Making Sense of Conflicting Health Information: An Exploratory Study

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ABSTRACT
People can acquire health information intentionally or unintentionally from a variety of sources, and some health messages could contradict others. This study employed in-depth qualitative interviews with college students to understand their perceptions of tanning-related conflicting health information. We report on the inconsistency perceived by college students and their strategies to make sense of the conflicting health information. Practical suggestions for health campaign developers and health information providers are discussed.

Keywords
Conflicting health information, health communication, qualitative interview

INTRODUCTION
People can purposively or accidentally acquire health information focusing on abundant health issues via different media avenues: the Internet, magazines, billboards on the highway, posters on the street, pamphlets in doctors’ offices, etc. The complex nature of health issues, however, can leave people faced with conflicting information about certain health behaviors. Several studies (Canadian Council on Learning, 2006; Eriksson-Backa, 2008; Hembroff & Sierra, 1997) have reported that a large number of people received or experienced some extent of contradictory health information from a variety of sources. Conflicting health information could leave even highly educated people confused about how to adopt appropriate heath behaviors in order to maintain good health. In addition, the confusing health information can result in suspicion about message credibility, and perceived unreliability of the health campaign. The suspicion may hinder the effectiveness of various health promotion campaigns, such as anti-smoking, anti-binge drinking, and skin cancer prevention that have been launched with the expectation of changing the public’s attitudes and corresponding harmful behaviors. Research is needed to explore the phenomenon of how people perceive conflicting health information. The conflicting health information examined in this study deals with tanning-related health information.

Conflicting Tanning-Related Information
More than one million American people were diagnosed with skin cancer in 2009 (American Academy of Dermatology, 2009). Direct sun exposure and use of tanning beds have been identified as major critical causes of negative health consequences and cancer occurrence, particularly in young adults (Cokkinides, O’Connell, Thun, & Weinstock, 2002; Geller et al., 2002). Although skin cancer is known to represent almost half of the cancer incidences in the U.S. (American Cancer Society, 2005), it is regarded as the most avoidable type of cancer (Cummings, Tripp, & Herrmann, 1997). Various health campaigns have been initiated to change tanners’ attitudes and behaviors by educating them about the harmfulness of tanning and direct sun exposure, and how to develop appropriate sun safety behaviors as early as possible.

On the other hand, the positive effects of tanning and sun exposure have been increasingly stated in the media. Islam and colleagues (2007) discovered that people who spent more time in the sun as children would subsequently have a lower risk of developing multiple sclerosis, and a strong protection against cancer development. Similarly, Maugh (2008) reported that, based on several research studies, deficiencies in vitamin D, which is produced by exposing skin to ultraviolet B in sunlight, were linked to increased risk of various diseases, such as heart attack, diabetes, and breast cancer.

Although people may acquire different pieces of tanning-related information at different times, different places, or from different sources, some of the acquired information...
could be used later. Thus, conflicting tanning-related health information can create a dilemma that obstructs people from fully understanding the health effects of tanning and sun exposure, and from making the appropriate decisions concerning tanning-related behaviors. Therefore, to make effective health campaigns, the first step is to understand how people make sense of conflicting health information. Thus, we attempted to examine how people perceived the conflicting health information, and the process and strategies of how people negotiated internally to make sense of the information. Two research questions were raised to explore the phenomenon:

RQ1: How did people perceive the conflicting tanning-related health information?

RQ2: How did people make sense of the conflicting tanning-related health information?

Results of this study are expected to have theoretical value in enhancing our knowledge about people’s information-processing behavior within the context of health communication, particularly in a conflicting health information environment. By understanding people’s experience with the conflicting information and following their train of thought in their sense-making process, practical implications are expected in providing suggestions for designing effective health promotion messages from information consumers’ perspectives.

LITERATURE REVIEW

Information about the same health issue with inconsistent conclusions, presented to people simultaneously or in different time frames, creates the context of conflicting health information. Lupton (1992) conducted a content analysis of Australian articles between 1986 and 1988 to examine how the media depicted AIDS as a risk to heterosexuals. The results showed that there were conflicting statements appearing in the media. The contradictory, and sometimes inaccurate, information could induce confusion among readers. Similarly, a content analysis conducted by Mastin and Campo (2006), examined overweight and obesity advertisements and articles in three African-American magazines. Results revealed that the editorial content in these magazines mainly dealt with preventing and overcoming overweight and obesity issues by focusing on the important roles of exercise and a diet with fewer calories. However, three unhealthy food product categories - sugared drinks, fatty foods, and fast foods - were the most frequently displayed advertisements in these magazines. As a result, a conflicting message, unhealthy food ads appearing with pro-health editorials, was sent to readers. The authors stated that conflicting messages might negatively influence readers’ views, feelings, perspectives, and behaviors regarding overweight and obesity issues. In addition, conflicting information created discrepancies between personal beliefs and information presented in the media, which led to “media skepticism” – being skeptical toward the information presented in a media source (Cozzens & Contractor, 1987).

