

The Reliability of Organizations that Issue Health Crisis Information and Methods by which the General Citizenry Conveys Information : Current State of the General Citizenry, which is both a Receiver and a Dispatcher of Information regarding Health Crisis Information

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Abstract : There have been no fact-finding surveys of the general citizenry related to types of information sources from which the local populace will obtain the information it needs, organizations that will confirm the credibility of the information obtained, and methods by which the general citizenry can convey information. The purpose of this study was to survey and evaluate the information sources and methods of conveying information related to how the general citizenry obtains and confirms health crisis information. We conducted an Internet-based survey of the general citizenry. The survey asked respondents from what organizations and parties they would obtain information in the event of a health crisis, to whom they would convey the information they have obtained, and what organizations and parties they would use to confirm the credibility of such information. Over 80% of respondents answered they would use television as a source to obtain necessary information about a health crisis. Television received a high rating in terms of speed, reliability, and volume of information. Magazines were admitted as an untrustworthy source of information. Opinion was mixed regarding the reliability of the Internet. Approximately 50% of respondents answered they do not make use of governmental agencies, including public health centers, municipal offices, prefectural government offices, or the Ministry of Health, Labor and Welfare, as sources to obtain information. However, many respondents cited governmental agencies and medical institutions as organizations they would use to confirm the accuracy and reliability of the health crisis information being disseminated, thus indicating a high degree of confidence in them.

Key words : Reliability, Health crisis, General citizenry, Receiver, Dispatcher

Introduction

Since it is extremely difficult to predict the location and time of a health crisis, damage is minimized by establishing structural plans before one occurs.¹⁾ However, making a mistake in the selection and the use of various information that arises in during the early stages of a crisis makes adequate decisions regarding the status of an out-

break unclear, thus causing mistakes to be made in the selection of information to be transmitted to the affected area.²⁾ Accurate selection regarding the credibility of information is crucial to the subsequent response.³⁾⁴⁾ The rapid collection and feeding back of accurate information are indispensable for estimating possible damage. Information is fed back to a wide range of parties including public health centers, municipalities, the general citizenry, and the mass media. Transmitting accurate in-

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formation to the local populace is important for preventing needless confusion.⁵⁾ Use of the mass media is essential from the standpoint of imparting information rapidly.⁶⁾

The outbreak of *Escherichia coli* (*E. coli*) O-157 that occurred mainly in children in Sakai City, Osaka Prefecture, in July 1996 was an unprecedented case of mass food poisoning. Over 8,000 residents were symptomatic and about 400 people were hospitalized.⁷⁾ This incident overturned the notion that Japan was safe from infectious diseases. Area residents were confounded by a variety of information. Inaccurate and irresponsible information caused discrimination and prejudice of the citizens of Sakai City. This incident provided the Ministry of Health, Labor and Welfare and local governments the opportunity to completely redo their measures and policies regarding how they will respond and what measures have to be taken in the event of a health crisis.⁸⁾

There is a wide range of accidents that can pose a risk to and damage the health of numerous individuals, from pollution due to chemical substances and the spread of infectious diseases to side effects of pharmaceuticals and terrorist acts. Relevant information is issued when these health crises occur.⁹⁾ However, health crisis information is not always accurate and reliable. It is an incontrovertible fact that it is also sometimes vague and erroneous.

The general citizenry possesses a dual nature regarding information. Ordinary citizens are both receivers of information who obtain relevant information from the mass media and municipalities as well as providers of information that they have obtained.¹⁰⁾ The purpose of this study was to clarify from where the general citizenry would obtain the information issued in the event of a health crisis in Japan and how it would confirm the credibility of the information it obtains, and to evaluate how effective such information would be.

Materials and Methods

We conducted an Internet-based survey of the general citizenry. The survey period was the three-day period of January 26 to January 28, 2005. Respondents were asked 20 questions including

“Where would you obtain information you want to know?”, “How much would you trust the information you obtain?”, “What means would you use to obtain information?”, “What means would you use to confirm the credibility of information you obtain?”, “To whom would you convey the information you obtain?”, and “What means would you use to convey the information you obtain?” in the event of food poisoning caused by *E. coli* O-157 or an infectious disease such as severe acute respiratory syndrome (SARS), norovirus gastroenteritis, influenza, or bovine spongiform encephalopathy (BSE) (Appendix 1).

For questions related to sources for obtaining information concerning health crises and the reliability of such information, the respondents were asked to circle one of the following for each type of organization: “I can obtain enough information,” “I can obtain some information,” “I cannot obtain much information,” “I cannot obtain any information at all,” and “I do not use it.” Respondents were asked to circle an answer (multiple answers were allowed for some questions) for questions regarding the accuracy, speed, and volume of health crisis information issued by governmental agencies and the mass media and for questions related to how information is conveyed and confirmed when the general citizenry is the source of information. Sex, age, and academic background were also surveyed as general information.

