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# **Fake news: Information environment and social responses during the COVID-19 pandemic**

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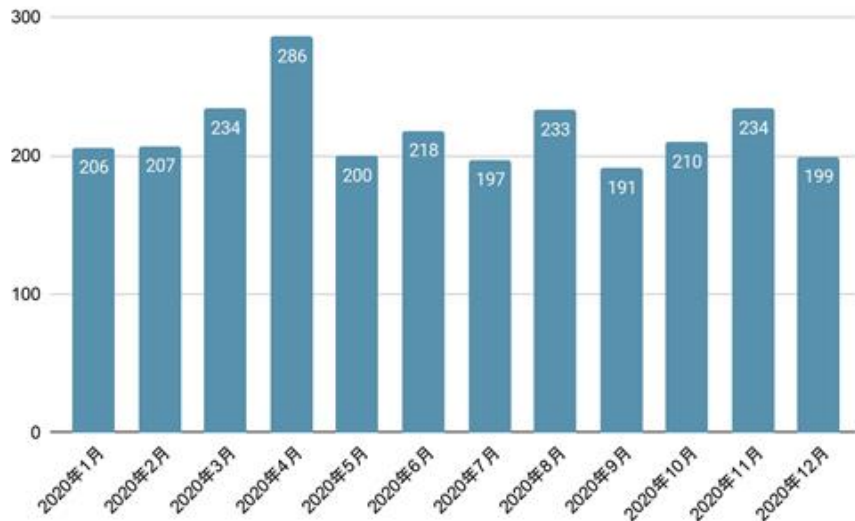
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# Fake news situation in Japan

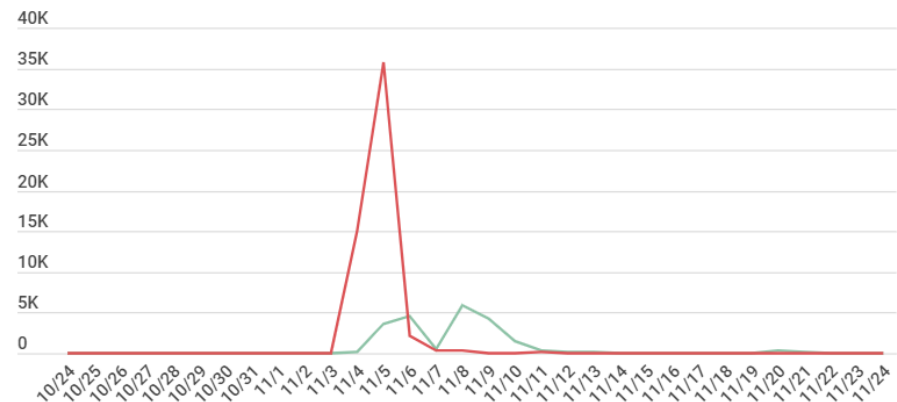
## ◆ The situation of fake news in Japan

- In recent years, there have been **2,615** cases of questionable discourses spreading per year in Japan, with an average of 7.2 cases per day. A large number of these discourses are related to **COVID-19**.
- The claims of "**election fraud**" by Trump had spread to Japan.
- The information that Biden's vote count increased in a short period, and the turnout will be calculated to exceed 200%, **spread more in Japan than in the United States**.



Number of cases of questionable discourses

SIEMPLE .Inc Digital Crisis Research Institute *The white paper of digital crisis 2020*



Red: Japanese Green: English

The number of tweets containing both "Wisconsin" and "200%."

<https://withnews.jp/article/f0210208002qq0000000000000000W00j11101qq000022495A>

# Discussions in Japan and the position of this study

## Discussions and remarks at the MIC “Study Group on Platform Services”

- ① **The nature and extent** of the fake news problem in Japan needs to be investigated.
- ② First of all, **the awareness** about fact-checking and fake news may be low.
- ③ What is **a sustainable fact-checking system like**?
- ④ **Sound responses** must be informed on ① through ③.

### ◆ Focus of this study

- Continuing from the 2019 study, we will investigate the nature and extent of the problem of fake news in Japan. More specifically, “information behavior,” “what contributes to the ability to identify fake news,” and “the patterns of fake news diffusion” will be examined.
- A meeting of experts will be conducted to discuss evidence-based solutions and articulate concrete responses to the fake news.

