

# Beliefs Underlying Messages of Anti-Cancer-Screening Websites in Japan: A Qualitative Analysis

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## Abstract

**Background:** Cancer screening rates are lower in Japan than in Western countries. Meanwhile, anti-cancer-screening activists take to the internet to spread their messages that cancer screening has little or no efficacy, poses substantial health risks such as side effects from radiation exposure, and that people should forgo cancer screening. We applied a qualitative approach to explore the beliefs underlying the messages of anti-cancer-screening websites, by focusing on perceived value the beliefs provided to those who held them. **Methods:** We conducted online searches using Google Japan and Yahoo! Japan, targeting websites we classified as “pro,” “anti,” or “neutral” depending on their claims. We applied a dual analytic approach- inductive thematic analysis and deductive interpretative analysis- to the textual data of the anti websites. **Results:** Of the 88 websites analyzed, five themes that correspond to beliefs were identified: destruction of common knowledge, denial of standard cancer control, education about right cancer control, education about hidden truths, and sense of superiority that only I know the truth. Authors of anti websites ascribed two values (“safety of people” and “self-esteem”) to their beliefs. **Conclusion:** The beliefs of authors of anti-cancer-screening websites were supposed to be strong. It would be better to target in cancer screening promotion not outright screening refusers but screening hesitant people who are more amenable to changing their attitudes toward screening. The possible means to persuade them were discussed.

**Keywords:** Cancer screening- internet- online-qualitative research- belief

*Asian Pac J Cancer Prev*, **19** (2), 427-433

## Introduction

Cancer screening is an effective strategy for reducing mortality from cancer. Increasing the cancer screening rate is an important issue to be addressed worldwide (Stewart and Wild, 2014). However, Cancer screening rates in Japan are lower than those in some Western and Asian countries. The 2013 screening rates for breast cancer in women aged 50–69 years and for cervical cancer in women aged 20–69 years were 80.8% and 84.5%, respectively, in the United States, and 75.9% and 78.1% in the United Kingdom, 64.3% and 67.3% in Korea, yet only 41.0% and 42.1% in Japan (OECD.Stat, 2017). Other cancer screening rates in Japan similarly less than optimal: for gastric cancer 39.6%, lung cancer 42.3%, and colorectal cancer 37.9% in men and women aged 40–69 years (National Cancer Center, Japan. 2017).

Anti-cancer screening sentiment, which include doubt, fear and opposition to screening, exists in Japan (okuhara et al., 2017). Anti-cancer-screening activists, who can be either health professionals or self-proclaimed specialists who nevertheless lack specialized knowledge, propagate on the internet that cancer screening has little or no efficacy

and has a high risk of side effects and people should forgo cancer screening (e.g., Kondo, 2015; Funase, 2016; Utsumi, 2016). Approximately 91% of Japanese regularly access the internet (Internet World Stats, 2017). The internet is cited as one of main sources of cancer screening information in Japan (Tokyo Metropolitan Government Bureau of Social Welfare and Public Health. 2013). Considering that individuals have difficulty assessing the accuracy and credibility of health information on the internet (Rice, 2006), the anti-cancer-screening messages online can be a barrier to promoting cancer screening.

Although previous studies explored individuals' perception of cancer screening (Hoffman-Goetz and Friedman, 2007; LaPelle et al., 2008; Daley et al., 2012; Ersin and Bahar, 2013; Ferrat et al., 2013; Lyles et al., 2013; Yilmaz et al., 2013; Khazaee-pool et al., 2014; Kimura et al., 2014; Taymoori et al., 2014; Galal et al., 2016), no study, to our knowledge, had examined the contents of anti-cancer-screening websites. Therefore, we previously quantitatively examined and showed frequently appearing contents in anti-cancer screening websites such as inefficacy and risk of cancer screening (Okuhara et al., 2017). However, to more precisely

