used for this study. Those stimuli were previously randomized before participants received a survey questionnaire.

The second part of survey measured perception bias and perceived credibility of online health information. All participants were asked how they perceived the online health information to be positioned on the issue. The responses about each six posts as well as the content as a whole were evaluated. As this study also interested in participants' perceived credibility, additional questions asked about believability, accuracy, fairness, and depth of information of the stimulus.

Measurement

Prior issue attitudes

To figure out where participants position themselves and to classify them into three different groups (smoking–ban–supporting group, neutral group, and smoking–ban–

opposing group), three questions were asked to measure individual's prior attitude toward the issue. Following a study of Gunther and his colleagues (2001) regarding the prior attitude, which is the measurement of favorableness or unfavorableness of an individual's evaluation of a given object, a series of modified attitude questions about the issue of smoking bans in public places were asked, 1) extent of position, 2) attitude toward smoking–ban–supporting group, and 3) attitude toward smoking–ban–opposing group.

First of all, participant's position on the issue was assessed by asking "When you consider the issue of 'Smoking ban in public places', where do you position yourself on this issue?" Response options ranged from –3 (Extremely in favor of smoking ban) to 3 (Extremely against smoking ban) by a 7–point scale. To incorporate group identification in this question about the extent of position, additional questions about attitudes toward members of smoking–ban–supporting group and smoking–ban–opposing group were asked on a 5 point scale. The scale ranged from 1 (not at all support) to 5 (extremely support). After appropriate recoding, these two questions about group identification were combined to calculate an attitude toward the group. Then, the average of the two items – extent of position and attitude toward groups – was calculated. Exploratory Factor Analysis (EFA) with Principal Component Analysis (PCA) extraction method clearly showed one factor with 73.34 percent of total variance explained using the eigenvalue criteria of 1. Cronbach's alpha reliability also indicated high internal consistency (α = .830). Thus, above three items were used as indicators of prior issue attitudes.

Perception bias

After reading an online discussion board website, respondents were asked

questions about perception bias. A measurement for perception bias was adapted from a previous study (Chia et al., 2007) and modified to determine how they perceive the stimulus. Participants were asked to answer the question "How do you identify 'the post' to be positioned on the issue?" for each of the six individual posts – three smoking–ban–supporting and three smoking–ban–opposing posts. In addition, a replication question, "How do you identify 'the content, as a whole' to be positioned on the issue?" was also asked to measure overall perception bias toward the whole content. All of these questions were followed by a 7–point scale anchored by –3 (Extremely in favor of smoking ban) to 3 (Extremely against smoking ban).

Since the stimulus was composed of six separate posts of both smoking–ban–supporting and smoking–ban–opposing sides, analyses about both perception bias toward smoking–ban–supporting posts and perception bias toward smoking–ban–opposing posts were performed. For perception bias toward smoking–ban–supporting posts, the EFA with PCA extraction method based on varimax rotation showed one factor with 59.09 percent of total variance explained. Also, for perception bias toward smoking–ban–opposing posts, a factor with 63.53 percent of total variance explained. Cronbach's alpha also indicated strong internal consistency for perception bias toward smoking–ban–supporting posts ($\alpha = .648$) and perception bias toward smoking–ban–opposing posts ($\alpha = .713$).

Perceived credibility

Using previous studies as a guide (Gaziano & McGrath, 1986; Johnson & Kaye, 2002; Meyer, 1988; Newhagen & Nass, 1989), this study measured credibility as a multi–

dimensional construct of believability, accuracy, fairness, and depth of information. These researchers have used these four measurements to operationalize the perceived credibility. Therefore, participants were asked how believable, accurate, fair, and in depth they judged the content as a whole to be. The EFA with PCA extraction method clearly showed one factor with 73.15 percent of total variance explained using the eigenvalue criteria of 1. Because these four items had high reliability as predicted ($\alpha = .868$), they were also averaged into a variable of perceived credibility.

In addition, since the stimulus was composed of six individual posts of both smoking–ban–supporting and smoking–ban–opposing opinions equally (three posts each), analysis about the perceived credibility of each side would explain more about individuals' perception of the content. In order to investigate individuals' perceived credibility toward posts both for and against a smoking ban, questions asked how believable, accurate, fair, and in depth they judged each post to be by using a five–point scale, ranging from 1 (not at all) to 5 (extremely). The EFA with PCA extraction method clearly indicated one factor solution with 75.11 percent of variance explained for perceived credibility toward smoking–ban–supporting posts. Also, one factor with 75.32 percent of variance explained for perceived credibility toward smoking–ban–opposing posts. As those each 12 items had also good reliability ($\alpha = .663$; $\alpha = .706$) for internal consistency, the measures of each post were averaged into two variables, a perceived credibility toward smoking–ban–supporting posts and perceived credibility toward smoking–ban–opposing posts.

Analytic strategy

This study analyzed the collected data using the statistical software program Statistical Package for the Social Sciences (SPSS 14.0). One–way ANOVA was performed to explain how above groups differed with respect to the perception bias and perceived credibility. Post–hoc tests were also conducted to find out which group's mean was significantly different from each other. Then, to find out the relationship between prior issue attitudes and perception toward the content, partial correlation was used after controlling for the gender and smoking status.

RESULTS

Grouping participants

According to the extent of the individual's prior issue attitudes, the classification of subjects as smoking–ban–supporting group, neutral group, and smoking–ban–opposing group was performed first. After participants indicated their prior issue attitudes by responding to three questions, the current study examined three groups of individuals with different prior issue attitudes according to the calculated measurement of prior issue attitudes. That is, participants with prior issue attitudes below 0 on the scale were considered to be in the smoking–ban–supporting group, and above 0 to belong to the smoking–ban–opposing group. Individuals with 0 prior issue attitudes were considered to be in the neutral group. In the end, dividing the sample at this point resulted in 234 participants (73%) classified as smoking–ban–supporting group, 30 (9%) as neutral group, and 57 (18%) as smoking–ban–opposing group.

In order to determine the effectiveness of this classification and to test if these three different groups showed a significantly differential prior issue attitudes, a one–way ANOVA was conducted. As expected, the result revealed a statistically significant difference among the three groups regarding their prior attitude toward the issue, $F(2,319) = 385.19$, $p < .01$, $\eta^2 = .71$. In addition, post hoc comparison using Scheffe's procedure at $p < .05$ showed that the three groups were significantly different from each other: smoking–ban–supporting group ($M = -2.29$, $SD = 1.06$), neutral group ($M = 0$, $SD = 0$), and smoking–ban–opposing group ($M = 1.66$, $SD = 1.04$).

Table 2

Means and Standard Deviations of Prior Issue Attitudes

Factor Variables	Min.	Max.	Group Means	*Standard Deviation*
Smoking–ban–supporting group	–3.50	–0.50	–2.29	1.06
Neutral group	.00	.00	.00	.00
Smoking–ban–opposing group	.50	3.50	1.66	1.04
TOTAL *(N = 321)*	–3.50	3.50	–1.38	1.85

*Positive number indicates smoking–ban–opposing prior issue attitudes and negative number indicates smoking–ban–supporting prior issue attitudes.

Table 3

ANOVA Results for Prior Issue Attitudes by Groups

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Prior issue attitudes	Between Groups	777.20	2	388.60	385.18	.00	.71
	Within Groups	320.82	318	1.01			
	Total	1098.02	320				

Descriptive statistics

The purpose of this study was to demonstrate how online information users' perceptions about online health information vary according to their prior attitude toward an issue. Therefore, in order to effectively analyze the data, statistical analysis for three variables – prior issue attitudes, perception bias, and perceived credibility – was performed before testing the hypotheses. Since the content contained three posts each from both smoking–ban–supporting and smoking–ban–opposing sides, individuals'

perception bias and perceived credibility were measured in regards to both smoking–ban–supporting and smoking–ban–opposing posts as well as the content as a whole. Descriptive statistics of prior issue attitudes are shown above in Table 2; perception bias toward each post, smoking–ban–supporting posts, smoking–ban–opposing posts, and the content as a whole in Table 4; perceived credibility toward each post, smoking–ban–supporting posts, smoking–ban–opposing posts, and the content as a whole in Table 5.