With a few exceptions (Covello & Peters, 2002; Vardeman & Aldoory, 2008), qualitative studies about people’s reactions toward conflicting health information are rare. Covello and Peters (2002) adopted focus group interviews, quantitative surveys, and media content analysis to understand the impact of various sources of health information on women’s perceptions and misperceptions regarding age-related disease. Women showed “confusion, hypervigilance, anxiety, stress, distrust of science and medicine” (p. 392) when they were exposed to contradictory, inaccurate, overwhelming or oversimplified information about a health topic. Likewise, Vardeman and Aldoory (2008) employed in-depth focus group interviews to discover how women made sense of contradictory media messages regarding the risk of eating fish. Most women participants showed confusion about the problem, and the confusion resulted in their skepticism toward media and various organizations.

Another possible impact of conflicting health information comes from cognitive dissonance. Festinger’s (1957) cognitive dissonance theory concerns the relations among people’s cognitive elements (attitudes, beliefs, etc.) and how people seek to maintain the internal consistency of their cognitions. Dissonance is defined as “a negative, unpleasant state that occurs whenever a person holds two cognitions that are psychologically inconsistent” (Aronson, 1968, p. 6). Conflicting health information can induce people to perceive the cognitive inconsistency either between two messages or between message claims and personal belief. When two cognitions are in a dissonant relation, people experience dissonance, a negative emotional state that people try to avoid. This psychologically uncomfortable state thus drives people to take steps to reduce it.

Cognitive dissonance theory has been applied extensively in smoking behavioral studies. Prior quantitative studies showed that simply presenting information concerning the risk of smoking was not effective, because smokers reduced their dissonance by criticizing or ignoring smoking-related information (Pervin & Yatko, 1965; Tagliacozzo, 1981), or reducing personal relevance of the messages (McMaster & Lee, 1991). However, one national campaign that has been launched to counter tobacco marketing efforts has been shown to positively change young adults’ attitudes toward tobacco (Farrelly, Healton, Davis, et al., 2002).

In all, the literature has identified and examined the impact of conflicting health information on people’s cognitive and affective responses. Most studies adopted a quantitative approach to systematically examine relationships between situational variables, message variables, and people’s responses. Few studies investigated this phenomenon from the message receiver’s mindset. Thus, as an important step toward comprehending people’s cognitive activity in
understanding conflicting health information, this study explored how people perceived the information, and how they resolved the perceived inconsistency in messages or inconsistency between their own belief and delivered information.

METHOD

A qualitative, exploratory approach is applied to obtain a detailed picture of the ways people engage in cognitive negotiations to construct their meaning of conflicting health information. Thus, a user-centered approach is required to probe into people’s mindsets to understand their experience with conflicting health information. To reduce the gap between what people think they know and what they actually know, the study used interviews to capture thick descriptions (McCracken, 1988). An in-depth qualitative interview with college students about their perceptions and responses toward conflicting tanning-related health information was adopted as research method.

Participants

The participants were recruited from several introductory communication classes at a southeastern university. Two concerns justify our selection of college students as our participants. First, tanning is considered fashionable and prevalent among young adults (Cokkinides et al., 2002; Geller et al., 2002) who are reluctant to change their tanning behavior and attitudes (Monfrecola, Fabbrocini, Posterraro, & Pini, 2000). High-risk tanning behavior is one of the serious health threats to college students in this important transition period in their lives. Second, this group of students was chosen for the convenience of having easy access to participants. This study, therefore, focuses on this vulnerable population in regard to how college students make sense of conflicting tanning-related health information.

A total of 30 undergraduate students whose ages ranged from 18 to 30 years-old voluntarily participated in the interview (16 women, 14 men). The participants were given extra course credits and pizzas as incentives for participating in the interviews.

Data Collection

A semi-structured interview guide was used to facilitate the interview process. The purpose of the guide was to help researchers to structure the stream of talk, but the discussion guide was flexible (McCracken, 1988) in that the interview course was emergent and participants were the true guides of revealing their reality. Besides following this guide, researchers employed a probing method to ask “why” questions to understand the participant’s perceptions and meaning systems during the interview.

