



Research Article

The Effects of a National Mass-Media Campaign on Youth

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Abstract

The purpose of this study was to examine the effects of the Japanese media campaign: "Ask Milk". This campaign was designed to encourage young people to drink milk using a social marketing approach. We examined the impact of the television advertisements used in the campaign in 2005 (the first year of the campaign) and in 2008 by conducting internet surveys of youth aged 12-18 years at the end of both these years. Survey respondents were divided into intervention and control groups according to whether the television advertisements were broadcast in their area of residence. Differences in awareness of the campaign, and attitude, intention and behavior regarding drinking milk were investigated between the two groups using chi-square tests. Content analysis was used to investigate the respondents' impression of the campaign. The numbers of respondents were 226 in 2005 and 258 in 2008. The intervention group was significantly more aware of the campaign compared to the control group, while no significant positive effects were found on attitude, intention or behavior. The most frequently used keyword to describe the impression of the campaign was "fun", which suggests that the television advertisements were perceived as intended among the target age-group.

Keywords: Community health, Health campaign, Health communication, Health education

Introduction

A large body of evidence demonstrates that an adequate intake of calcium-rich dairy products such as milk is necessary to maintain good health, particularly for young people [1-3]. Black et al., [4] analyzed the full bone fracture histories of 50 children (30 girls and 20 boys, 3-13 years) who had avoided drinking cow milk for prolonged periods. Their results showed that young children, who habitually avoid drinking cow milk, without substituting other calcium-rich foods, are at greater risk of fractures and of becoming overweight. Based on this evidence, it has been suggested that a sufficient calcium intake during adolescence will ensure adequate bone growth.

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Japanese people traditionally have lower intakes of calcium than people from many western countries. The Dietary Standards of the Ministry of Health, Labour and Welfare [5] states a desirable average calcium intake for Japanese people. For people 12-29 years old, the estimated calcium requirement is 648-821 mg/day for males and 553-670 mg/day for females. However, the estimated calcium requirement for those aged 7-19 is 578-711 mg/day for males and 493-623 for females. These data demonstrate the importance of increasing calcium intake of Japanese young people. The national health campaign Healthy Japan 21 [6] that started in 2000 suggested that consuming dairy products such as milk contributes to calcium intake. Healthy Japan 21 aimed to increase the average daily dairy product intake for adults from 107 g (based on data from 2000) to more than 130 g by 2010. Campaigns that promote positive changes in dietary behavior regarding dairy products such as milk have great potential for improving public health.

Campaigns that encourage positive dietary behavior changes are implemented in many countries. For example, "Got Milk?" and "3-A-Day" were campaigns in the United States that aimed to improve public health by promoting dairy product consumption [7]. The 3-A-day campaign advocated three servings of milk, cheese, or yogurt per day for optimum nutrition, including calcium. Although the 3-A-Day campaign originated in the United States in 2003, it has now been extended to six countries, including Japan in 2004. However, the 3-A-Day campaign in Japan does not have a specific target audience, and there are no television advertisements for this campaign in Japan. There are no published reports of the effects of this campaign on awareness, attitude, intention or behavior. In Japan, although several media campaigns have been implemented, there is a lack of research evaluating campaigns that promote changes in dietary behavior. The present study aimed to evaluate the effects of a nation-wide mass-media campaign, "Ask Milk", which aimed to increase fluid milk consumption in Japan using a social marketing approach.

Theoretical Backgrounds

The theory of planned behavior

The Theory of Planned Behavior [8] suggests that when an individual has a favorable attitude towards a given behavior, perceives that significant others want him or her to perform this behavior, and in addition, feels capable of performing the behavior he or she will have a higher intention to adopt this behavior. Several researches have been conducted to find if the Theory of Planned Behavior predicts healthy eating behavior for the youth. Fila and Smith conducted a survey including children and adolescents aged 9-18, and suggested healthy eating behavior was also predicted by the constructs included in the Theory of Planned Behavior.