Table 4

Means and Standard Deviations of Perception Bias

Factor Variables	Min.	Max.	Group Means	*Standard Deviation*
(1st Post)				
Smoking–ban–supporting group	–3.00	3.00	–2.07	1.59
Neutral group	–3.00	3.00	–1.17	1.80
Smoking–ban–opposing group	–3.00	3.00	–0.74	2.35
TOTAL *(N = 321)*	–3.00	3.00	–1.75	1.84
(2nd Post)				
Smoking–ban–supporting group	–3.00	3.00	1.56	1.51
Neutral group	–3.00	3.00	0.80	1.52
Smoking–ban–opposing group	–3.00	3.00	0.75	1.65
TOTAL *(N = 321)*	–3.00	3.00	1.35	1.57
(3rd Post)				
Smoking–ban–supporting group	–3.00	3.00	–1.06	1.75
Neutral group	–3.00	3.00	–0.37	1.43
Smoking–ban–opposing group	–3.00	3.00	–0.14	1.83
TOTAL *(N = 321)*	–3.00	3.00	–0.83	1.77
(4th Post)				
Smoking–ban–supporting group	–3.00	3.00	1.57	1.49
Neutral group	–2.00	3.00	1.27	1.36
Smoking–ban–opposing group	–3.00	3.00	1.00	1.72
TOTAL *(N = 321)*	–3.00	3.00	1.44	1.53

Table 4 (cont'd)

Factor Variables	Min.	Max.	Group Means	*Standard Deviation*
(5th Post)				
Smoking–ban–supporting group	–3.00	3.00	–1.91	1.50
Neutral group	–3.00	2.00	–1.30	1.47
Smoking–ban–opposing group	–3.00	3.00	–0.65	1.97
TOTAL *(N = 321)*	–3.00	3.00	–1.63	1.66
(6th Post)				
Smoking–ban–supporting group	–3.00	3.00	2.08	1.48
Neutral group	–3.00	3.00	1.30	1.73
Smoking–ban–opposing group	–3.00	3.00	0.70	2.23
TOTAL *(N = 321)*	–3.00	3.00	1.76	1.74
(smoking–ban–supporting posts)				
Smoking–ban–supporting group	–3.00	2.67	–1.68	1.24
Neutral group	–3.00	1.00	–0.94	1.19
Smoking–ban–opposing group	–3.00	3.00	–0.51	1.75
TOTAL *(N = 321)*	–3.00	3.00	–1.40	1.41
(smoking–ban–opposing posts)				
Smoking–ban–supporting group	–2.67	3.00	1.74	1.19
Neutral group	–1.33	3.00	1.12	1.28
Smoking–ban–opposing group	–2.33	3.00	0.82	1.64
TOTAL *(N = 321)*	–2.67	3.00	1.52	1.34
(the content as a whole)				
Smoking–ban–supporting group	–3.00	3.00	–0.20	1.11
Neutral group	–2.00	2.00	0.10	0.80
Smoking–ban–opposing group	–2.00	3.00	0.35	1.22
TOTAL *(N = 321)*	–3.00	3.00	–0.07	1.12

* 1st, 3rd, 5th Posts were Smoking–ban–supporting messages and 2nd, 4th, 6th Posts were Smoking–ban–opposing messages.

*Positive number indicates smoking–ban–opposing perception bias and negative number indicates smoking–ban–supporting perception bias.

Table 5

Means and Standard Deviations of Perceived Credibility

Factor Variables	Min.	Max.	Group Means	*Standard Deviation*
(1st Post)				
Smoking–ban–supporting group	1.00	5.00	3.30	0.77
Neutral group	1.00	4.00	2.93	0.60
Smoking–ban–opposing group	1.00	5.00	2.72	0.87
TOTAL *(N = 321)*	1.00	5.00	3.16	0.81
(2nd Post)				
Smoking–ban–supporting group	1.00	4.50	2.34	0.81
Neutral group	1.25	3.75	2.84	0.62
Smoking–ban–opposing group	1.50	5.00	3.10	0.77
TOTAL *(N = 321)*	1.00	5.00	2.52	0.84
(3rd Post)				
Smoking–ban–supporting group	1.00	5.00	2.83	0.89
Neutral group	1.00	4.75	2.86	0.71
Smoking–ban–opposing group	1.00	4.00	2.43	0.93
TOTAL *(N = 321)*	1.00	5.00	2.76	0.89
(4th Post)				
Smoking–ban–supporting group	1.00	5.00	2.93	0.83
Neutral group	1.75	4.25	3.20	0.63
Smoking–ban–opposing group	1.00	5.00	3.12	0.82
TOTAL *(N = 321)*	1.00	5.00	2.99	0.81
(5th Post)				
Smoking–ban–supporting group	1.00	5.00	3.40	0.80
Neutral group	2.25	4.00	3.22	0.53
Smoking–ban–opposing group	1.00	4.25	2.71	0.86
TOTAL *(N = 321)*	1.00	5.00	3.26	0.83
(6th Post)				
Smoking–ban–supporting group	1.00	5.00	2.50	0.94
Neutral group	1.00	4.25	2.73	0.77
Smoking–ban–opposing group	1.00	5.00	2.92	0.90
TOTAL *(N = 321)*	1.00	5.00	2.60	0.93

Table 5 (cont'd)

Factor Variables	Min.	Max.	Group Means	*Standard Deviation*
(smoking–ban–supporting posts)				
Smoking–ban–supporting group	1.75	5.00	3.18	0.60
Neutral group	2.00	4.00	3.00	0.43
Smoking–ban–opposing group	1.00	4.25	2.62	0.76
TOTAL *(N = 321)*	1.00	5.00	3.06	0.65
(smoking–ban–opposing posts)				
Smoking–ban–supporting group	1.00	4.25	2.59	0.67
Neutral group	1.83	3.75	2.92	0.51
Smoking–ban–opposing group	1.67	5.00	3.05	0.68
TOTAL *(N = 321)*	1.00	5.00	2.70	0.68
(the content as a whole)				
Smoking–ban–supporting group	1.50	4.50	2.99	0.67
Neutral group	2.25	4.00	3.06	0.46
Smoking–ban–opposing group	1.00	5.00	2.83	0.67
TOTAL *(N = 321)*	1.00	5.00	2.97	0.66

* 1st, 3rd, 5th Posts were Smoking–ban–supporting messages and 2nd, 4th, 6th Posts were Smoking–ban–opposing messages.
* The scale ranges from 1 (not at all credible) to 5 (extremely credible)

Test of the hypotheses

1) Confirmation bias

Hypothesis 1 predicted that online health information users with a prior issue attitudes are likely to perceive the content as congruent with their own point of view. That is to say, a) the smoking–ban–supporting group is likely to perceive the content as congruent with their own point of view, which is in favor of a smoking ban b) the smoking–ban–opposing group is likely to perceive the content as congruent with their own point of view, which is opposed to a smoking ban.

The data appear to partially support hypothesis 1. To test this hypothesis, a one way ANOVA as well as a partial correlation were conducted to test whether or not the perception bias varied among the three groups and to check whether any theoretical relationship between prior issue attitudes and perception bias exists, respectively. As shown in Table 6, in each perception bias toward individual posts and the content as a whole varied significantly among the three groups. To be more precise, the three groups differed significantly from each other in perception bias toward the content as a whole, $F(2,319) = 6.14, p < .05, \eta^2 = .04$; toward the smoking–ban–supporting posts, $F(2,319) = 19.55, p < .05, \eta^2 = .12$; toward the smoking–ban–opposing posts, $F(2,319) = 13.12, p < .05, \eta^2 = .08$.

In each post hoc comparison, the significant differences occurred as follows:

First of all, in the case of perception bias toward the content as a whole, post hoc comparison using Scheffe's procedure at $p < .05$ showed that the smoking–ban–supporting group ($M = -.20$, $SD = 1.10$) perceived the balanced content to be more favorable to the opinion of the smoking–ban–supporting side. At the same time, the smoking–ban–opposing group ($M = .35$, $SD = 1.22$) perceived the balanced content to be more favorable to the smoking–ban–opposing side. The Neutral group ($M = .10$, $SD = .80$) did not differ from either the smoking–ban–supporting or smoking–ban–opposing group. Therefore, both hypothesis 1–a) and 1–b) were supported in regards to perception bias toward the content as a whole and the result was consistent with previous findings in confirmation bias – participants perceived the online health information to be congruent with their prior issue attitudes.