The survey in the present study was conducted on the Internet and was anonymous, i.e., the respondents did not give their name and address. Since (1) the respondents to the Internet survey would be unspecified, (2) no questions that could be used to identify an individual would be included, (3) it would be impossible to come into contact with the respondents, and (4) responses would be received only from those who are willing to respond, it was determined that no special consideration for the privacy of respondents was necessary. As for informed consent, persons who responded to the survey were judged to have given consent for this study. A Statistical Analysis System (SAS Institute, Cary, NC) was used for statistical analysis. A *p*-value less than 0.05 was considered to be a significant difference.

Results

The number of responses was 1,058 (471 men [44.5%], 587 women [55.5%]). All respondents were 20 years of age and over : 17.4% were 60 to 64 years old, 13.9% were 40 to 44 years old, and 13.3% were 50 to 54 years old, 707 cases were 40 years old or over (66.8%). By region, the highest frequency was the 46.1% living in the Kanto area, followed by 19.3% in the Kinki area.

Table 1 shows whether relevant information considered necessary can be obtained from organizations that issue health crisis information, i.e., the mass media and governmental agencies, in the event of food poisoning caused by *E. coli* O-157 or an infectious disease such as SARS, avian influenza virus infection, and BSE. When “I can obtain enough information” and “I can obtain some information” are combined, the highest was 84.2% for newspapers, followed by 80.0% for NHK television, 81.2% for commercial television, and 77.8% for the Internet. Regarding radio, NHK radio was 20.9% and commercial radio was 19.8%. The frequency of those who responded “I cannot obtain much information” or “I cannot obtain any information at all” was 30.5% for public health centers, 35.0% for municipal offices, 35.5% for prefectural offices, 33.9% for the Ministry of Health, Labor and Welfare, and 37.7% for medical institutions.

Approximately 50% of all respondents answered that they do not make use of governmental agencies, including public health centers, municipal offices, prefectural government offices, or the Ministry of Health, Labor and Welfare, as sources of information. In terms of friends and acquaintances as sources of information, 27.8% answered they can obtain information, while 52.4% answered that they cannot. About one-third of the respondents answered they cannot obtain information and do not use medical institutions, respectively.

Table 2 shows the reliability of organizations that issue health crisis information as sources of information. When “I trust it” and “I trust it to a good extent” are combined, newspapers, NHK television, and commercial television were high at 85.0%, 84.9%, and 84.7%, respectively. The Internet was considered to be a reliable source of information by 72.6% of respondents. However, 18.6% of respondents answered the Internet was not a reliable source of information, which was highest after the 37.1% for friends and acquaintances and 28.2% for magazines. The frequency of people who responded that they trust public health centers, municipal offices, prefectural offices, and the Ministry of Health, Labor and Welfare, which are governmental agencies, as sources of information was 42.3%, 39.0%, 33.3%, and 35.3%, respectively.

Table 3 shows the opinions related to the speed, volume of information, accuracy, and reliability of

Table 1. Value as a source for obtaining wanted health crisis information (n=1,058)

	I can obtain enough information.		I can obtain some information.		I cannot obtain much information.		I cannot obtain any information at all.		I do not use it.	
	n	%	n	%	n	%	n	%	n	%
Television (NHK)	163	15.4	683	64.6	122	11.5	6	0.6	84	7.9
Television (commercial)	115	10.9	744	70.3	166	15.7	6	0.6	27	2.6
Television (local cable)	15	1.4	99	9.4	176	16.6	53	5.0	715	67.6
Radio (NHK)	35	3.3	186	17.6	149	14.1	21	2.0	667	63.0
Radio (commercial)	24	2.3	185	17.5	234	22.1	36	3.4	579	54.7
Newspapers	212	20.0	679	64.2	68	6.4	8	0.8	91	8.6
Magazines	37	3.5	244	23.1	339	32.0	56	5.3	382	36.1
Internet	212	20.0	612	57.8	159	15.0	10	0.9	65	6.1
Public health centers	58	5.5	161	15.2	230	21.7	93	8.8	516	48.8
Municipal offices	26	2.5	153	14.5	263	24.9	107	10.1	509	48.1
Prefectural offices	20	1.9	95	9.0	257	24.3	118	11.2	568	53.7
Ministry of Health, Labor and Welfare	26	2.5	126	11.9	251	23.7	108	10.2	547	51.7
Friends/acquaintances	20	1.9	274	25.9	457	43.2	97	9.2	210	19.8
Medical institutions	46	4.3	215	20.3	313	29.6	86	8.1	398	37.6

Responses were obtained for each information agency.