According to the study of Conner et al., [9] application of the Theory of Planned Behavior (TPB) to healthy eating in 144 health promotion clinic attendees is reported. Respondents completed self-report TPB measures after the clinic (Time 1) and 6 months later (Time 2) with a measure of perceived past behavior. As intention stability increased, intentions and perceived past behavior became stronger and weaker predictors of behavior, respectively.

Materials and Methods

Campaign planning

To counter the decreasing milk consumption of Japanese people, the Japan Dairy Council (JDC) began developing a 5-year mass-media community campaign - "Ask Milk" - to encourage the Japanese public to drink more milk. The campaign involved four components: a) media campaign (television advertisements), b) public relations (news releases), c) community-based educational programs (distribution of brochures and holding events), and d) associations with dairy product manufacturers (association with the 3-A-Day Campaign). In this study, we focus on the impact of a) the media campaign that was a major part of the campaign and designed to target young people.

As research suggested that there was a marked decrease in milk consumption among junior high school students, the target audience was junior high school and high school students (12-18 years). Connor [10] suggested that a branding approach is an effective strategy to sell products, especially to young people (toddlers and preschool-aged children). This approach involves selling images associated with the products themselves. In this campaign, the JDC hoped to raise awareness of milk by associating positive images with milk. According to psychologists Tversky and Kahneman [11], the framing effect is a cognitive bias that describes how presenting the same option in different formats can alter people's decisions. Various factors influence the framing effect, including linguistic expression, product package, and relationship with shop staff. During discussions, the JDC found that young people tended to select things based on emotion rather than logic; essentially, they are drawn to popular and fun images. Based on this, "milk" was to be associated with "fun", and professionals were hired to develop the television advertisements.

Campaign implementation

The JDC launched the "Ask Milk" 5-year cross-media campaign in 2005. The budget for the campaign consisted of contributions from approximately 28,000 farmers throughout Japan and a subsidy from the government. The total budget was approximately \$100 billion annually. The media campaign was implemented in Tokyo metropolitan area for financial reasons, but other components (public relations, community-based educational programs, and associations with dairy product manufacturers) were conducted nationwide. The media campaign consisted of television, radio and newspaper advertising [12].

Evaluation design

This study is a quasi-random controlled study. The main aim of our evaluation was to examine the effects of the television campaign of "Ask Milk." An anonymous internet-based questionnaire survey was conducted after the first year of the campaign (2005) and three years later (2008). An outsourcing investigation company (Macromill Inc. Tokyo, Japan) conducted the surveys. The participants of the survey were young Japanese people 12-18 years who were randomly recruited by an internet-based automated allocation system respondents were divided into two groups based on their area of residence: the intervention group who were living in Tokyo metropolitan area and the control group who were living in other areas (i.e., Aomori, Akita, Yamagata, Toyama, Ishikawa, Fukui, Yamanashi, Nagano, Shizuoka, Shiga, Tottori, Shimane, Yamaguchi, Ehime, Nagasaki, Kumamoto, Oita, Miyazaki, Kagoshima and Okinawa). Since the media campaign

was implemented only in Tokyo metropolitan area, those in the intervention group were considered to be exposed to both the media campaign and other campaign components whereas the control group received none of the television-based campaign messages.

Outcome measures

The summary of the outcome measures used in this study is presented in table 1. Awareness of the campaign asked whether the respondents had heard about the "Ask Milk" campaign. For those who were aware, we further asked their feeling and first impression about the "Ask Milk" campaign with an open question. For analysis of the answers, we ranked the frequency with which key words appeared and employed a quantitative analysis to compare the rankings. During preprocessing, slightly different expressions with the same meaning were integrated into one expression (for example, fun, happy→fun). Sentences were coded using morphological analysis and broken into each parse. Adjectives and adverbs were counted and ranked. For the morphological analysis, we used Chasen version 2.0 (developed by Yuji Yamamoto, Nara Institute of Science and Technology, Nara, Tokyo). For coding, we used KH Coder Ver. 1.21 (developed by Koichi Higuchi, Ritsumeikan University, Kyoto, Japan).