Before the interview began, participants read and signed a consent form. The interview began with relationship-building questions so that the participants were agreeable and felt comfortable to share their experience. Then, they were asked to talk about their tanning behaviors, attitudes or belief toward tanning/sun exposure, and any health-related information dealing with tanning/sun exposure. Researchers then showed two health messages depicted in two posters. The health information in two messages described the risks of tanning/sun exposure regarding skin cancer, and the benefit of tanning/sun exposure regarding obtaining vitamin D. Following were sentences from the two posters:

- It’s the sunshine vitamin! Why UVB from sunlight is the most effective, most reliable, most abundant and most natural source for vitamin D.
- There’s nothing healthy about a tan! [A girl was lying under the sunshine]

The health information in the two posters served as cues to lead participants to discuss their perceptions when seeing the conflicting tanning-related health information. Each interview was audio recorded and the recordings were transcribed by the researchers. The interviews lasted between 20 and 45 minutes.

Data Analysis

The definitive unit of analysis in this study was a complete sentence in interview transcripts. An inductive method was applied to data analysis. The method included the following steps: reading the interview transcripts; making labels and notes on the data; categorizing the data on higher levels; identifying themes or categories; and repeating the process until all themes or categories were identified. Open coding was used to generate conceptual categories. Strauss and Corbin (1990) characterized open coding as “the part of analysis that pertains specifically to the naming and categorizing of phenomena through close examination of data … during open coding the data are broken down into discrete parts, closely examined, and compared for similarities and differences” (p. 62). During the open coding process, researchers constantly compared the new category to previous ones to decide if the new one needs to be a single category or if a previous one needs to be revised. The coding process continued until all analytical units were analyzed and all codes were classified.

The verification of internal validity was assessed to ensure that the findings were of quality. The member-checking method was employed (Lincoln & Guba, 1985). A draft of the analysis with summarized findings and comments on interviewees was e-mailed to all 30 participants. Then, the participants were asked to evaluate the accuracy of the analysis. As unsatisfactory responses were returned to researchers, the analysis was adjusted according to the participants’ detailed explanations.
FINDINGS
In general, most participants perceived inconsistency or some degree of contradiction in presented tanning-related health information or between their personal belief and presented information. Their strategies to make sense of the health information, however, varied (Table 1).

RQ1
RQ1 inquired how people perceived the conflicting health information regarding whether they perceived any gap in their cognitive representations of the presented information. More than half of the participants mentioned that the tanning-related health information included in two messages was contradictory. Additionally, some participants mentioned that the inconsistency they perceived existed between their personal belief and the information contained in the messages. For example, some participants believed that exposure to sun, or tanning, has no benefits, but has risks of getting sunburn or skin cancer. But by reading the message, they became aware of the benefits of obtaining vitamin D from tanning/sun exposure. The situation created confusion and made them generate conflicting feelings.

A few participants, however, did not perceive any inconsistency in presented health information. One participant perceived that information in one message was not necessarily exclusive to the information in another message (e.g., need sunshine did not mean to tan). Another participant thought that one message contained both sides of tanning/sun exposure, so it was not contradictory to the other one.

Because on one hand you have one that says there’s nothing healthy about a tan then you have another that’s saying sunshine is um, natural sunlight is good for you - a good source of vitamin D. So, I think the messages are very conflicting.

Definitely [contradictory], because this ad is all about getting sun and this one is all about staying away. I feel like this one is all about positives and this one is like there’s nothing healthy about a tan.

RQ2: making sense of the conflicting tanning-related health information

Persisting in a personal belief
“Definitely [contradictory], because this ad is all about getting sun and this one is all about staying away.”

Cognitive negotiations to make justifications
1. Tanning as a “fringe benefit” of outdoor activities
   “People are looking for immediate satisfaction and want to be tan now, and they’ll worry about the after effects and consequences later if it happens.”

2. Skin cancer as a long-term effect
   “They think it’s [getting skin cancer] not going to affect me. It happens, but it’s not going to happen to me.”

3. Skin cancer happens to others
   “I like just being outside, so being tan is just part of being outside.”

Seeking more information
“I would do large amounts of research on the conflicting health message as well as ask my family doctor his opinion.”

Staying in the middle ground
“Everything is better in moderation.”

No influence
“I don’t take anything at its word because you can take one small aspect of something and make it your focal point.”