understand the anti-cancer-screening movement on the internet and counter them, beliefs underlying those anti-cancer-screening messages online should be qualitatively explored; e.g., what beliefs are motivating the website authors to propagate the anti-cancer-screening messages? As health belief model (Janz and Becker, 1984) and theory of planned behavior (Ajzen, 1991) that have been validated in many studies (Glanz et al., 2008) show, beliefs of individuals are antecedents of their behaviors. Understanding individuals' beliefs is essential for changing their beliefs and behaviors through communicating risks and benefits of medical practice (Brewer, 2011). For exploring of beliefs of anti-cancer-screening website authors, Abelson's belief-possession theory (Abelson, 1986) may provide clues.

The theory proposed that individuals' beliefs are like possessions, such as houses or automobiles, and provide value to those who hold them. According to this theory, the value of beliefs comes from the beliefs' functionality: an instrumental or an expressive function (Appendix 1). When an instrumental belief that has an instrumental function is stated, there is an anticipated reward in an individual's self-interest; e.g., "I believe that the policy is wise because it will result in an improved safety to patients". When an expressive belief that has an expressive function is stated, there is self-definition of (and often an intent to imply) the belief holder's good character and/or good judgment. Thus, instrumental or expressive functions of beliefs provide the value to the belief holders. The amount of value, as per this theory, depends on attributes of the belief: sharedness (i.e., Is the belief in favour with other people?), uniqueness (i.e., Does the belief imply unusual taste?), defensibility (i.e., Can the belief be justified as sound?), extremity (i.e., Is the belief sharp and intense?), and centrality (i.e., Does the belief fit with other beliefs of one's self?). The greater the degree of these attributes, the greater the value of the belief, and the more strongly the belief persists.

Based on Abelson's theory (1986), we hypothesized that beliefs underlying the messages of anti-cancer-screening websites have functionality, and that the belief functions provide values to the website authors. The present study used a qualitative approach to explore beliefs of anti-cancer-screening website authors based on this hypothesis. First, we sought themes in terms of beliefs' functionality and examined perceived value that the belief function provided to those who held them. Then, we discussed the amount of belief value in terms of the beliefs' attributes.

## Materials and Methods

### *Material collection and classification*

The procedure used herein has been reported elsewhere (Okuhara et al., 2017). Briefly, we conducted internet searches on 22 December 2016 using keyword combinations input in Japanese text (and translated herein), entered into Google Japan (google.co.jp) and Yahoo! Japan (yahoo.co.jp); "cancer screening"; "cancer screening" AND (meaningful OR meaningless); "cancer screening" AND (effective OR ineffective); "cancer

screening" AND (obtain OR "not obtain"); "cancer screening" AND (danger OR dangerous); "cancer screening" AND ("do not obtain" OR "better not obtain"); "cancer screening" AND "must not obtain". For each search formula the top 100 results were reviewed and duplicate results were excluded. Results were included for analysis if they did not meet any of the following exclusion criteria: (1) bulletin board system, listserv, newsgroup page, or Twitter content; (2) pages solely containing brief notices about other website content; (3) video; (4) non-Japanese website; (5) inactive link; (6) online message exclusively explaining cancer screening (e.g., Wikipedia); (7) online message with no claims either anti- or pro-cancer-screening (e.g., exclusively about time, place, and/or expense for cancer screening).

Included websites were classified as "pro" or "anti" depending on their claims. Materials that recommended readers obtain cancer screenings were classified as "pro", and that opposed readers obtaining screening were classified as "anti". Websites that contained claims both for and against, but did not indicate their own assertion, were classified as "neutral" (see Appendix 2 for coding guidelines).

We described the professional expertise of the author of each article, or the interviewee in the article, and the type of website (e.g., news media website). If the professional expertise of the author could not be identified (e.g., an anonymous author of a blog), they were labelled as a "citizen."