For those who had awareness of the campaign, we asked their attitude about milk (whether the respondents started to like milk more), intention to drink milk (whether the respondents felt like drinking milk), and behavior (whether the respondents started to drink more milk) after the respondents had heard about the "Ask Milk" campaign. The answers were rated on a scale ranging from "strongly agree" to "strongly disagree." In the analyses, answers of "strongly agree" and "agree" were both categorized as "agree".

Statistical analyses

Differences in the awareness of the campaign, and the attitude, intention and behavior regarding drinking milk between the intervention and control groups were compared in 2005 and 2008 using chi square (χ^2) tests (with 95% confidence intervals). Statistical analyses were conducted using SAS version 9.1 (SAS Institute, NC, USA).

Results

The number of respondents (12-18 years) was 263 for the intervention group and 267 for the control group in 2005 and 206 and 146 in 2008, respectively.

Awareness

Table 2 shows the differences in the awareness of the campaign between intervention and control groups in 2005 and 2008. The intervention group was significantly more likely to report higher awareness ($p < 0.01$) compared to the control group in both 2005 and 2008.

Attitude, intention, and behavior

Similarly, table 3 shows the differences in the attitude, intention, and behavior regarding drinking milk between the intervention and control groups in 2005 and 2008. Exposure to the "Ask Milk" television advertisements had no significant positive effects on the attitude ($p < 0.129$ in 2005, $p < 0.451$ in 2008), intention ($p < 0.819$ in 2005, $p < 0.345$ in 2008) or behavior ($p < 0.467$ in 2005, $p < 0.039$ in 2008) regarding drinking milk. In fact, the percentage of agreement for behavior was significantly higher ($p < 0.039$) in the control group in 2008.

Measures	Question	Answer types
(1) Awareness	Are you aware of the "Ask Milk" Campaign?	Choose one from 3 answers : "Yes" "Maybe" "No"
Impression of the campaign	(For those who answered "Yes") How did you feel when you learned about the "Ask Milk" campaign? What was your first impression? Please describe your feelings in detail.	Open Question
(2) Attitude	After you heard about the "Ask Milk" Campaign, did you start to like milk more?	5-point scale: "Strongly agree" "Agree" "Neither agree nor disagree" "Disagree" "Strongly disagree" Answers of "Strongly agree" or "Agree" were both considered as "Agree" in the analyses.
(3) Intention	After you knew about the "Ask Milk" Campaign, did you feel like drinking milk?	
(4) Behavior	After you heard about the "Ask Milk" Campaign, did you start to drink more milk?	
Others	What kind of drink do you think of when you hear "something to drink at home"?	Selecting the answer from multiple options
	How often you drink milk?	Selecting the answer from multiple options
	Are you interested in drinking milk?	5-point scale: "Strongly agree" "Agree" "Neither agree nor disagree" "Disagree" "Strongly disagree" Answers of "Strongly agree" or "Agree" were both considered as "Agree" in the analyses.
	Do you like milk?	
	Do you feel like drinking milk?	
	Is this campaign related to your daily life?	
	Isn't this campaign related to your daily life?	
How you came to know this campaign?	Selecting the answer from multiple options	

Table 1: Questionnaire used to evaluate awareness, attitude, behavior and intention regarding drinking milk from the "Ask Milk" campaign.

		Intervention		Control		p-value
		N	%	N	%	
2005	Yes	132	50.2	38	14.2	<0.001
	Maybe	34	12.9	22	8.2	
	No	97	36.9	207	77.5	
2008	Yes	137	66.5	59	40.4	<0.001
	Maybe	37	18.0	25	17.1	
	No	32	15.5	62	42.5	

Table 2: Awareness of the campaign for intervention and control groups in 2005 and 2008.