Secondly, in the case of perception bias toward smoking–ban–supporting posts,

post hoc comparison using Scheffe's procedure at $p < .05$ showed that the smoking–ban–supporting group ($M = -1.68$, $SD = 1.24$) perceived the smoking–ban–supporting posts to be more favorable to the opinion of the smoking–ban–supporting side. At the same time, the neutral group ($M = -.94$, $SD = 1.19$) and the smoking–ban–opposing group ($M = -.51$, $SD = 1.75$) perceived the smoking–ban–supporting posts to be less favorable to the smoking–ban–supporting side. Since all the participants perceived the content to be positioned in favor of the smoking–ban–supporting side, hypothesis 1–a) was supported. However, hypothesis 1–b) was not supported with perception bias toward smoking–ban–supporting posts.

Finally, in the case of perception bias toward the smoking–ban–opposing posts only, post hoc comparison using Scheffe's procedure at $p < .05$ showed that the smoking–ban–supporting group ($M = 1.74$, $SD = 1.19$) perceived the smoking–ban–opposing posts to be more favorable to the opinion of the smoking–ban–opposing side. At the same time, the neutral group ($M = 1.12$, $SD = 1.28$) and the smoking–ban–opposing group ($M = .82$, $SD = 1.64$) perceived the smoking–ban–opposing posts to be relatively less favorable to the smoking–ban–opposing side. Therefore, although hypothesis 1–b) was supported, hypothesis 1–a) was not supported with perception bias toward smoking–ban–supporting posts because all the participants perceived the content to be positioned in favor of the smoking–ban–opposing side.

Table 6

ANOVA: Perception Bias of the Content across Smoking–ban–supporting group, Neutral group, and Smoking–ban–opposing group

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Perception Bias (1st Post)	Between Groups	93.08	2	46.54	14.93	.00	.09
	Within Groups	990.98	318	3.12			
	Total	1084.06	320				
Perception Bias (2st Post)	Between Groups	39.59	2	19.80	8.38	.00	.05
	Within Groups	751.02	318	2.36			
	Total	790.62	320				
Perception Bias (3st Post)	Between Groups	45.91	2	22.95	7.60	.00	.05
	Within Groups	961.01	318	3.02			
	Total	1006.92	320				
Perception Bias (4st Post)	Between Groups	15.79	2	7.90	3.41	.03	.02
	Within Groups	737.27	318	2.32			
	Total	753.07	320				
Perception Bias (5st Post)	Between Groups	76.49	2	38.24	15.19	.00	.10
	Within Groups	800.40	318	2.52			
	Total	876.88	320				
Perception Bias (6st Post)	Between Groups	93.68	2	46.84	16.99	.00	.11
	Within Groups	876.85	318	2.76			
	Total	970.53	320				
Perception Bias (smoking–ban–supporting posts)	**Between Groups**	**69.96**	**2**	**34.98**	**19.55**	**.00**	**.12**
	Within Groups	**568.88**	**318**	**1.79**			
	Total	**638.84**	**320**				
Perception Bias (smoking–ban–opposing posts)	**Between Groups**	**43.59**	**2**	**21.80**	**13.12**	**.00**	**.08**
	Within Groups	**528.36**	**318**	**1.66**			
	Total	**571.96**	**320**				
Perception Bias (the content as a whole)	**Between Groups**	**14.96**	**2**	**7.48**	**6.14**	**.00**	**.04**
	Within Groups	**387.24**	**318**	**1.22**			
	Total	**402.21**	**320**				

In addition, the measures of correlation between prior issue attitudes and perception bias were tested after controlling for the gender and smoking status. The results showed that prior issue attitudes were significantly related to perception bias (See

Table 7). Specifically, prior issue attitudes among all participants were significantly related to perception bias toward the content as a whole as follows: $r(319) = .198, p = .01$. Although content as a whole was composed both of smoking–ban–supporting and opposing posts, the smoking–ban–supporting group perceived the content as congruent with their own point of view, which is in favor of a smoking ban. At the same time, the smoking–ban–opposing group perceived the content as congruent with their own point of view, which is opposed to a smoking ban.

Table 7

Partial Correlation Results: Prior Issue Attitudes and Perception Bias

Perception Bias toward:	Prior Issue Attitudes
1st Post	.407**
2nd Post	–.306**
3rd Post	.296**
4th Post	–.195**
5th Post	.356**
6th Post	–.367**
Smoking–ban–supporting posts	**.439****
Smoking–ban–opposing posts	**–.354****
The content as a whole	**.198****

**. Correlation is significant at the .01 level (2–tailed)

2) Hostile media perception

Hypothesis 2 predicted that online health information users with a prior attitude toward the issue are likely to perceive the content as favorable to the opinions of the opposite side, that is to say, a) the smoking–ban–supporting group is likely to perceive the content as favorable to the smoking–ban–opposing point of view b) the smoking–ban–opposing group is likely to perceive the content as favorable to the smoking–ban–

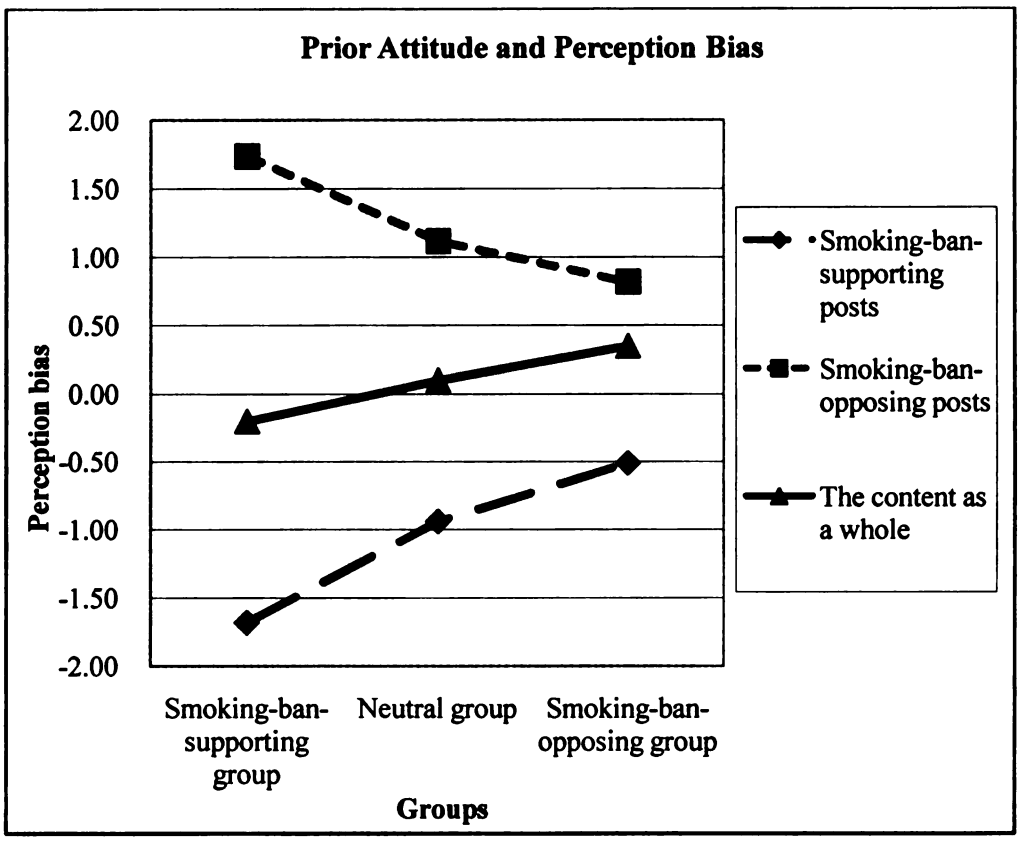
supporting point of view.

Based on the results discussed above, hypothesis 2 did not appear to be supported because both sides perceived the smoking–ban–supporting and smoking–ban–opposing posts to actually be positioned in those directions, not in favor of the opposite side. That is to say, in the case of the smoking–ban–supporting posts, all of the participants recognized the content to support a smoking ban. Moreover, participants saw the smoking–ban–opposing posts as against a smoking ban. In addition, in the case of the content as a whole, participants tend to perceive the balanced content to be congruent with their prior issue attitudes. In other words, both smoking–ban–supporting and smoking–ban–opposing groups perceived the content as a whole to be favorable toward their own point of view, not as favorable toward the opinions of the opposite side.