### *Data analysis*

Anti websites were qualitatively analyzed. We used thematic analysis with a hybrid approach proposed by Boyatzis (Boyatzis, 1998). In this approach, coding is conducted inductively, and then the codes are interpreted and themes are generated deductively. We applied Braun and Clarke's (2006) approach that involves a recursive six-phase process as follows. Initially, the first author thoroughly read textual data to familiarize himself with data. He then manually and inductively generated codes that captured interesting features of the data in a systematic fashion across the entire dataset, collating data relevant to each code. In this phase of generating codes, Boyatzis' five elements of codes (labels, definitions, inclusion and exclusion criteria, and examples) were recorded in Microsoft Excel as a code book. These records were modified accordingly as the coding proceeded. This coding phase was followed by the phase of searching of themes, which collated codes into potential themes using the framework of Abelson's belief-possession theory (Abelson, 1986). During the analysis in this phase, attention was paid to the links between codes, themes, and functionalities of beliefs. Then, in the phase of reviewing themes, the generated themes were checked if each theme was coherent and substantial, with clear boundaries and a distinct central organizing concept. In the next phase of defining and naming themes, specifics of each theme were refined, and clear definitions and names for each theme were generated. These phases of generating themes were conducted manually using Microsoft Excel to collate codes and record definitions and names of themes. Finally, the

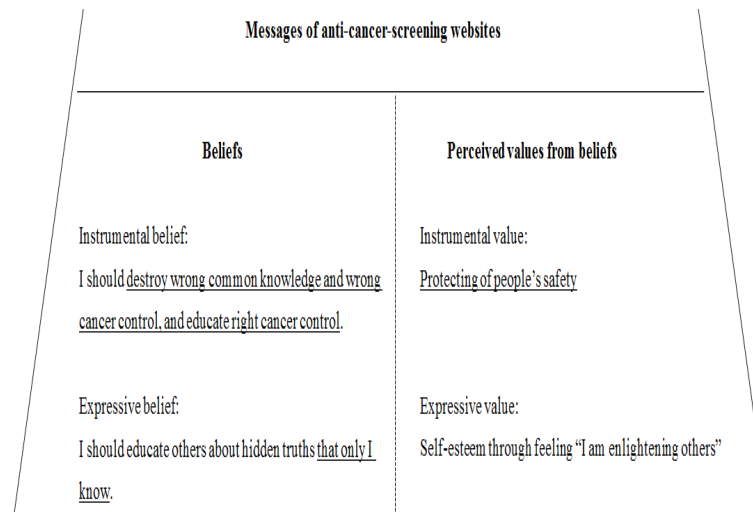


Figure 1. Beliefs and Perceived Belief Values Underlying the Messages of Anti- Cancer- Screening Websites

first author wrote the report telling the overall story the analysis revealed. The first and second authors discussed the generated codes and themes to reach a consensus. All terms were translated into English for the purpose of this report after research was completed.

## Results

Of the 169 total websites evaluated, up to 88 (52.0%) transmitted anti-cancer-screening messages, 75 sites (44.4%) were defined as “pro”, and six (3.6%) as “neutral.” Five main themes were found in the 88 anti websites: (1) destruction of common knowledge (subcategories: true cancer and pseudo-cancer, risk of early detection and early treatment), (2) denial of standard cancer control (subcategories: risk of cancer screening, risk of cancer treatment), (3) education about right cancer control (subcategories: inefficacy of cancer screening, proposal of natural alternatives) (4) education about hidden truth (subcategories: irrationality of cancer screening policy in Japan, reason unnecessary cancer screening is still conducted), (5) sense of superiority that only I know the truth (subcategory: condescending attitude) (Table 1). In terms of Abelson’s theory (Abelson, 1986), theme (1), (2) and (3) corresponded to an instrumental belief that had instrumental function. Belief value that came from this instrumental belief was the safety of people against cancer-related risk. Theme (4) and (5) corresponded to an expressive belief that had expressive function. Belief value

that came from this expressive belief was self-esteem from such thinking as “I am smarter than other naive people” and “I am enlightening naive people”. Thus, five beliefs underlay the messages of anti-cancer-screening websites, and these instrumental and expressive functions of beliefs provided two values (“safety” and “self-esteem”) to the website authors (Figure 1). Representative quotes will be used to illustrate these findings.