Table 1. Responses toward conflicting health information.
Yes, I think they are [contradictory], but then I don’t think that they are. This one over here, even though it’s trying to convey that sunlight is good and sunshine is great it’s still letting you know that cancer is there. This one is just more blunt. This one is more easy, it’s still getting the same message out to you that you have to be aware.

RQ2
This study focused more on how people resolved the perceived contradiction in conflicting health information – in order to make sense of the tanning health issues. Five strategies emerged from the analysis: (1) persisting in a personal belief; (2) cognitive negotiations to make justifications; (3) seeking more information; (4) staying in the middle ground, and (5) no influence. A description and discussion of each strategy, along with supporting quotes from interview transcripts, are presented below.

Persisting in a personal belief
Before being presented with the benefits and risks of tanning/sun exposure information, some participants already had a strong positive or negative attitude toward tanning/sun exposure, which came from their personal experience or family skin cancer history. As a result, even though these participants perceived some degree of contradiction in the presented health information, they still chose to stick to their prior belief about tanning. Some of their perceptions toward the health information were distorted by their individual attitudes in their interpretations of the message.

One participant had a skin disease, caryopsis, when he was young and was told by the doctor to stay out in the sunshine, which helped him a lot. The personal skin condition and experience made him disbelieve the risk of getting skin cancer from sun exposure.

You know, I’ve heard about skin cancer and I’m pretty sure it can happen but for me it’s a little extreme because I know it helps me a lot and I’ve had psoriasis since I was three so I know that the sun has helped me. But this [skin cancer] is a little extreme for me. I understand that skin cancer is probably a problem but um. Not really.

Several participants mentioned that their family members had skin cancer due to tanning. Therefore, they discredited any information about positive effects of tanning or sun exposure, and were more likely to believe negative effects of tanning.

I have seen what sun damage can do to people. My sister is 22. They found stage 1 skin cancer in her. She had to have surgery to get a lot removed, so I’ve seen the effects of the tanning bed...I call it the cancer bed now because she used to live in that thing. When it comes to ads like that [sunshine gives vitamin D] I kind of question already...I don’t believe them too much.

I believe it [sun exposure can increase the possibility of getting skin cancer], um I mean I’ve had, my cousin is married to a man that has worked outside all his life, like that was his work, and he had a really bad bout with melanoma, so I believe it and he believes it too.

Cognitive negotiations to make justifications
Some participants did believe the conflicting tanning information in messages, both the benefits and risks, but they could not easily give up their tanning behaviors. They attempted struggling with the two pieces of information but justified their behaviors using cognitive negotiation tactics by reducing the importance or possibility of risks from tanning/sun exposure.

One tactic some participants used was to assess tanning as a “fringe benefit” of outdoor activities. By cognitively reducing the importance of tanning as the “by-product” of playing outdoor sports or doing outdoor work, participants justified their tanning behaviors as unintentional behaviors.

Uh, well obviously people like to tan because they think that is makes them look good, but I like just being outside so, being tan is just part of being outside.

I do get a lot of tan when I go to the beach just because I’m outside in the water and I play. I don’t just lay out like a lot of people do and just try to get a tan though. I like to do stuff; you know, like play volleyball or swim.

When I’m outside working that’s about all of the tanning I do.

In addition, although some participants were aware of the risk of getting skin cancer from tanning/sun exposure, they considered the risk as a long-term effect, which did not happen to them immediately. For the present satisfaction of maintaining attractiveness, they justified their tanning practices as acceptable and ignored the potential risks.

Tanning is one of those things where it’s known that it’s not good for you but that’s not as important to most girls as, “Oh I’ll deal with that later when I’m older.”

People will see that [getting skin cancer from tanning] and think that’s not going to happen to me, that’s going to be 30 years down the road.

I do know that getting burned in the sun is obviously not good for you. Going to the tanning bed is obviously not good for you. So that is why I try to wear sunscreen every time I come out. To protect my skin, but you know I don’t know the extreme, what can happen down the long road and all that stuff.
People are looking for immediate satisfaction and want to be tan now, and they’ll worry about the after effects and consequences later if it happens.

Likewise, instead of evaluating the risk of getting skin cancer as a long-term effect, some participants judged that the risk of getting skin cancer would happen to someone else, but not themselves, which showed a third-person effect.

I think for the most part people have it in their minds that tanning is the thing to do so they know about the side effects but choose to ignore them. I think they probably don’t even think far enough ahead to think of the consequences. They think it’s not going to affect me. It happens, but it’s not going to happen to me.