*Confidence interval: 95%; Degree of freedom: n-1

	2005					2008				
	Intervention (N=166)		Control (N=60)		p-value	Intervention (N=174)		Control (N=84)		p-value
	Agree	%	Agree	%		Agree	%	Agree	%	
Attitude	59	35.5	28	46.7	0.129	62	35.6	34	40.5	0.451
Intention	72	43.4	25	41.7	0.819	70	40.2	39	46.4	0.345
Behavior	34	20.5	15	25.0	0.467	39	22.4	29	34.5	0.039

Table 3: Attitude, intention and behavior for intervention and control groups in 2005 and 2008.

Impression of the campaign

Analysis of answers to the open-ended questions showed that the keyword "fun" appeared most frequently in 2005 and 2008. In 2005, "fun" was the most frequent keyword (62 times), followed by "big" (27) and "good" (11). When the word "big" appeared, it was in most cases associated with a specific television advertisement (for example, become a big giant after drinking milk). In 2008, "fun" was the most frequent keyword (64 times), followed by "good" (9) and "nothing" (6).

Discussion

Evaluation of "Ask Milk" campaign

This study is the first to evaluate the effects of a Japanese media campaign to promote milk consumption.

Our findings clearly show that the media campaign increased awareness of the "Ask Milk" campaign for the target audience. The television advertisements were broadcasted intensively in January and August because these are vacation months for students. Consistent with the observation of Wutzke et al., [13] that awareness of a campaign can significantly improve through repetition, it appears that the target audience had frequent exposure to the television advertisements, which may have led to the raised awareness.

Exposure to the "Ask Milk" television advertisements had no significant positive effect on the participants' attitude, intention or behavior related to drinking milk although compared to the intervention group, a higher proportion of the respondents in the control group agreed that they started to drink more milk after they had heard about the campaign. This may be attributed the young

audience did not related the campaign to their own dietary behavior. To achieve real changes in attitude, intention and behavior, campaign strategies other than television advertisements might be more effective by providing more detailed information than possible in a television advertisement. In the initial part of the campaign, the television advertisements were imaginative and not informative about the health benefits of milk. However, this was part of the marketing strategy: to appeal to young people and have a strong impact so that they simply acknowledge the existence of milk. If we step further, such as appeal nutrition of milk, we might have significant change in attitude, intention or behavior.

Ajzen [8] insists that an attitude to certain behavior is strengthened when one believe the behavior will cause desirable results for the individual. In our case, the desirable result was having fun therefore the audience thought they would see commercial and ads. However, our true desirable result was to make them drink milk. The campaign did not succeeded in that we could not actually make them consume more milk. The results indicates that we might have to plan campaign from different point of view, such as emphasizing benefit for health after drinking milk or for preventing certain diseases.

Regarding validity and reliability of questionnaire, content validity was discussed by the results suggested that the television advertisements were an effective way to raise awareness of drinking milk, but that they do not necessarily lead to changes in attitude, intention or behavior. A campaign without television advertisement can be expected to have difficulty in rapidly raising awareness. However, such a campaign could provide more detailed information that may have a greater effect than television advertisement on attitude, intention and behavior. Smith et al., [14] argued that the impact of a mass media campaigns' impact is sustained, and that they should be supplemented with educational, policy and environmental strategies.

Analysis of the respondents' impression of the campaign showed that the word "fun" was most frequently mentioned in both 2005 and 2008. This indicates that the campaign components were viewed by young people as "fun". In the campaign, the JDC tailored their messages to the target audience (young people) and attempted to identify milk as a popular and close companion. As a result, the notion of "fun" was associated with the campaign as intended by the JDC. The study is important in the sense it proves the mass media campaign has a limited role in promoting behavior change.