However, perception bias toward the smoking–ban–opposing posts provided evidence of the relative hostile media perception in that the smoking–ban–supporting group ($M = 1.74$, $SD = 1.19$) perceived the message as significantly more biased in favor of the smoking–ban–opposing side than did the neutral group ($M = 1.12$, $SD = 1.28$) or the smoking–ban–opposing group ($M = .82$, $SD = 1.64$). In addition, the data revealed that there were negative correlations in the case of the smoking–ban–opposing posts, $r(319) = -.354$, $p = .01$. Even though all of the participants saw the smoking–ban–opposing posts as positioned in the smoking–ban–opposing direction, the smoking–ban–supporting group perceived the smoking–ban–opposing posts to be relatively more biased toward the smoking–ban–opposing side than did the smoking–ban–opposing group.

Figure 1.

Prior Issue Attitudes and Perception Bias



* Positive scores on perception bias indicate participants perceived the message to be more smoking–ban–opposing side. At the same time, negative scores on perception bias indicate participants perceived the message to be more smoking–ban–supporting side.

3) Perceived credibility

Hypothesis 3 predicted that online health information users' prior issue attitudes are related to the perceived credibility of the content, that is to say, a) the smoking–ban–supporting group is likely to perceive the opinions of the smoking–ban–supporting side to be more credible than the smoking–ban–opposing group does b) the smoking–ban–opposing group is likely to perceive the opinions of the smoking–ban–opposing side to be more credible than smoking–ban–supporting group does.

In order to test these hypotheses, a one–way ANOVA was conducted to test whether or not the perceived credibility varied among the three groups toward smoking–ban–supporting posts. The results suggested that there was a significant difference among the three groups regarding the perceived credibility of smoking–ban–supporting posts, $F(2,319) = 18.51, p < .05, \eta^2 = .10$. Post hoc comparison using Scheffe's procedure at p < .05 showed that the smoking–ban–supporting group ($M = 3.18$, $SD = .60$) and the neutral group ($M = 3.00$, $SD = .43$) showed higher perceived credibility toward the smoking–ban–supporting posts than the smoking–ban–opposing group does ($M = 2.62$, $SD = .76$). The smoking–ban–supporting group and the neutral group did not significantly differ from each other. In other words, the smoking–ban–supporting group and the neutral group showed higher perceived credibility than does the smoking–ban–opposing group toward the smoking–ban–supporting posts.

Secondly, a one–way ANOVA was performed to test perceived credibility toward smoking–ban–opposing posts among the three groups. The result suggested that there was a significant difference among these groups regarding the perceived credibility of posts of the smoking–ban–supporting group, $F(2,319) = 12.80, p < .05, \eta^2 = .07$. Post hoc comparison using Scheffe's procedure at p < .05 showed that the smoking–ban–opposing group ($M = 3.05$, $SD = .68$) and the neutral group ($M = 2.92$, $SD = .51$) showed higher perceived credibility toward smoking–ban–opposing posts than the smoking–ban–supporting group does ($M = 2.59$, $SD = .67$). The smoking–ban–opposing group and neutral group did not significantly differ from each other. In sum, the smoking–ban–opposing group and neutral group showed significantly higher perceived credibility than does smoking–ban–supporting group toward the smoking–ban–opposing posts.

Additionally, in order to test how perceived credibility toward the content as a whole containing opinions of both sides varied among the three different groups, a one–way ANOVA was conducted. The result suggested that there was no significant difference among the three groups regarding the perceived credibility toward the content as a whole, $F(2,319) = 1.64, p < .05, \eta^2 = .01$. Participants judged the content to be at approximately the same levels of perceived credibility. Additional post hoc comparison using Scheffe's procedure at $p < .05$ also showed that the smoking–ban–supporting group ($M = 2.99$, $SD = .67$), neutral group ($M = 3.06$, $SD = .46$), and smoking–ban–opposing group ($M = 2.83$, $SD = .67$) did not significantly differ from each other.

Table 8

ANOVA: Perceived Credibility of the Content across Smoking–ban–supporting Group, Neutral Group, and Smoking–ban–opposing group

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Perceived credibility (1st Post)	Between Groups	16.90	2	8.45	14.05	.00	.08
	Within Groups	191.21	318	.60			
	Total	208.11	320				
Perceived credibility (2st Post)	Between Groups	29.56	2	14.78	23.91	.00	.13
	Within Groups	196.54	318	.62			
	Total	226.10	320				
Perceived credibility (3st Post)	Between Groups	7.79	2	3.90	4.99	.01	.03
	Within Groups	248.33	318	.78			
	Total	256.12	320				
Perceived credibility (4st Post)	Between Groups	3.18	2	1.59	2.43	.01	.02
	Within Groups	207.95	318	.65			
	Total	211.13	320				
Perceived credibility (5st Post)	Between Groups	21.48	2	10.74	17.30	.00	.10
	Within Groups	197.42	318	.62			
	Total	218.90	320				
Perceived credibility (6st Post)	Between Groups	8.68	2	4.34	5.18	.01	.03
	Within Groups	266.31	318	.84			
	Total	274.99	320				

Table 8 (cont'd)

Perceived credibility (Smoking–ban–supporting posts)	**Between Groups**	**14.19**	**2**	**7.09**	**18.51**	**.00**	**.10**
	Within Groups	**121.85**	**318**	**.38**			
	Total	**136.04**	**320**				
Perceived credibility (Smoking–ban–opposing posts)	**Between Groups**	**11.14**	**2**	**5.57**	**12.80**	**.00**	**.07**
	Within Groups	**138.43**	**318**	**.44**			
	Total	**149.57**	**320**				
Perceived credibility (the content as a whole)	**Between Groups**	**1.41**	**2**	**0.70**	**1.64**	**.19**	**.01**
	Within Groups	**135.98**	**318**	**.43**			
	Total	**137.39**	**320**				

Then, measures of correlation between prior issue attitudes and perceived credibility toward the smoking–ban–supporting posts were tested after controlling for the gender and smoking status. Result showed that prior issue attitudes were significantly related to perceived credibility as follows: r(319)= −.314, p =.01. Therefore, the smoking–ban–supporting group perceived smoking–ban–supporting posts to be more credible than the smoking–ban–opposing group does. Additionally, measures of partial correlation between prior issue attitudes and perceived credibility toward the smoking–ban–opposing posts were tested after controlling for the gender and smoking status. Result showed that prior issue attitudes were significantly related to perceived credibility as follows: r(319) = .322, p =.01. Thus, the smoking–ban–opposing group is likely to perceive the opinions of the smoking–ban–opposing side to be more credible than the smoking–ban–supporting group does. Finally, measures of partial correlation between prior issue attitudes and perceived credibility toward the content as a whole were tested after controlling for the gender and smoking status, and result indicated that prior issue attitudes were not significantly related to perceived credibility, r(319) = −.074, p =.01.

Table 9

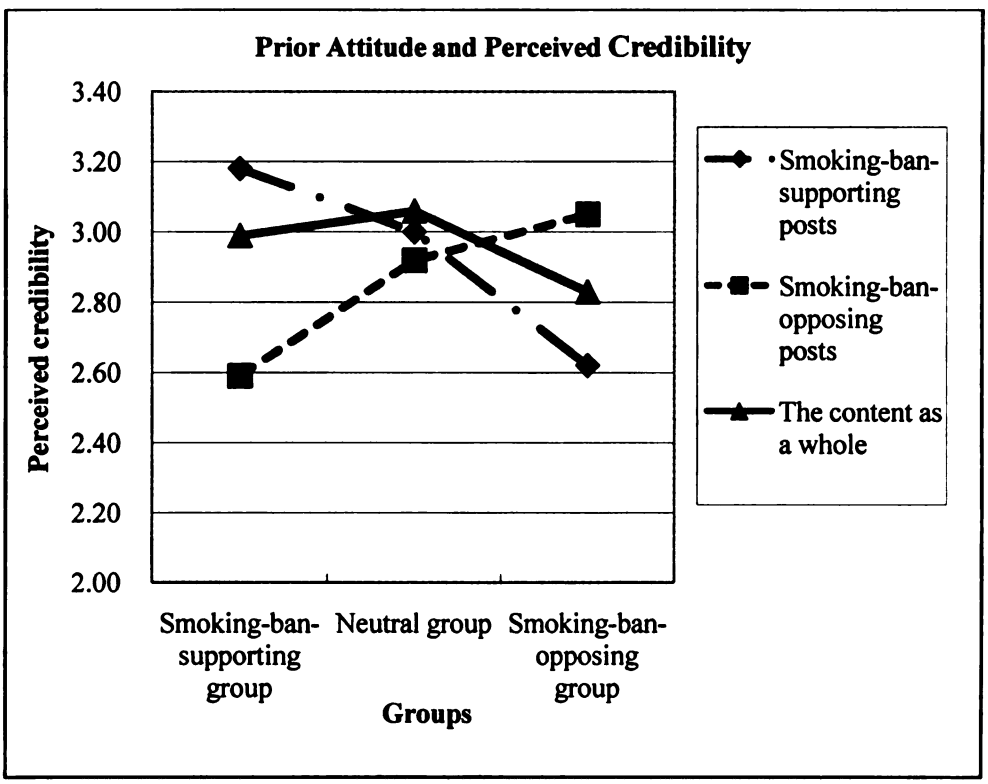
Partial Correlation Results: Prior Issue Attitudes and Perceived Credibility