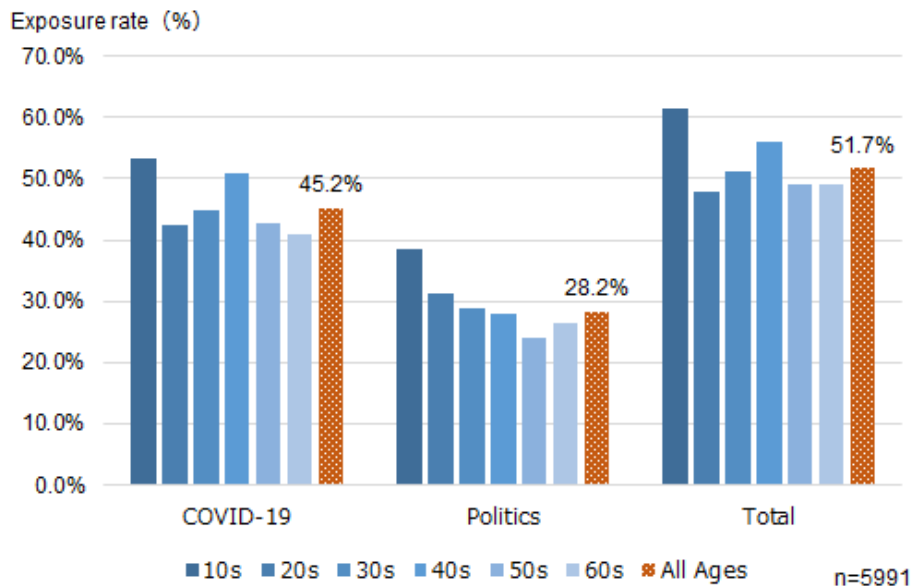
### ◆ Definition of “Fake News” in this study

- Defined as follows, to include disinformation and misinformation:

**False, inaccurate, or misleading information in any form that caused harm to the public through such ways as being designed, displayed, or advertised.**

# Reality of exposure to fake news

- ◆ More than half of the sample has been exposed to fake news.
  - Survey on 20 actual fake news stories, 10 related to the COVID-19 and 10 to domestic politics. Sample size 5,991 (see appendix for details).
  - The rate of exposure to fake news related to **COVID-19** is high (45.2%); teenagers have the highest exposure rate; **all age groups have been exposed**.
  - Overall, **51.7%** of people have been exposed to one or more fake news.



**Fake news exposure rate (percentage of people who have been exposed to one or more fake news stories for each area)**

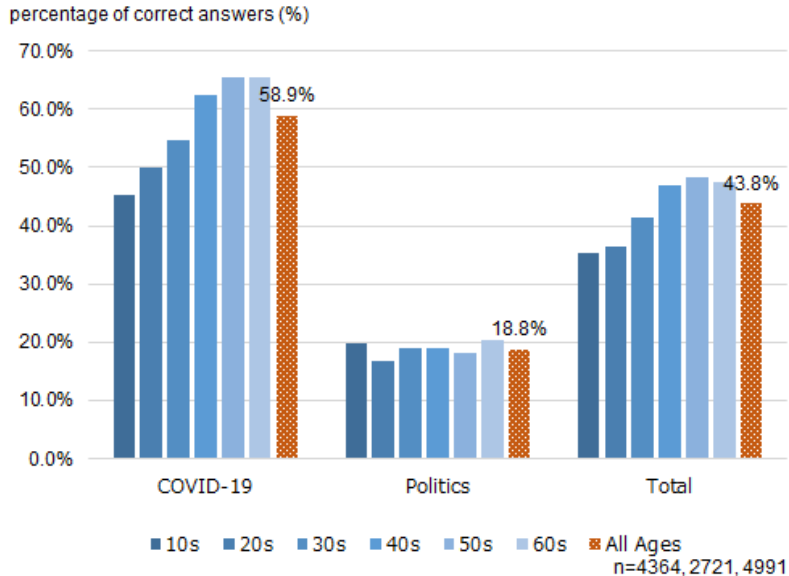
※Some examples of fake news (a part of 20 stories used)

- The PCR test also detects ordinary colds.
- If you can take a deep breath and hold it for 10 seconds, you are not infected with the coronavirus.
- Coronaviruses can be prevented by drinking hot water at a temperature of 26° to 27° Celsius.
- Reuters reported Mrs. Akie Abe, who traveled with 50 people under the pandemic as “the world's dumbest first lady”.
- Amid the pandemic, the Diet deliberations on April 8 and 9 could not take place due to the opposition party’s refusal.
- Prime Minister Abe was the first prime minister who visited Iwo Jima.
- Prime Minister Abe said the average monthly income of the dual-earner couple in Japan is “¥500,000 for the husband and ¥250,000 for the wife”.