organizations that will be sources of health crisis information that people will want to know. Regarding which organizations the respondents thought would provide information the fastest, 36.1% was NHK television, 28.4% was commercial television, and 19.9% was the Internet. Regarding which organizations the respondents thought would provide the most information, 28.6% was commercial television, 24.6% was NHK television, 23.0% was the Internet, and 14.6% was newspapers. Regarding which organizations the respondents

thought would provide the most accurate information, 30.7% was NHK television, 19.1% was newspapers, 14.1% was commercial television, and 7.6% was the Internet. In terms of speed and volume of information, medical institutions, public health centers, municipal offices, prefectural offices, and the Ministry of Health, Labor and Welfare were less than 3%, respectively. In terms of organizations that are unreliable as sources of information, the Internet, magazines, and friends/acquaintances were 17.9%, 15.7%, and 14.8%, respectively.

Table 2. Reliability of organizations that issue health crisis information as sources of information (n=1,058)

	I trust it.		I trust it to a good extent.		I do not trust it very much.		I do not trust it.		I do not use it.	
	n	%	n	%	n	%	n	%	n	%
Television (NHK)	243	23.0	655	61.9	65	6.1	9	0.9	86	8.1
Television (commercial)	167	15.8	729	68.9	119	11.2	14	1.3	29	2.7
Television (local cable)	36	3.4	183	17.3	88	8.3	12	1.1	739	69.8
Radio (NHK)	73	6.9	248	23.4	49	4.6	9	0.9	679	64.2
Radio (commercial)	58	5.5	298	28.2	94	8.9	10	0.9	598	56.5
Newspapers	259	24.5	640	60.5	48	4.5	8	0.8	103	9.7
Magazines	41	3.9	297	28.1	253	23.9	45	4.3	422	39.9
Internet	110	10.4	658	62.2	176	16.6	21	2.0	93	8.8
Public health centers	162	15.3	286	27.0	51	4.8	12	1.1	547	51.7
Municipal offices	122	11.5	291	27.5	76	7.2	20	1.9	549	51.9
Prefectural offices	102	9.6	251	23.7	80	7.6	19	1.8	606	57.3
Ministry of Health, Labor and Welfare	120	11.3	254	24.0	72	6.8	29	2.7	583	55.1
Friends/acquaintances	25	2.4	372	35.2	345	32.6	48	4.5	268	25.3
Medical institutions	179	16.9	345	32.6	79	7.5	14	1.3	441	41.7

Responses were obtained for each information agency.

Table 3. Speed, accuracy, reliability, and volume of information of organizations that issue health crisis information (n=1,058)

	Provides information the fastest		Provides the most information		Provides the most accurate information		Unreliable as a source of information	
	n	%	n	%	n	%	n	%
Television (NHK)	382	36.1	260	24.6	325	30.7	19	1.8
Television (commercial)	300	28.4	303	28.6	149	14.1	775	7.1
Television (local cable)	4	0.4	3	0.3	1	0.1	2	0.2
Radio (NHK)	17	1.6	9	0.9	8	0.8	2	0.2
Radio (commercial)	7	0.7	4	0.4	3	0.3	2	0.2
Newspapers	59	5.6	154	14.6	202	19.1	7	0.7
Magazines	1	0.1	3	0.3	3	0.3	166	15.7
Internet	211	19.9	243	23.0	80	7.6	189	17.9
Public health centers	28	2.6	29	2.7	87	8.2	3	0.3
Municipal offices	1	0.1	1	0.1	6	0.6	5	0.5
Prefectural offices	3	0.3	6	0.6	4	0.4	2	0.2
Ministry of Health, Labor and Welfare	15	1.4	20	1.9	56	5.3	28	2.6
Friends/acquaintances	1	0.1	1	0.1	2	0.2	157	14.8
Medical institutions	16	1.5	8	0.8	70	6.6	8	0.8
Other	13	1.2	14	1.3	62	5.9	393	37.1
Total	1,058	100	1,058	100	1,058	100	1,058	100

Table 4 shows the stance respondents take when conversing normally with someone and with whom they exchange information. The rate of those who responded that they did the listening was 68.8% in the case of men and 61.8% in the case of women, while the frequency of those who answered they did the talking was 31.2% for men and 38.2% for women ($p < 0.05$). In terms of people with whom respondents exchange information, 84.7% answered friends and acquaintances, 43.9% answered colleagues at work, and 23.3% answered people in the neighborhood. The rate of those who answered there was nobody in particular with whom they exchanged information was 6.4% (6.8%

of men, 6.1% of women, $p = 0.663$).