Perceived Credibility toward:	Prior Issue Attitudes
1st Post	–.272**
2nd Post	.373**
3rd Post	–.179**
4th Post	.161**
5th Post	–.288**
6th Post	.229**
Smoking–ban–supporting posts	**–.314****
Smoking–ban–opposing posts	**.322****
The content as a whole	**–.074**

**. Correlation is significant at the .01 level (2–tailed)

Figure 2

Prior Issue Attitudes and Perceived Credibility



DISCUSSION

While there is a discrepancy between actual benefit of online health information and the way those benefits are perceived by information users, individuals with a prior issue attitudes might perceive online health information as they please, and perception bias based on their prior issue attitudes might predispose them not to see online health information as it was originally intended. Therefore, the current study questioned how individuals differently perceive online health information according to their prior attitude toward the issue. An online survey was performed with content containing opinions on both sides of the issue of "Smoking ban in public places."

Prior issue attitudes and perception bias

Findings of this study indicated that individuals with a prior issue attitudes systematically perceived health information in the online media differently. In particular, the results suggested a significant gap in perception bias among the three groups not only in regards to the individual posts but also to the content as a whole. Although both the smoking–ban–supporting and smoking–ban–opposing group identically perceived the smoking–ban–supporting posts to be positioned in favor of the smoking–ban–supporting side and the smoking–ban–opposing posts to be positioned in favor of the smoking–ban–opposing side, there was a significant difference in the extent of perception bias among the three groups.

First of all, in the case of perception bias toward the smoking–ban–supporting posts, the results demonstrated prior issue attitudes and perception bias were positively

correlated with each other. Therefore, the smoking–ban–supporting group perceived the smoking–ban–supporting posts to be more favorable to their opinion while the neutral group and the smoking–ban–opposing group perceived the smoking–ban–supporting posts to be relatively less favorable to the smoking–ban–supporting side. Although all the participants perceived the content to be positioned in favor of the smoking–ban–supporting side, a positive correlation between prior issue attitudes and perception bias relatively indicated the presence of confirmation bias.

The findings in this case of perception bias toward the smoking–ban–supporting posts allow us to take a broader perspective on individuals' perception of online media. While past research studies suggested that mass media condition may generate hostile media perception, the results of this study represent the idea that the new media environment – such as online discussion board – might influence differently on the individuals' perception bias toward a specific content. That is, it is an intriguing issue that requires further research why online media environment, such as online discussion board in the current study, generate a confirmation bias instead of hostile media perception.

Secondly, for perception bias toward the smoking–ban–opposing posts, the results demonstrated that prior issue attitudes and perception bias were negatively correlated with each other. That is, the smoking–ban–supporting group perceived the smoking–ban–opposing posts as significantly more biased in favor of the smoking–ban–opposing side than did the neutral group or smoking–ban–opposing group, although all of the participants saw the smoking–ban–opposing posts as positioned in the smoking–ban–opposing direction. This negative correlation between prior issue attitudes and perception bias indicated a relative hostile media perception: the smoking–ban–supporting group

perceived the smoking–ban–opposing posts to be relatively more biased in favor of the smoking–ban–opposing side than did the smoking–ban–opposing group.

Then, what makes this result of relative hostile media perception only in the case of the smoking–ban–opposing posts? Considering that the current study found an evidence of confirmation bias from the other cases, in the case of the smoking–ban–supporting posts and the content as a whole, the characteristic of audience might be related to this unique result from the perception bias toward the smoking–ban–opposing posts. As discussed earlier, only 18% of the entire participants were smoking–ban–opposing group and they might believe their own point of view to be the minority opinion due to the current anti-smoking atmosphere in the U.S. Since it has been considered that individuals perceive hostile media perception and they assume others do not share the same opinion on the issue, future research is required whether individuals in smoking–ban–opposing side believe their own point of view to be relatively minor opinions and are likely to overestimate the commonness of their or other individuals' opinions.

Thirdly, as regards perception bias toward the content as a whole, the results demonstrated that prior issue attitudse and perception bias were positively correlated with each other and that individuals looked at the content in very different ways, even though they were exposed to exactly the same message. As predicted, the result was consistent with previous studies regarding confirmation bias: participants perceived the online health information to be congruent with their prior issue attitudes although the content was actually well–balanced and included opinions of both sides equally. However, the results were inconsistent with previous findings in hostile media perception studies as participants perceived the balanced message to be positioned in favor of their prior

attitudes toward the issue. Although some individual cases in this study supported the predictable hostile media perception, the tendency of individuals' perception bias toward the balanced content differed from previous findings.

It is important to note that the results for the content as a whole agree with the previous findings of confirmation bias studies, not with hostile media perception studies. Considering that hostile media perception studies suggested that individuals perceived balanced content to be biased toward the opposite opinions in the case of mass media, whether online media especially generate confirmation bias instead of hostile media perception is an issue that requires future research. In other words, the results of the current study suggest that online media might mediate confirmation bias although the previous study of Gunther and Schmitt (2004) suggested that mass media condition generate hostile media perception. In regards to online media, which has become the first media source for recent information seekers (Eastin, 2001), subsequent study is needed to explain why this result from online media differs from previous findings.

Prior issue attitudes and perceived credibility

Findings of this study also indicated that individuals' perception bias relatively causes information users to perceive more credibility from information which supports their points of view. As predicted by previous credibility studies, the smoking–ban–supporting group perceived the smoking–ban–supporting posts to be more credible than the smoking–ban–opposing group did and vice versa.

However, when it comes to the perceived credibility of the content as a whole, there were no significant differences according to participants' prior issue attitudes. Since

both smoking–ban–supporting and smoking–ban–opposing sides were equally covered in the content, it seems that individuals felt more credibility from the opinions supporting their own, and less credibility from the opposing opinions. Therefore, the level of perceived credibility of the content as a whole did not significantly differ between the smoking–ban–supporting group and smoking–ban–opposing group. It is notable that this result indicates that individuals perceive more credibility in the specific part of the online information that represents their prior issue attitudes, which finally might result in perception bias toward the content.

Limitations

Although the result of the study explained how individuals' perception toward online health information varied according to their prior issue attitudes, it is important to note that there were several limitations to the research. First, a sample of participants which could represent the general population would be ideal. Since the sample for this study was the students in Michigan State University, who are relatively homogeneous in age, and educational background, future research may benefit from expanding its participant pool to include a broader range of participants, such as people of different generations. In particular, the older generations still tend to be wary of online media and their inability to adopt the new technology might cause different results.

Secondly, this study used divisive and contentious issue of smoking bans in public places to simultaneously examine the effects of confirmation bias and hostile media perception. Since online health information is defined as any online information that enables people to have a better understanding of health issues and make health–

related decisions, it is obvious that the issue of smoking bans in public places – as online health information – could warn lay people of the dangers of smoking and provide general tips and information. However, compared to the purely informational topics, such as tips about staying healthy or professional information on medical treatment for specific diseases, the issue of smoking bans in public places could be more related to the political or normative topics, which might produce different results. Therefore, one of the next steps in a future study might be using purely informative topics and looking into the results whether the findings of the future study would be consistent with the current study.

Finally, online discussion boards are merely one type of recent Internet use sand they do not represent all the uses of online media. Therefore, additional study might be needed whether the findings of this study would be consistent with the diverse types of online media.