※ All stories were widely disseminated and fact-checked between January and July 2020. Fact-checking organizations are BuzzFeed Japan and INFACT.

# Identifying the fake news

- ◆ The proportion of people who are aware of the stories being fake
  - COVID-19-related information was identified as false by **58.9%** of the sample, while only **18.8%** identified the domestic politics-related stories as fake. There was no difference across age groups in the domestic politics-related category.
  - The higher rate of identification of COVID-19-related fake news can be attributed to the fact that many of the stories were considered questionable to begin with, and **fact-check results were disseminated** widely (by mass and other media). In other words, fact-checking is an effective way to counter fake news.



The proportion of people who accurately recognized fake news

- In the 2019 study that comprehensively analyzed eight news areas, 25 percent of respondents were able to recognize fake news as false.
- In comparison, fake news identification rates for COVID-19 are high while those for domestic politics are low.
- Result shows that many people remain unaware of fact-checking results of fake news. Even in the case of COVID-19, for which a large number of fact-check results were reported, more than 40% of people remained unaware of them.

# Factors contributing to the fake news identification

## ◆ Regression analyses : Factors contributing to the identification of fake news

### Literacy

Information literacy strengthens resistance to fake news (making it harder to be deceived). Information literacy here is similar to reading comprehension and language skills such as the ability to know whether a text contains the author's opinion, and what can be inferred with certainty from the text. It greatly enhances the ability to identify the COVID-19 related fake news.

### Media exposure / Trust in media

Being exposed to information and news through social media does not necessarily make you more susceptible to being duped by fake news. Rather, exposure to a variety of information sources can have a positive impact. However, high levels of trust in social media and email tend to make people more susceptible to being fooled by fake news.

### Dissatisfaction with mass media / with life

High dissatisfaction with the mass media and dissatisfaction with one's own life tend to make it difficult to identify fake news. In particular, they have a larger impact on the ability to identify fake news related to domestic politics.

※ We set the following logit model of the fake news identification, and extracted the factors that influence the identification of each fake news as false by step-wise selection.

$$\text{Logit}[P(\text{Correct}_{it} = 1)] = \log \left( \frac{P[\text{Correct}_{it}]}{1 - P[\text{Correct}_{it}]} \right)$$

$$= \alpha + \beta_1 \text{Literacy}_i + \beta_2 \text{O\_Action}_i + \beta_3 \text{Interest}_{it} + \beta_4 \text{Characteristics}_i + \beta_5 \text{Politics}_i + \beta_6 \text{Dissatisfaction}_{it} + \beta_7 \text{Media}_i + \beta_8 \text{T\_Media}_i + \beta_9 \text{Followers}_i + \text{Fake}_t$$

- $\text{Correct}_{it}$  : A dummy variable that is set to 1 if individual  $i$  identifies fake news  $t$  to be false information.
- $P(\text{Correct}_{it} = 1)$  : The probability of being  $\text{Correct}_{it} = 1$ .
- $\text{Literacy}_i$  : A Literacy vector. This includes media literacy, news literacy, IT literacy, and information literacy.
- $\text{O\_Action}_i$  : Information verification behavior vector.
- $\text{Interest}_{it}$  : A vector of variables representing the level of interest in each news genre.
- $\text{Characteristics}_i$  : An attribute vector of individual  $i$  composed of gender, age, urban residence, unmarried, education, number of years using the Internet, and number of friends.
- $\text{Politics}_i$  : A vector of political attitudes of individual  $i$  composed of two variables: extremism and conservatism.
- $\text{Dissatisfaction}_{it}$  : A vector related to anxiety and dissatisfaction.
- $\text{Media}_i$  : A vector for information and news media exposure.
- $\text{T\_Media}_i$  : A trust vector for each medium.
- $\text{Followers}_i$  : Number of all social media followers, including Twitter, Facebook, Instagram, TikTok, and others.
- $\text{Fake}_t$  : A vector of dummy variables that is set to 1 if the fake news is  $t$ . This represents the effect specific to each fake news.
- $\alpha, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \gamma$  : Parameters and errors over each variable and vector. A dummy variable that is set to 1 if the person is male.