### Theme 1: Destruction of common knowledge

Early detection and early treatment of cancer is generally accepted benefits of cancer screening. However, authors of anti-cancer-screening websites maintained their own views that the risk of early detection and early treatment via cancer screening exceeded the benefits, and tried to destroy “wrong common knowledge” that early detection and early treatment of cancer is beneficial.

### True cancer and pseudo-cancer

The main ground for their own views was so-called gan-modoki (pseudo-cancer) theory (Kondo, 2000; Sugioka, 2007; Kondo, 2012). The theory was proposed by Japanese radiologist Makoto Kondo, who was well known for his absolute repudiation of standard care for cancer and cancer screening. The theory claims that cancer tumor is divided into two types: true cancer and pseudo-cancer (gan-modoki):

“There is a true cancer that spreads to other tissues, and gan-modoki (pseudo-cancer) that will not spread

Table 1. Themes and Subcategories

Themes	Subcategories
Destruction of common knowledge	True cancer and pseudo-cancer Risk of early detection and early treatment
Denial of standard cancer control	Risk of cancer screening Risk of cancer treatment
Education about right cancer control	Inefficacy of cancer screening Proposal of natural alternatives
Education about hidden truths	Irrationality of cancer screening policy in Japan Reason unnecessary cancer screening is still conducted
Sense of superiority that only I know the truth	Condescending attitude

over time. The ‘initial cancer’ is in name only because cancerous tumors cannot be found until they reach about 1 cm in diameter. Therefore, if the tumor found is a true cancer that metastasizes, it has already spread to other tissues, and it is too late to save the patient’s life by surgery. Conversely, gan-modoki that did not spread until it was found will not spread even after that, so there is no need to treat it. In either case, no treatment or surgery is necessary” (Physician, news media website).

#### *Risk of early detection and early treatment*

Based on the gan-modoki theory, the anti websites often went further; they emphasized that early detection and early treatment of cancer is not beneficial but rather dangerous:

“The image of “cancer is malignancy” is now an outdated common sense. It is better not to tamper with cancer. The disadvantage of detecting a fine tumor by cancer screening and giving intensive treatment may be substantially larger than having it unfound and untreated” (A physician, a news media website).

Thus, anti websites denied common knowledge of cancer screening and treatment referring to quasi-plausible theory, and attracted the interest of audiences by the sensational messages. Further, they incited audience’s fear by detailed descriptions of risk of cancer screening and cancer treatment as shown in the theme 2.

#### *Theme 2: Denial of standard cancer control*

Authors of anti-cancer-screening websites exaggerated risk of cancer screening and cancer treatment and encouraged audience to forgo standard cancer control.

#### *Risk of cancer screening*

Anti-screening websites often insisted that the screening itself posed several risks. First, they alleged risk of medical radiation exposure:

“At medical sites in Japan, radiation doses several times higher than those of the atomic bombs dropped on Nagasaki and Hiroshima are applied to individuals each year through such medical practices as cancer screening. There are an estimated 13,500 deaths each year from cancer due to medical radiation exposure ... X-rays for screening performed through local governments and workplaces are almost like a criminal activity.” (Citizen quoting from a book written by a physician, personal website).

Some anti websites also alleged risk of serious side effects of screening apart from radiation exposure:

“Many have died from accidents such as holes in their colon due to hardened barium.” (Journalist, news media website).

“Because a mammography tightly compresses the breast, the blood vessels are damaged and breast cancer cells spread. Recent studies suggest that metastasis increases up to 80% when the equipment presses against a tumor. A study in Sweden reported that women whose breasts were strongly compressed during a mammography had a 30% higher breast cancer mortality rate than those who did not undergo a mammography.” (Citizen, personal website).