With the increasing use of the Internet and online health information, knowledge about how individuals perceive online health information will be directly related to understanding the effective and practical methods of health communication in the future. Therefore, the data theoretically contributed important ideas to our knowledge about perception bias and perceived credibility of online health information, especially about the perception of individuals with a prior attitude toward controversial issues. Practically, the findings in this study might be useful to researchers and organizations when they aim to create persuasive online health information. As discussed above, individuals perceived the online health information differently according to their prior attitude toward the issue. In particular, once individuals shape a firmly held attitude toward the issue, it could be

extremely difficult to persuade them to the opposite way of thinking because individuals perceive more credibility when they look information reflecting their prior issue attitudes whether they are correct or not. Therefore, health communicators should start educating the public about the health-related issues as early as possible – before individuals have a firmly held attitude on an issue. For example, the effect of early education for individuals without prior attitudes on smoking's harmful effects would be more influential and pervasive than for those who already have a positive or negative attitude toward the issue.

Appendix A – CONSENT FORM

Title of the Study: Perceived Credibility of Online Information

You are invited to the research study, "Perceived Credibility of Online Information." We ask that you to read this form and ask any questions you may have before agreeing to participate in this study.

Background Information:
You are being asked to participate in this study on this single occasion for extra credit in your class. This survey is about evaluating your perceived credibility of selected online information messages. We are examining what kinds of message you select from the search engine results page, how you evaluate credibility from the selected online information and whether those selected messages affect your prior attitudes or beliefs. The survey will take about 20 minutes to complete. You are not expected to participate in any treatments that would incur the risk of physical or mental injury during your participation in this study. Please note that you need to be older than 18 years old to be eligible to participate in this study. If you do not wish to participate in this study or if you are younger than 18 years old, please see your instructor immediately. Your instructor will give you an alternative task you can complete.

Benefits and Risk:
You are not expected to participate in any treatment that would incur the risk of physical or mental injury during your participation in this study. While this study is not expected to yield any immediate benefit to the individual participants, the information you provide will be used for designing more credible online messages and advancing social scientific knowledge. If you become uncomfortable or disoriented during the survey, verbally notify the instructor as soon as possible.

Anonymity:
Your answers and results from this study will be treated with strict anonymity. Your privacy will be protected to the maximum extent as allowable by law. No one will know what you write. You can feel free to answer each question based on your actual knowledge and behavior. The questions that ask about your background will be used only to describe the types of students completing this survey. The information will not be used to find out your name. Your name will not be associated with the answers you provide to questions in any report of research findings. Your name is only requested so that we may inform your instructor of your participation solely for the purpose of awarding credits.

Voluntary Nature of the Study:
You are being asked to freely participate in this study. Completing the survey is voluntary. Therefore, you may choose not to participate, and may withdraw from the

study at any time without penalty. Moreover, you can withdraw or refuse to answer any particular question without penalty.

Contacts and Questions:
You have the right to contact the investigators if you have any objections to or concerns with any aspect of this study. The contact information is as follows: Dr. Hye–Jin Paek (517–432–8377/paekh@msu.edu), or Jehoon Jeon (734–846–0757/jeonjeho@msu.edu).

If you have any questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact – anonymously, if you wish Michigan State University Human Subject Protection Programs at Michigan State University, by phone: (517) 355–2180, fax: (517) 432–4503, email: irb@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824.

Your signature below indicates your voluntary agreement to participate in this study.

_____
Print your name (e.g., Last Name, First Name)

_____
Your signature and date

_____
Class Name (e.g., ADV XXX)

Appendix B – QUESTIONNAIRE

SECTION 1 – The following questions ask about your background.

1. Year of birth?

   _____

2. Year in school?
   1) Freshman (Undergraduate, 1st grade)
   2) Sophomore (Undergraduate, 2nd grade)
   3) Junior (Undergraduate, 3rd grade)
   4) Senior (Undergraduate, 4th grade)
   5) Graduate student

3. Which one of these groups BEST describes you?
   1) Caucasian
   2) African American
   3) Hispanic or Latino
   4) Asian
   5) Multi–racial
   6) Others (please specify)

4. Your gender is:
   1) Male
   2) Female

SECTION 2 – The following questions ask about your smoking experience.

1. In general, how would you describe your health?
   1) Excellent
   2) Very good
   3) Good
   4) Fair
   5) Poor

2. During the past 30 days (one month), on how many days did you smoke cigarettes?
   1) 0 days
   2) 1 or 2 days
   3) 3 to 5 days
   4) 6 to 9 days

5) 10 to 19 days
6) 20 to 29 days
7) All 30 days

3. During the past 30 days (one month), on the days you smoked, how many cigarettes did you usually smoke?
1) I did not smoke cigarettes during the past 30 days (one month)
2) Less than 1 cigarette per day
3) 1 cigarette per day
4) 2 to 5 cigarettes per day
5) 6 to 10 cigarettes per day
6) 11 to 20 cigarettes per day
7) More than 20 cigarettes (1 pack) per day

SECTION 3 – The Following questions ask about your attitude about the "Smoking Ban in public place."

Now, please consider people in the following groups: the "Smoking–ban–supporting group" and the "Smoking–ban–opposing group."

"Smoking–ban–supporting group" argues that second–hand smoke can be a potential harm for non smokers due to its increasing risk of heart disease, cancer, emphysema, and many other diseases.

On the contrary, "Smoking–ban–opposing group" suggests that the state–wide smoking ban has been threatening individuals' rights and property rights with misleading statistic results of smoking harm.

1. Which best describes your level of interest in the issue of a state–wide smoking ban in public places?

1) None 2) Little 3) Moderate 4) Strong 5) Very strong

2. When you consider the issue of "Smoking Ban in Public Places", how do you identify yourself as belonging to the "Smoking–ban–supporting Group" versus "Smoking–ban–opposing Group"? (Please mark on the number)

–3	–2	–1	0	1	2	3
Smoking–ban–supporting group			Neutral			Smoking–ban–opposing group

3. Where on this line, do you think the "Smoking–ban–supporting Group" positions themselves? (Please mark on the number)

1	2	3	4	5
Not at all Favorable towards Smoking–ban–supporting group	Slightly Favorable towards Smoking–ban–supporting group	Somewhat Favorable towards Smoking–ban–supporting group	Moderately Favorable towards Smoking–ban–supporting group	Extremely Favorable towards Smoking–ban–supporting group

4. Where on this line, do you think the "Smoking–ban–opposing Group" positions themselves? (Please mark on the number)

1	2	3	4	5
Not at all Favorable towards Smoking–ban–opposing group	Slightly Favorable towards Smoking–ban–opposing group	Somewhat Favorable towards Smoking–ban–opposing group	Moderately Favorable towards Smoking–ban–opposing group	Extremely Favorable towards Smoking–ban–opposing group

SECTION 4 – You are about to look into "the online discussion board" about the "Smoking Ban in public place." You will find arguments between the "Smoking–ban–supporting group" and the "Smoking–ban–opposing group." Please read next discussion board to answer following questions.

How do you feel about a "Smoking Ban in Public Places, such as restaurants and bars"? Discussion Board | Topic View

Topic: Smoking Ban in Public Places – Should smoking be banned in public places?

This discussion Board is for people who wants to argue on the issue, "Smoking Ban in Public Places."

A "Smoking ban in public places" prohibits tobacco smoking in restaurants, bars, workplaces and other public spaces to protect people from the effects of second–hand smoke. While Michigan has long pursued the policy of letting the market rule on whether bars and restaurants would allow smoking, recently, there have been many debates over whether there should be a state–wide ban or not.

This issue is VERY controvertial and there are continuous debates between two groups of people, "Smoking–ban–supporting" groups & "Smoking–ban–opposing" groups. Should Smoking be banned in public places??? What is your opinion about the issue in Michigan?

Displaying posts 1 – 6 out of 93,135 by 18,627 people.

1st Post

GNGLOG (MICHIGAN) wrote yesterday

Smoking is dangerous not only for you but also for people near you who did not CHOOSE to smoke!! Smoking causes many diseases and harms to people nearby, who just breathe in the smoke. Smokers choose to smoke, but people nearby DO NOT choose to smoke. A complete ban on smoking in public is needed to protect people's health from passive smoking

2nd Post

00CAT10 (MICHIGAN) wrote yesterday

Hey Dude, if you do not want to smoke passively, it's just easy. You can go to places where smoking is prohibited. You guys are adults and you can decide where to go. People CHOOSE either smoking places or non–smoking places. Thus, NO need for the state–wide ban! If enough people want to go to non–smoking bars, business owners will set up non–smoking bars

3rd Post

THglxD (MICHIGAN) wrote yesterday

LOL!!! In many places, there are NO non–smoking bars or restaurants!!! NONE!! Unless people decide not to go out with friends and stay home all the time, they cannot avoid passive smoking. Also, workers in smoky work–places NEVER freely choose this if no other jobs are available. Workers are exposed to other people's smoke, but they couldn't make choice out of their own will to avoid it.