# Information verification behaviors: Effects on identification of fake news

- ◆ The effects of information verification behaviors on identification of fake news
  - Not all of the information verification behaviors suggested by the EU and others are effective. **The effectiveness varies greatly depending on the type of fake news.**
  - In the case of COVID-19, **“investigating primary sources”** and **“considering the attitude, tone, and emotion of the information sender”** are effective.
  - In the case of domestic politics, **“checking the source of the information”** and **“considering the purpose for which the information was sent”** are effective.

**The effectiveness of information verification behavior**

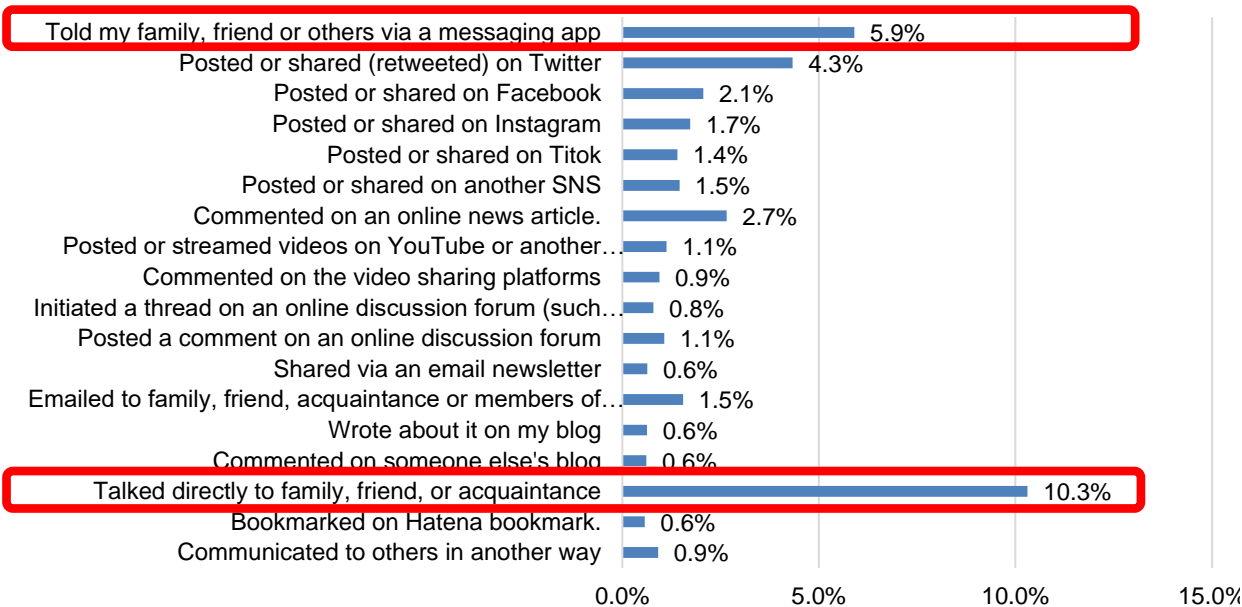
	COVID-19	Politics	Total
Check the source of the information		○	○
Check when the information was originally sent out.			
Investigate primary sources	○		
Search for other sources of information on the Internet			○
Check the internet to see what others mentioned.			
Look for other sources of information on TV, newspapers, and magazines			
Consider the purpose for which the information was sent		○	○
Consider the attitude, tone, and emotion of the information sender	○		
Check the source of the link when a link was posted			

※This table summarizes the effects of information verification behavior on the identification of fake news. The analysis was conducted using the model on the previous page. The sign ○ indicates a positive and statistically significant effect.