Some anti websites noted the risk of receiving unnecessary cancer treatment because of overdiagnosis that occurs in cancer screening. Some quoted scientific papers and others used narratives from patients.

“According to an online article in the Journal of the American Medical Association, overdiagnosis and misdiagnosis of cancer were the two major causes of cancer morbidity increase, and many healthy people underwent unnecessary chemotherapy and radiotherapy.” (Physician, personal website).

“I was misdiagnosed with metastatic breast cancer. Even worse, I was subjected to a preservation operation twice. On top of that, I was about to undergo unnecessary treatments such as lymphectomy, anticancer drug treatment, and radiotherapy ... Mammography identifies breast cancer that does not have to be treated. Even unnecessary conserving surgery or total mastectomy are often performed.” (Citizen, personal website).

#### *Risk of cancer treatment*

As described above, we found anti-screening websites claimed cancer screening generated unnecessary treatment. Furthermore, some websites incited fear of cancer treatment by emphasizing damage caused by treatment:

“Surgery will cause serious physical injury, and your immunity will be significantly reduced. After surgery you will undergo radiography many times. Anticancer drug therapy and radiotherapy will also be performed. Moreover, you will be forced into a bedridden condition which puts you at the highest risk for health maintenance. You will suffer a great deal of hardship.” (Physician, news media website)

These websites sometimes claimed cancer treatment “killed” people:

“Eighty percent of patients for whom cancer was the attributed cause of death were not killed by cancer. They are victims of cancer treatment given at the hospitals.” (Physician, Facebook).

Thus, anti websites emphasized cancer care-related risks, and asserted that naïve, under-informed individuals were at increased risk of exposure to these dangers through screening.

#### *Theme 3: Education about right cancer control*

Authors of anti-cancer-screening websites evidently believed that they should defend others against risk of cancer screening and cancer treatment. To keep audience away from standard cancer control, they emphasized inefficacy of cancer screening and recommended alternative medicine and naturopathy instead of standard cancer control.

#### *Inefficacy of cancer screening*

Anti websites asserted that cancer screening was ineffective and unnecessary, based on objective grounds (e.g., scientific papers) and subjective grounds:

“Over the past 20 years I have read scientific papers on the results of cancer screening from all over the world ... Many showed similar results. Namely, even if you get cancer screening, life expectancy never increases...

The recognition that mass screenings are meaningless has already spread among researchers in Europe and the United States.” (Physician, news media website).

“As far as I know, there are no physicians receiving gastric barium examinations ... I have never obtained a gastric cancer screening because I am not infected with *Helicobacter pylori*.” (Physician, news media website).

#### *Proposal of natural alternatives*

Authors of anti websites believed that something “natural” is inherently good or right whereas what is “unnatural” is bad or wrong. They often refuted modern medicine, supported alternative medicine and naturopathy, and recommended these alternatives to readers in place of conventional cancer screening and treatment:

“Many people in Germany opt for natural treatments rather than surgery, radiotherapy, and cancer drugs. In no other country are people fixated on cancer screening as much as in Japan.” (Citizen, personal website).

“For those who want to undergo cancer screening I strongly recommend the Metatron, a wave motion measurement instrument created in Russia ... I have heard that about 500 units are in use in Russian hospitals.” (Citizen, personal website).

“Stay away from medical examinations ... The human body adjusts itself naturally so you can live comfortably and in good health ... I want you to trust your body more.” (Physician, news media website).

#### *Theme 4: Education about hidden truths*

Authors of anti-screening websites indicated that individuals other than them were fooled by the government, medical companies and physicians. They tried to educate naïve, under-informed individuals and revealed the alleged “truth” to audience:

#### *Irrationality of cancer screening policy in Japan.*

Some anti websites argued that screening policy in Japan is behind the times and unparalleled among developed countries:

“Outside of Japan, gastric cancer screening is conducted only in South Korea, and lung cancer screening is only done in Hungary.” (Journalist, news media website)

“The Swiss Medical Committee concluded that mammography did not reduce overall mortality caused by breast cancer, and recommended abolition of requiring mammography. The research group reported its study results in the *New England Journal of Medicine*, the world’s leading medical journal. However, the finding is barely known in Japan.” (Journalist, news media website).