4th Post

catofile (MICHIGAN) wrote yesterday

What about jobs like mining or the armed forces?? Individuals decide those jobs in smoky work places rather than not having a job at all. A state–wide ban on smoking in public places would put many bars, pubs and clubs out of business. Smokers would not go to these places. My uncle owns a large bar in MN. After the

state–wide ban in MN, his business has slashed by 50% due to the loss of smoking customers. State–wide ban kills small businesses and all those workers. Pubs provide jobs for people with few skills. A complete ban is not necessary – ventilation fans can remove smoke.

5th Post

danuu2 (MICHIGAN) wrote yesterday

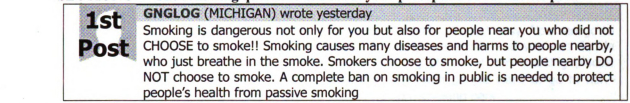
Every time I go out for dinner with my family, I saw foggy smoke all over the restaurant. I do not want to smell that crap. Smokers do have right to harm themselves but they don't have right to harm others. It is more important to protect people's health than to protect businesses. Pubs and clubs should adapt, for example, by trying to earn more money from selling food. After a ban in New South Wales (Australia, there was only 9% of small businesses reported a drop in sales. Some small business owners actually earn much more money by attracting more and more non–smokers!!

6th Post

Lagt03d (MICHIGAN) wrote yesterday

That is totally bull shit!! If you live in the city, you inhale the equivalent of 2 cigarettes a day in carcinogen from the SMOG, NOT from the SMOKE!! There's more carbon monoxide than u get from a cigarette – are people all dying from lung cancer? 'NO' Therefore, state–wide smoking ban never make sense at all! If you ban smoking, why don't you ban all the traffics – causing smog??

SECTION 5 – The following questions ask about your perception about the 1st post.



1. Considering the issue of "Smoking Ban in public place," how do you identify **'the 1st Post'** are positioned on this issue?

–3	–2	–1	0	1	2	3
Extremely in favor of Smoking–ban–supporting group			Neutral (Equally represent both sides)			Extremely in favor of Smoking–ban–opposing group

2. Considering 'believability', in your opinion, **'the 1st Post'** is…?
   1) Not at all believable
   2) Somewhat believable
   3) Moderately believable
   4) Very believable
   5) Extremely believable

3. Considering 'accuracy', in your opinion, **'the 1st Post'** is…?
   1) Not at all accurate
   2) Somewhat accurate
   3) Moderately accurate
   4) Very accurate
   5) Extremely accurate

4. Considering 'fairness', in your opinion, **'the 1st Post'** is…?
   1) Not at all fair
   2) Somewhat fair
   3) Moderately fair
   4) Very fair
   5) Extremely fair

5. Considering 'depth of knowledge', in your opinion, **'the 1st Post'** is…?
   1) Not at all knowledgeable
   2) Somewhat knowledgeable
   3) Moderately knowledgeable
   4) Very knowledgeable
   5) Extremely knowledgeable

SECTION 6 – The following questions ask about your perception about the 2nd post.

2nd Post

OOCAT1O (MICHIGAN) wrote yesterday

Hey Dude, if you do not want to smoke passively, it's just easy. You can go to places where smoking is prohibited. You guys are adults and you can decide where to go. People CHOOSE either smoking places or non-smoking places. Thus, NO need for the state-wide ban! If enough people want to go to non-smoking bars, business owners will set up non-smoking bars

1. Considering the issue of "Smoking Ban in public place," how do you identify **'the 2nd Post'** are positioned on this issue?

–3	–2	–1	0	1	2	3
Extremely in favor of Smoking–ban–supporting group			Neutral (Equally represent both sides)			Extremely in favor of Smoking–ban–opposing group

2. Considering 'believability', in your opinion, **'the 2nd Post'** is…?
   1) Not at all believable
   2) Somewhat believable
   3) Moderately believable
   4) Very believable
   5) Extremely believable

3. Considering 'accuracy', in your opinion, **'the 2nd Post'** is…?
   1) Not at all accurate
   2) Somewhat accurate
   3) Moderately accurate
   4) Very accurate
   5) Extremely accurate

4. Considering 'fairness', in your opinion, **'the 2nd Post'** is…?
   1) Not at all fair
   2) Somewhat fair
   3) Moderately fair
   4) Very fair
   5) Extremely fair

5. Considering 'depth of knowledge', in your opinion, **'the 2nd Post'** is…?
   1) Not at all knowledgeable
   2) Somewhat knowledgeable
   3) Moderately knowledgeable
   4) Very knowledgeable
   5) Extremely knowledgeable

SECTION 7 – The following questions ask about your perception about the 3rd post.

3rd Post

THgIxD (MICHIGAN) wrote yesterday

LOL!!! In many places, there are NO non-smoking bars or restaurants!!! NONE!! Unless people decide not to go out with friends and stay home all the time, they cannot avoid passive smoking. Also, workers in smoky work-places NEVER freely choose this if no other jobs are available. Workers are exposed to other people's smoke, but they couldn't make choice out of their own will to avoid it.

1. Considering the issue of "Smoking Ban in public place," how do you identify **'the 3rd Post'** are positioned on this issue?

–3	–2	–1	0	1	2	3
Extremely in favor of Smoking–ban–supporting group			Neutral (Equally represent both sides)			Extremely in favor of Smoking–ban–opposing group

2. Considering 'believability', in your opinion, **'the 3rd Post'** is…?
   1) Not at all believable
   2) Somewhat believable
   3) Moderately believable
   4) Very believable
   5) Extremely believable

3. Considering 'accuracy', in your opinion, **'the 3rd Post'** is…?
   1) Not at all accurate
   2) Somewhat accurate
   3) Moderately accurate
   4) Very accurate
   5) Extremely accurate

4. Considering 'fairness', in your opinion, **'the 3rd Post'** is…?
   1) Not at all fair
   2) Somewhat fair
   3) Moderately fair
   4) Very fair
   5) Extremely fair

5. Considering 'depth of knowledge', in your opinion, **'the 3rd Post'** is…?
   1) Not at all knowledgeable
   2) Somewhat knowledgeable
   3) Moderately knowledgeable
   4) Very knowledgeable
   5) Extremely knowledgeable

SECTION 8 – The following questions ask about your perception about the 4th post.

4th Post

catofile (MICHIGAN) wrote yesterday

What about jobs like mining or the armed forces?? Individuals decide those jobs in smoky work places rather than not having a job at all. A state-wide ban on smoking in public places would put many bars, pubs and clubs out of business. Smokers would not go to these places. My uncle owns a large bar in MN. After the state-wide ban in MN, his business has slashed by 50% due to the loss of smoking customers. State-wide ban kills small businesses and all those workers. Pubs provide jobs for people with few skills. A complete ban is not necessary – ventilation fans can remove smoke.

1. Considering the issue of "Smoking Ban in public place," how do you identify **'the 4th Post'** are positioned on this issue?

–3	–2	–1	0	1	2	3
Extremely in favor of Smoking–ban–supporting group			Neutral (Equally represent both sides)			Extremely in favor of Smoking–ban–opposing group

2. Considering 'believability', in your opinion, **'the 4th Post'** is…?
   1) Not at all believable
   2) Somewhat believable
   3) Moderately believable
   4) Very believable
   5) Extremely believable

3. Considering 'accuracy', in your opinion, **'the 4th Post'** is…?
   1) Not at all accurate
   2) Somewhat accurate
   3) Moderately accurate
   4) Very accurate
   5) Extremely accurate

4. Considering 'fairness', in your opinion, **'the 4th Post'** is…?
   1) Not at all fair
   2) Somewhat fair
   3) Moderately fair
   4) Very fair
   5) Extremely fair

5. Considering 'depth of knowledge', in your opinion, **'the 4th Post'** is…?
   1) Not at all knowledgeable
   2) Somewhat knowledgeable
   3) Moderately knowledgeable
   4) Very knowledgeable
   5) Extremely knowledgeable

SECTION 9 – The following questions ask about your perception about the 5th post.