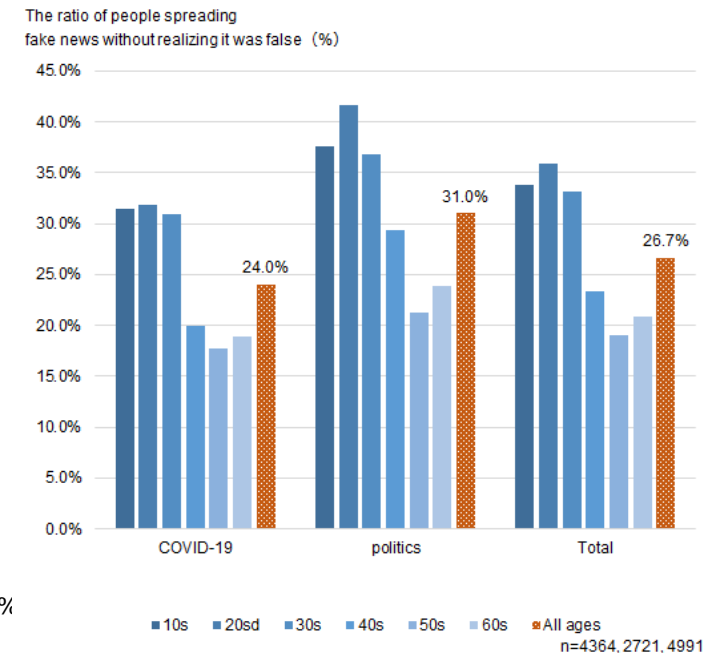
# Fake news diffusion

## ◆ Means of spreading fake news

- The most common way of spreading is “Told my family, friend, or acquaintance directly” at 10.3%. This is followed by messaging apps. These findings show that fake news are often spread to those who are close.
- The percentage of people who spread the fake news is 26.7%. The rate is slightly higher for news on domestic politics than COVID-19.



The spreading of fake news while being unaware of its falsity n=4991



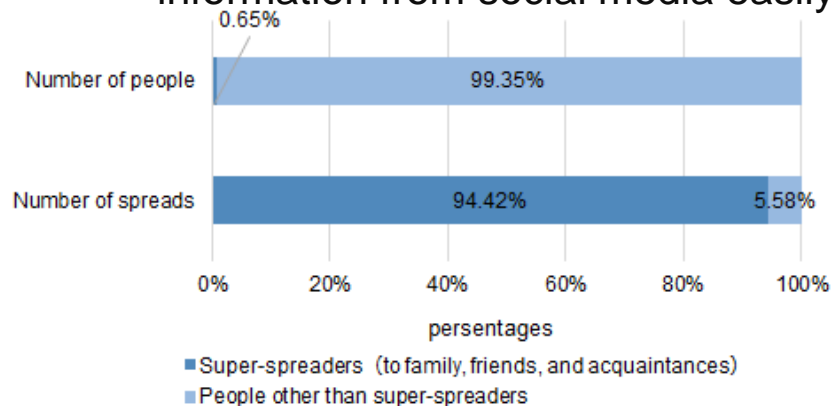
The ratio of people spreading fake news without realizing it was false n=4364, 2721, 4991



# Reality of super-spreaders

## ◆ The number of super-spreaders and spreaders

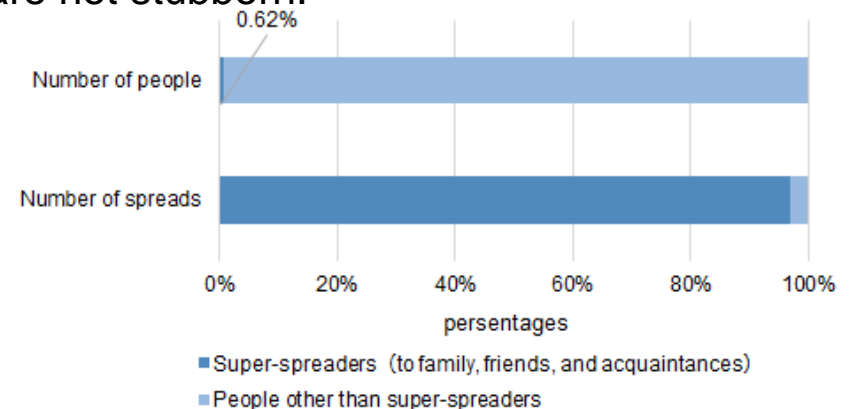
- For the 20 fake news stories, super-spreaders accounted for **less than 1%** of the sample. However, they accounted for about **95% of the total number of spreads**.
- The behavior of spreading multiple fake news without recognizing the falsity was observed, and a small number of the spreaders accounted for most of the fake news spread.
- On the other hand, the results indicated that super-spreaders tend to accept corrective information from social media easily and are not stubborn.