I’m a natural tanner. I don’t burn. I think that’s what I told myself, ‘I don’t burn so it’s not as detrimental as it would be to someone else who was more fair-skinned.’

I’d rather have a tan than worry about, I don’t know, I don’t think I tan as much as some people, but I hope to god I don’t get skin cancer. I guess it’s just not important enough to me really.

Trying to exaggerate to get their point across [getting skin cancer from tanning]. While the rate of people getting skin cancer is increasing, not everybody gets it...

In all, by utilizing the above three cognitive negotiation tactics, participants resolved the conflict perceived in information or between their belief and the information. As a result, they persuaded themselves and defended their tanning practice.

Seeking more information
Instead of excusing themselves for tanning or being persistent in their personal belief, several participants decided to seek more information from various sources to make the next-step decision. The mentioned information sources included family members, the Web, and doctors. Particularly, participants expected the information from these sources to be trustworthy.

They’re contradicting… I would research it, definitely go into articles that you know… Probably by web more than likely but I mean, there’s not telling that what’s on the web is true. My mom is also a cancer nurse so that’s a good choice. Really, that would be my way of researching and looking at tons of articles, not just one or two and seeing if they’re contradicting, but if there’s a solid answer.

I try to do additional research on it, but as we discussed earlier there’s not a lot of good easy to find information out there. It may be out there … I guess I would devote more time to research it and hopefully come to a conclusion. I could talk to my doctor.

So, probably do more research to really see like, provide a website - like is this a credible source you can believe? I’d do more research.

I would do large amounts of research on the conflicting health message as well as ask my family doctor his opinion. I think that doing research and asking my doctor will give me enough information to make my own decisions about what I want to do.

Staying in the middle ground
Acknowledging both the benefits and risks of tanning/sun exposure, some participants attempted to find a middle ground or a trade-off in conflicting health information to avoid following either of the two extremes.

I think there’s a lot to be said for moderation and taking the middle road. And these would both possibly be the extremes - you’ve got to have sun for D or if you got out in the sun, it’ll kill you. And there’s probably a happy medium in between there. You don’t want people that never go into the sun, and you don’t want people that are in there all the time

It’s how much you tan. It’s bad for your health reasons but if you don’t tan so much then you’ll get the vitamins you need for your skin. You won’t overdo it.

Everything is better in moderation. So a bunch of these messages are right, but it depends on if too much or too little sunshine can be bad

No influence
Although a few participants perceived inconsistency in conflicting health information in the messages, they indicated that the perceived gap would not have any influence on them, so they would not put forth any effort to resolve it. One of the reasons for “no influence” was rooted in media skepticism —“a feeling publics have when they doubt the reality presented in the media” (Cozzens & Contractor, 1987, p 438). Participants were apt to believe that the information presented in the posters was not reliable. Thus, the poster, as an information channel, made the information untrustworthy.

I really think it just goes back to the same thing that everyone has their own agenda. Everyone is trying to get ahead themselves so they’re going to tell you whatever they can to push whatever they’re trying to sell you on.

I’m fully aware that there’s a spin on almost anything that’s advertised. And uh, I don’t take anything at its word because you can take one small aspect of something and make it your focal point. And that’s just a small aspect. And you can take another small aspect from the other end and make that your focal point. Both of them are maybe true but neither one of them may be one-hundred percent true.
You’re not getting the full picture unless you do the research on your own.

Another reason for participants’ disbelieving the information was attributed to too much similar information being presented to them. They believed that information in the media contained insufficient information or misinformation.

I also think there is some good like knowing that vitamin D is good for you and that you get it from laying out. But I also feel like it’s misinformation because it doesn’t tell you that it’s only for 10 minutes. It makes it seem like if you lay out for 4 hours you get lots of vitamin D and it’s okay and healthy and that’s not the case. They need to be a little bit more accurate in their information and explain that it has to be in small doses. They tend to leave that out.

I guess they’re just trying to make it positive in some way. I don’t really know that, like, the exact statistics of anything. How much vitamin D you actually get from the sunshine, I mean. I have heard statistics that people who don’t go outside, they’re depressed more. And I do believe that is related to the vitamin D issue, but I guess there is a certain amount that, you don’t need to overdose on vitamin D. There’s not, I mean, you only need so much, so, I wonder how much that is though.

As a result of no influence on them, participants did not make any attempt to resolve the perceived inconsistency. However, three participants mentioned that although they did not pay attention to the similar information earlier in their youth, they changed their belief and began to accept the negative side of tanning/sun exposure when they grew up.