5th Post

danuu2 (MICHIGAN) wrote yesterday

Every time I go out for dinner with my family, I saw foggy smoke all over the restaurant. I do not want to smell that crap. Smokers do have right to harm themselves but they don't have right to harm others. It is more important to protect people's health than to protect businesses. Pubs and clubs should adapt, for example, by trying to earn more money from selling food. After a ban in New South Wales (Australia, there was only 9% of small businesses reported a drop in sales. Some small business owners actually earn much more money by attracting more and more non-smokers!!

1. Considering the issue of "Smoking Ban in public place," how do you identify **'the 5th Post'** are positioned on this issue?

–3	–2	–1	0	1	2	3
Extremely in favor of Smoking–ban–supporting group			Neutral (Equally represent both sides)			Extremely in favor of Smoking–ban–opposing group

2. Considering 'believability', in your opinion, **'the 5th Post'** is…?
   1) Not at all believable
   2) Somewhat believable
   3) Moderately believable
   4) Very believable
   5) Extremely believable

3. Considering 'accuracy', in your opinion, **'the 5th Post'** is…?
   1) Not at all accurate
   2) Somewhat accurate
   3) Moderately accurate
   4) Very accurate
   5) Extremely accurate

4. Considering 'fairness', in your opinion, **'the 5th Post'** is…?
   1) Not at all fair
   2) Somewhat fair
   3) Moderately fair
   4) Very fair
   5) Extremely fair

5. Considering 'depth of knowledge', in your opinion, **'the 5th Post'** is…?
   1) Not at all knowledgeable
   2) Somewhat knowledgeable
   3) Moderately knowledgeable
   4) Very knowledgeable
   5) Extremely knowledgeable

SECTION 10 – The following questions ask about your perception about the 6th post.

6th Post

Lagt03d (MICHIGAN) wrote yesterday

That is totally bull shit!! If you live in the city, you inhale the equivalent of 2 cigarettes a day in carcinogen from the SMOG, NOT from the SMOKE!! There's more carbon monoxide than u get from a cigarette – are people all dying from lung cancer? 'NO' Therefore, state-wide smoking ban never make sense at all! If you ban smoking, why don't you ban all the traffics – causing smog??

1. Considering the issue of "Smoking Ban in public place," how do you identify **'the 6th Post'** are positioned on this issue?

–3	–2	–1	0	1	2	3
Extremely in favor of Smoking–ban–supporting group			Neutral (Equally represent both sides)			Extremely in favor of Smoking–ban–opposing group

2. Considering 'believability', in your opinion, **'the 6th Post'** is…?
   1) Not at all believable
   2) Somewhat believable
   3) Moderately believable
   4) Very believable
   5) Extremely believable

3. Considering 'accuracy', in your opinion, **'the 6th Post'** is…?
   1) Not at all accurate
   2) Somewhat accurate
   3) Moderately accurate
   4) Very accurate
   5) Extremely accurate

4. Considering 'fairness', in your opinion, **'the 6th Post'** is…?
   1) Not at all fair
   2) Somewhat fair
   3) Moderately fair
   4) Very fair
   5) Extremely fair

5. Considering 'depth of knowledge', in your opinion, **'the 6th Post'** is…?
   1) Not at all knowledgeable
   2) Somewhat knowledgeable
   3) Moderately knowledgeable
   4) Very knowledgeable
   5) Extremely knowledgeable

SECTION 11 – The following questions ask about your perception about the 'the content (including brief summary about the topic and ALL arguments), as a whole.

How do you feel about a 'Smoking Ban in Public Places, such as restaurants and bars'? Discussion Board | Topic View

Topic: Smoking Ban in Public Places – Should smoking be banned in public places?

This discussion Board is for people who wants to argue on the issue, 'Smoking Ban in Public Places.'

A 'Smoking ban in public places' prohibits tobacco smoking in restaurants, bars, workplaces and other public spaces to protect people from the effects of second-hand smoke. While Michigan has long pursued the policy of letting the market rule on whether bars and restaurants would allow smoking, recently, there have been many debates over whether there should be a state-wide ban or not.

This issue is VERY controvertial and there are continuous debates between two groups of people, "'Smoking-ban-supporting" groups & "Smoking-ban-opposing" groups. Should Smoking be banned in public places??? What is your opinion about the issue in Michigan?

Displaying posts 1 – 6 out of 93,135 by 18,627 people.

1st Post

GNGLOG (MICHIGAN) wrote yesterday

Smoking is dangerous not only for you but also for people near you who did not CHOOSE to smoke!! Smoking causes many diseases and harms to people nearby, who just breathe in the smoke. Smokers choose to smoke, but people nearby DO NOT choose to smoke. A complete ban on smoking in public is needed to protect people's health from passive smoking

2nd Post

00CAT10 (MICHIGAN) wrote yesterday

Hey Dude, if you do not want to smoke passively, it's just easy. You can go to places where smoking is prohibited. You guys are adults and you can decide where to go. People CHOOSE either smoking places or non-smoking places. Thus, NO need for the state-wide ban! If enough people want to go to non-smoking bars, business owners will set up non-smoking bars

3rd Post

THglxD (MICHIGAN) wrote yesterday

LOL!!! In many places, there are NO non-smoking bars or restaurants!!! NONE!! Unless people decide not to go out with friends and stay home all the time, they cannot avoid passive smoking. Also, workers in smoky work-places NEVER freely choose this if no other jobs are available. Workers are exposed to other people's smoke, but they couldn't make choice out of their own will to avoid it.

4th Post

catofile (MICHIGAN) wrote yesterday

What about jobs like mining or the armed forces?? Individuals decide those jobs in smoky work places rather than not having a job at all. A state-wide ban on smoking in public places would put many bars, pubs and clubs out of business. Smokers would not go to these places. My uncle owns a large bar in MN. After the state-wide ban in MN, his business has slashed by 50% due to the loss of smoking

customers. State–wide ban kills small businesses and all those workers. Pubs provide jobs for people with few skills. A complete ban is not necessary – ventilation fans can remove smoke.

5th Post

danuu2 (MICHIGAN) wrote yesterday

Every time I go out for dinner with my family, I saw foggy smoke all over the restaurant. I do not want to smell that crap. Smokers do have right to harm themselves but they don't have right to harm others. It is more important to protect people's health than to protect businesses. Pubs and clubs should adapt, for example, by trying to earn more money from selling food. After a ban in New South Wales (Australia, there was only 9% of small businesses reported a drop in sales. Some small business owners actually earn much more money by attracting more and more non–smokers!!

6th Post

Lagt03d (MICHIGAN) wrote yesterday

That is totally bull shit!! If you live in the city, you inhale the equivalent of 2 cigarettes a day in carcinogen from the SMOG, NOT from the SMOKE!! There's more carbon monoxide than u get from a cigarette – are people all dying from lung cancer? 'NO' Therefore, state–wide smoking ban never make sense at all! If you ban smoking, why don't you ban all the traffics – causing smog??

1. Considering the issue of "Smoking Ban in public place," how do you identify **"the content, as a whole'** is positioned on this issue?

–3	–2	–1	0	1	2	3
Extremely in favor of Smoking–ban–supporting group			Neutral (Equally represent both sides)			Extremely in favor of Smoking–ban–opposing group

2. Considering 'believability', in your opinion, **'the content, as a whole'** is…?
   1) Not at all believable
   2) Somewhat believable
   3) Moderately believable
   4) Very believable
   5) Extremely believable

3. Considering 'accuracy', in your opinion, **'the content, as a whole'** is…?
   1) Not at all accurate
   2) Somewhat accurate
   3) Moderately accurate
   4) Very accurate
   5) Extremely accurate

4. Considering 'fairness', in your opinion, **'the content, as a whole'** is…?
   1) Not at all fair
   2) Somewhat fair
   3) Moderately fair
   4) Very fair
   5) Extremely fair

5. Considering 'depth of knowledge', in your opinion, **'the content, as a whole'** is...?
   1) Not at all knowledgeable
   2) Somewhat knowledgeable
   3) Moderately knowledgeable
   4) Very knowledgeable
   5) Extremely knowledgeable

This ends the survey.
Thank you!

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