**The number of super-spreaders and the number of people who spread the information without realizing it was false (to family, friends, and acquaintances)**

※ Super spreaders to family, friends, and acquaintances: Those who spread information to more than 100 people that are family, friends, and acquaintances without realizing it is false.

※ Super spreaders on social media: Those who spread information to more than 10,000 people on social media without realizing it was false (note that the number of people is the number of followers, not the number of people who actually saw the shared posts).



**The number of super-spreaders and the number of people who spread the information without realizing it was false (on social media)**

# Challenges for media literacy education in Japan

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- ◆ Challenges for media and information literacy education in Japan
  - The education on the technical aspect is well developed, whereas **systematic education leading to media literacy is lacking** (Horita & Sato, 2019; Uematsu, 2015).
  - Introducing elements such as **participatory learning and creating media production**, as in other countries, may increase effectiveness.
  - Best practices should be shared from the standpoint of **multidimensional information and media literacy**. In addition, it is necessary to **systematically introduce digital citizenship education from kindergarten to higher education** (experts meeting) .
  - A broad-based network organization like the National Alliance for Media Literacy (NAMLE) is needed in Japan.

## Suggestions from the expert interviews

- Checking the sources of news articles on news platforms is needed.
- Different senders have different views on information.
- It is very difficult to identify false information.
- Be responsible when spreading information.
- It is good to learn with actual cases.

# Policy implications

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## ◆ Eight policy implications

1. Overall: Promote comprehensive awareness-raising activities regarding information on the Internet.
2. Fact-check: Promote fact-check especially in politics-related information and spread to a wide range of media outlets.
3. Fact-check: Explore easier means to deliver fact-check results to those who spread to many people (super spreaders).
4. Fact-check: Promote more active fact-check, and develop architectural innovations to make it easier to get to the fact.
5. Education and awareness-raising: Raise awareness about the effective information verification behaviors (this varies by news genre).
6. Education and awareness-raising: Educate people that even information from people close to them can sometimes be wrong.
7. Education and awareness-raising: Implement systematic and multidimensional media and information literacy education.
8. Media: Help citizens deepen their understanding of mass media.

# Appendix

## ◆ Research Outline

### Survey research

- Survey period: September 2020
- Participants: Male and female; age group: 15–69 years
- Sample size: A screening survey was conducted using a stratified sampling method according to the population ratio by gender and age, and then 4,991 people were obtained who were in contact with one or more of the 20 fake news stories, and 1,000 people were obtained who were not in contact with any of the 20 stories, for a total sample of 5,991 people.

Sample size by age and gender

	Male	Female	Total
10s	190	242	432
20s	340	458	798
30s	475	563	1038
40s	752	664	1416
50s	607	606	1213
60s	483	611	1094
Total	2847	3144	5991

- ✓ Analyzing the data as it is would have led to over-sampling of people exposed to fake news, which would have caused the explanatory power to be too strong.
- ✓ Therefore, we conducted a weight-back\* based on the exposure rates to fake news in the screening survey.

### Interview research

- Interviews were conducted with **three experts** on topics such as required literacy education.
  - Ken Ogiso (information literacy expert)
  - Tomoko Suzuki (IT journalist / adviser on safety issues related to smart phones)
  - Tomoko Yasuno (Professor at Faculty of Letters, Chuo University)
- **Six citizens (male and female in their 20s to 40s)**: about their communication environment and fake news-related behaviors

- In analyzing the survey data, the population was defined as the entire population of people living in Japan, and the screening survey was assigned using the stratified sampling method. However, since the survey over-sampled people exposed to fake news, the explanatory power would be excessively high if the data set was analyzed without an adjustment. For example, the fake news exposure rate and the number of contacts to fake news would look higher in data than the overall Japanese population. Weight-back is used to calculate values that are similar to actual values in the population by weighting them according to the ratio of the population by gender and age in Japan.