#### *Reason unnecessary cancer screening is still conducted*

Some anti websites insisted screening was a moneymaking scheme for hospitals and medical companies, and that these exploited the examinees:

“By increasing the number of cancer patients, profit for anticancer drugs will also increase. Cancer screening is a form of market development for the cancer care business.” (Physician, Facebook).

“As medicine is a business, medical personnel can manage by increasing the numbers of sick people

as much as possible and having them visit hospitals. Cancer screening is a good way to increase ‘customers.’” (Physician, news media website).

Physicians’ laziness was also cited as a reason:

“Physicians want to believe that they are right. Therefore, even if they see a paper opposed to cancer screening, they tell themselves that it is an exception, and tell their patients as well.” (Physician, news media website)

#### *Theme 5: Sense of superiority that only I know the truth Condescending attitude*

Authors of anti-screening websites evidently believed that only they knew the hidden truth of cancer screening, and they sometimes indirectly expressed sense of superiority to naïve, under-informed individuals:

“It is important to check books, websites, and blogs with correct information. However, at the beginning, you will not know which information is right and which is wrong. Therefore, first doubt all information. Do not believe it. Read various different information. You will find which is right by and by.” (Citizen, personal website)

Anonymity on the internet sometimes caused them directly express their sense of superiority on their websites.

“As my friends asked “Do you obtain cancer screening regularly?”, I answered “No, I do not obtain cancer screening at all”. All of them were surprised. I laughed secretly at my heart.”

## **Discussion**

### *Beliefs and belief values*

The present study qualitatively explored the beliefs underlying the anti-cancer-screening messages online and the perceived values that their belief functions provided to those who held the beliefs. We found five beliefs and two values that came from the beliefs in terms of Abelson’s belief-possession theory (Abelson, 1986). These beliefs and belief values may partly explain the motivation of anti-cancer-screening activists on the internet; they may engage in these activities because they want to be honorable by saving people from harm of cancer screening and to boost self-esteem by feeling that “I am enlightening others”.

### *Amount of belief values*

Abelson’s theory suggests the amount of value ascribed depends on beliefs’ attributes. Attributes of the studied authors’ beliefs can be inferred from our results. The quality of sharedness of beliefs can be high because online anti-screening contents found in the present study can easily be shared among many individuals, owing to the recent advances in online social distribution. Uniqueness of beliefs can be perceived as high because the beliefs go against generally held views (as with *gan-modoki* theory). Defensibility of beliefs can be perceived as high because certain health experts, such as physicians, have expressed anti-screening beliefs and quoted scientific (or seemingly scientific) papers and data. Extremity of beliefs can be perceived as high because assertions were often pointed and intense (e.g., administration of X-rays for screening is like a criminal act). Finally, centrality of beliefs can

also be perceived as high because authors often seemed to distrust modern medicine, and their anti-screening beliefs seemed to be part of this distrust (e.g., proposal of alternative medicine and naturopathy).

Thus, in the context of Abelson's belief-possession theory (Abelson, 1986), the degree of these belief attributes can be high; accordingly, the perceived value of the anti-cancer-screening beliefs can also be high. This high perceived value may make the authors' anti-cancer-screening beliefs strong. Therefore, to promote cancer screening, people who are screening hesitant may be targeted as they make up a larger proportion of the poor cancer screening rates and are more amenable to changing their attitudes toward screening than the smaller proportion of outright screening refusers who strongly hold anti-screening belief.