Use of social marketing

Swerissen and Crisp [15] noted that "Health promotion programmes are more likely to produce sustainable effects if they address appropriate levels of social organization in seeking to achieve health promotion outcomes". Storey et al., [16] identified four components of social marketing: mutual fulfillment of self-interest, consumer orientation, segmentation and marketing mix (product, price, place, promotion). The most conspicuous feature of the "Ask Milk" campaign was segmentation. The target audience was defined similarly as a social organization, and segmentation was made to clarify demographic level and achieve sustainability in health promotion effects. At the beginning of the campaign, the committee discussed detailed plans and identified young people 12-18 years as the specific target audience. They tailored their approach to the target audience using the most popular media, based on the concept of consumer orientation.

The "Ask Milk" campaign enabled the JDC to deliver messages to their target audience through segmentation. The messages of the campaign aimed to encourage young people to feel positively about milk. The specific messages in the "Ask Milk" campaign advertisements were further tailored to the target audience. For example, complicated language was not used and, instead, the messages were conveyed using youth-friendly casual expressions. To directly appeal to the target audience, the advertising professionals created a simple and clear message: "Ask Milk" [17]. Following segmentation of the audience, the typical lifestyle of the target audience could be identified. Based on this lifestyle, effective times and locations for the advertisements could be selected to ensure maximum exposure of the target audience. The target audience was therefore frequently exposed to the advertisements through effective media. We believe, therefore, that the positive aspect of the campaign was that segmentation was conducted in the early stages of the campaign.

When we plan future campaign we would discuss in groups including consumers that what kind of benefit and cost are acceptable for the consumers and conduct through survey to define price (the value of the campaign), product (what the audience want to get from the campaign), promotion (means, timing of conducting campaign), and place (the place where the audience is exposed to the campaign) [18] in this specific campaign.

Strength/limitation

There are several limitations for the present study. First, we limited the age of the participants upon the present research, however, we did not discuss other socio-economic characteristics such as sex and region of the audience because there was a deference of population and gender proportion in each region therefore it was difficult to describe their socio-economic characteristics. Second, we did not look into the difference of response as per duration of exposure to the campaign because in each regions the duration of the exposure of the audience of the campaign was not identical although campaign duration itself was the same in each region, therefore it was difficult to look into the difference of response as per duration of exposure to the campaign. Third, sample size was small. The population of Tokyo prefecture is over 13 million. Our calculation for the sample size revealed that for 1 million, required sample size is about 384. Therefore we are short of sample size, and this should be covered in the future research. Nonetheless, this is the first research evaluating campaigns that promote changes in dietary behavior this could be said as a strength of the present study.

Future directions

Mass-media campaigns have proved useful to deliver public health messages to large segments of the population. Use of television has been shown to significantly affect health awareness when a large proportion of the target audience is reached. This study has also demonstrated that a media campaign, with appropriate segmentation and targeting, can reach its target population and be used to deliver health messages.

Increasing awareness of milk through the campaign is the first step towards behavioral change, and can be expected to lead to behavioral change over time. The basic aim of the "Ask Milk" campaign was to raise awareness of fluid milk and improve the attitude of young people towards milk. The JDC campaign has thus far been successful since awareness has been shown to increase. Although McQueen [19]

discussed it could be premature to prioritize types of evidence in a linear hierarchy, the finding of this study could provide a practical reference for other Asian countries.

Conclusion

The television advertisement of the Japanese media campaign, “Ask Milk”, was effective in positively raising awareness in its target audience. However, exposure to the television advertisements had no significant positive effect on the participants’ attitude, intention or behavior regarding drinking milk. The general impression of the campaign reported by our survey respondents was one of “fun”, which is consistent with how the campaign was designed. We suggest that the positive aspect of the campaign owed to segmentation in the design of the campaign. However, only by increasing awareness to drink milk with no effect on behavior could not be said that the campaign was successful. More improvement will be needed for the campaign for the behavioral change. Nonetheless, this campaign was a novel attempt to promote consumption of milk among young people.

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