**Additional Findings – Information Source and Information Evaluation**

College students obtained health related information from a variety of sources: mass media sources including TV commercials or TV news, magazines; interpersonal sources including family members, friends, doctors, sports-related personnel (coach and nutritionist); and the Internet. Two participants particularly mentioned the credibility of health information on the Web, and complimented WebMD as a trustful source of health information.

In addition, during the sense-making process of absorbing health information, because one piece of health information presented to participants contained extremely negative effects of tanning/sun exposure regarding skin cancer, some participants evaluated the information content both cognitively and affectively.

One thing I think, it’s easier to follow the positive messages whereas like the sun is poison and alcohol. It’s easier to go with this is good for me, it’s positive. This is going to make you happier.

It [the negative approach] is too strong for me to believe.

I have received numerous messages which try to scare me into wearing sunscreen... I do not like for people to try and scare me to do something.

**DISCUSSIONS**

In-depth interviews were conducted to explore how college students made sense of conflicting tanning-related health information. The findings showed that college students perceived cognitive inconsistency either in conflicting health information or between the information and their prior beliefs; they adopted various approaches to make sense of the uncertainty and difficulty.

Findings from RQ1 showed that information perceived to be conflicting by the researcher may not be viewed that way by the participant. “Conflicting information” should be a user-centered and subjective construct. Although most participants perceived a contradiction in the conflicting health information, a few participants did not identify any inconsistency.

Facing the inconsistency, people attempt to reduce it. Encountering conflicting health information in this study raises cognitive dissonances in people’s mind. Results from this study supported cognitive dissonance theory, particularly, the way of reducing the dissonance. One way of dissonance reduction is by increasing/reducing the importance of consonant/dissonant cognitions. Some participants emphasized the correctness of their prior belief or tried to reduce the importance of getting skin cancer from tanning/sun exposure in their cognitive thoughts by attributing the skin cancer as a long-term or third-person effect, which would not happen to them, or not immediately. The long-term effect used in people’s self-justification can be a design focus for health message developers. The health information can include certain elements focusing specifically on the immediate effect of excessive tanning/sun exposure. For example, although skin cancer may happen a long way down the road, other negative effects, such as premature aging of the skin, will happen with each tanning session you have.

Several participants in this study attempted to maintain a balance between getting sun exposure and avoiding skin cancer. The moderation approach indicated that people were aware of both sides of one health issue. By acknowledging this, health campaign can design a two-sided message, which contains both favoring and opposing sides of the arguments (Hovland, Lumsdaine, & Sheffield, 1949). Research in the literature (Hovland, Janis, & Kelley, 1953; Hovland et al., 1949) has found that with some provisions (the extent of people’s education, initial opposition to the claimers’ view), generally, one-sided messages (having one strong argument of the message claimer or having the opposing arguments, O’Keefe, 1999) tend to be less effective than two-sided messages. Therefore, a skin cancer preventive campaign can adopt the two-sided message approach to include both benefits and risks of tanning/sun exposure, but emphasize its negative
effects to promote appropriate and healthy behaviors more effectively.

In addition, media skepticism held by some participants was specifically concentrated in their suspicions of health information delivered in advertisements, including both for-profit commercials and non-profit public service announcements (PSAs). Health information providers may consider delivering health information from different channels, such as including community activity, to avoid sending out information from mass media only.

Participants who decided to engage in information-seeking mentioned the importance of finding solid/trusted information to help them make correct decisions. Therefore, information providers should concern not only delivering the health information, but also providing other trustworthy sources that accompany the information, in order to satisfy people’s additional information needs.

**LIMITATIONS & FUTURE RESEARCH**

There are several methodological limitations of this study. Our participants were undergraduate students from one university, so the sample may not be representative of college students on other campuses. In addition, the findings regarding people’s perceptions of health issues may be skewed regarding the characteristics of this young group, such as their attitude of “invincible youth,” their educational level, and their self-perceived health knowledge level. Further interview-based work with a more heterogeneous group will be helpful in providing a better understanding of the general public’s responses toward conflicting health information.

Another limitation of this study is the adoption of the qualitative method, which ensures “thick” descriptions but lacks generalization. However, the exploratory findings could offer opportunities for future empirical studies. For example, experimental studies could be used to examine and compare the effectiveness of health messages with and without immediate negative effects of tanning, regarding changing people’s attitudes. Additional factors, such as people’s prior belief, and involvement with the health issue, can be examined empirically regarding their effects on subsequent cognitive strategies.

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