#### *Implications for cancer screening promotion*

The messages of anti-cancer-screening websites showed in the present study substantiates concerns that the anti-cancer-screening websites may incite the doubt and fear concerning cancer screening, and stoke anti-cancer screening sentiment among screening-hesitant audiences. The anti-cancer-screening websites asserted that early detection of cancer was unnecessary and harmful. This message may encourage the misunderstanding because a previous study showed that some people believed that they should not have obtained cancer screening without health problems (Kimura et al., 2014). The authors of anti-cancer-screening websites often distrusted modern medicine. This was consistent with participants' mistrust of western medicine and of information from the medical community showed in previous studies (Hoffman-Goetz and Friedman, 2007; Daley et al., 2012). The anti-cancer-screening websites asserted that cancer screening was motivated by profit of health care industry. This assertion was also consistent with participants' doubt that cancer screening was propelled by financial interests showed in a previous study (Ferrat et al., 2013). The fear of potential harms from cancer screening such as pain, radiation exposure and overdiagnosis showed in previous studies (LaPelle et al., 2008; Ferrat et al., 2013; Lyles et al., 2013; Khazaei-pool et al., 2014) was also consistent with the contents showed in the present study.

For practice and research to counter against these anti-screening messages and persuade screening-hesitant individuals into pro-screening beliefs, considering communication based on the elaboration likelihood model (ELM) (Petty et al., 2009) may be useful. The ELM suggests that under different conditions, receivers will vary in the degree to which they are likely to engage in issue-relevant thinking (i.e., "elaboration"). The degree to which elaboration occurs influences the activation of two different kinds of persuasion processing: the central route (i.e., systematic processing) and the peripheral route (i.e., heuristic processing). Generally, attitude change obtained through the central route is likely to endure over time, is more resistant to counter-persuasion, and is more directive of subsequent behavior. The central route is most appropriately used when the receiver is motivated and has the ability to think about the message. As the receivers'

involvement with the issue increases, their motivation to think about the message increases. Further, as the message's comprehensibility increases, the receivers' ability to think about the message increases. Therefore, presenting narratives of cancer survivors who recommend audience to obtain screening may be one of the means to increase receivers' motivation and ability to think about pro-screening messages because such true stories may increase the receivers' personal relevance and involvement by appealing to their emotions and may increase the message's comprehensibility by storytelling (Kreuter et al., 2007). Additionally, to "nudge" and encourage indifferent and less motivated individuals to take health behaviors, a perspective of behavioral economics suggests to enhance memorability and actionability of health messages by making the messages simple and visual and embedding triggers into the messages to help audience recall and act (Riis and Ratner, 2016). This behavioral economics perspective may be useful to encourage screening-hesitant individuals who have less motivation and ability to think about pro-screening messages to obtain cancer screening.

#### *Limitations*

The present study has several limitations, so it needs to be regarded as exploratory. Availability, means of access, and time limitations made it unfeasible to comprehensively examine all existing relevant sites. The present study analyzed only what was written on the websites. In future studies, interviews with authors of anti-cancer screening websites should be conducted. Abelson's belief-possession theory (Abelson, 1986) has not empirically tested. However, it is considered to be a valid perspective that individuals attach value to their beliefs "like possessions". Therefore, the implications of the present study remain to be important.

In conclusion, the present study found that authors of anti-cancer-screening website ascribed values to their beliefs, and that five beliefs and two belief values underlay the messages of anti-cancer-screening websites. Understanding the beliefs of authors of anti-cancer-screening websites in terms of their self-ascribed belief value may help health professionals and researchers handle and counter anti-screening sentiments. However, their anti-screening beliefs were supposed to be strong. It would be better to target not outright screening refusers but screening-hesitant individuals in cancer screening promotion. To counter anti-cancer-screening movement and foster pro-screening beliefs among screening-hesitant individuals, effective communication tactics are needed.

#### *Abbreviation*

ELM: elaboration likelihood model.

#### *Conflict of interests*

None declared.

#### *Funding sources*

This study was supported by a Japan Society for the Promotion of Science KAKENHI grant (number 16710000384).

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