Table 5 shows to whom information will be conveyed and how it will be conveyed by respondents when they obtain information on a new health crisis. Respondents most often answered they would convey information to their family at 89.6%, followed by friends and acquaintances at 52.5% and their colleagues at work at 24.8%. The rate of respondents who answered they would not convey information to anyone was a mere 2.7% (4.9% of men, 1.0% of women, $p < 0.001$). As for how respondents would convey the information, 84.8% answered they would meet face-to-face and convey the information, followed by 34.2% who would use

Table 4. Stance respondents take when conversing and with whom they exchange information (n=1,058)

	Men		Women		Mean
	n	%	n	%	%
Stance					
Do the listening	324	68.8	363	61.8	64.9
Do the talking	147	31.2	224	38.2	35.1
Other party of information exchange					
With whom respondents exchange information	375	84.7	521	88.8	84.7
Associates at work	279	59.2	185	31.5	43.9
Neighbors	76	16.1	171	29.1	23.3
People working in local shops	9	1.9	20	3.4	2.7
Fellow of club members	46	9.8	124	21.1	16.1
Other	13	2.8	28	4.8	3.9
None in particular	32	6.8	36	6.1	6.4

Multiple answers allowed

Table 5. To whom and how new information is conveyed (n=1,058)

	Men		Women		Mean
	n	%	n	%	%
To whom information is conveyed					
Family	406	86.2	542	92.3	89.6
Friends and acquaintances	202	42.9	353	60.1	52.5
Associates at work	162	34.4	100	17.0	24.8
Neighbors	18	3.8	53	9.0	6.7
Other	10	2.1	5	0.9	1.4
Not conveyed to anyone	23	4.9	6	1.0	2.7
How information is conveyed					
Meet directly and tell	394	83.7	503	85.7	84.8
Landline	101	21.4	220	37.5	30.3
Cell phone	88	18.7	120	20.4	19.7
Cell phone e-mail	114	24.2	227	38.7	32.2
Personal computer e-mail	149	31.6	214	36.5	34.3
Fax	6	1.3	12	2.0	1.7
Other	6	1.3	0	0	0.6

Multiple answers allowed

a personal computer to send an e-mail, 32.2% who would use a cell phone to send an e-mail, 30.3% who would use a landline, and 19.7% who would use a cell phone.

Table 6 shows where and how respondents would confirm the accuracy and credibility of health crisis information. As for where respondents would confirm information, 34.9% answered the local government/Ministry of Health, Labor and Welfare, 32.5% answered a public health center, and 28.6% answered a medical institution, while 12.1% answered a newspaper publisher, 11.1% answered friends/acquaintances, and 10.8% answered a television station. Regarding how respondents would confirm such information, 79.0% answered they would use a landline, 36.7% answered they would use a personal computer to send an email, and 18.0% answered they would use a cell phone. The frequency of those who answered they would go directly to a source of information such as a public health center and a local government was 24.8% (27.5% of men, 22.7% of women, $p=0.150$).

Discussion

In contemporary society, the transmission of in-

formation is a critical factor which plays a significant role in terms of shaping social activity. Methods for transmitting information and the content of information are not simple even in small groups of people, and the bigger a group is, the more complicated and diversified they become. In today's society, in which the means of communication are diversified and temporal distances have been shortened, the issuing of information and the receiving of information are not one-way streets. Individuals and organizations have a dual component: they are both issuers of information and receivers of information. In other words, the range of organizations that issue health crisis information is infinitely wide, from governmental agencies such as the national government, prefectural governments, and public health centers to mass media such as television, radio and newspapers, family, and friends and acquaintance in the office.¹¹⁾ However, the health crisis information that is issued is not always highly accurate and reliable. It is an incontrovertible fact that it is also sometimes vague, uncertain, and erroneous.

There have been no comprehensive social-scientific studies related to the accuracy and speed of information, methods by which people who have obtained information to confirm the credibility of

Table 6. Where and how respondents confirm the accuracy and credibility of health crisis information (n=1,058)

	Men		Women		Mean
	n	%	n	%	%
Where respondents confirm accuracy and credibility					
TV station	70	14.9	44	7.5	10.8
Radio station	12	2.5	9	1.5	2.0
Newspaper publisher	69	14.6	59	10.1	12.1
Publisher	5	1.1	3	0.5	0.8
Public health center	133	28.2	211	35.9	32.5
Local government/Ministry of Health, Labor and Welfare.	164	34.8	205	34.9	34.9
Medical institution	126	26.8	177	30.2	28.6
Friend/acquaintance	42	8.9	75	12.8	11.1
Other	24	5.1	11	1.9	3.3
Do not confirm it	129	27.4	164	27.9	27.7
Methods of confirmation					
Landline	259	75.7	345	81.6	79.0
Cell phone	80	23.4	58	13.7	18.0
Facsimile	15	4.4	19	4.5	4.4
E-mail using cell phone	25	7.3	49	11.6	9.7
E-mail using personal computer	139	40.6	142	33.6	36.7
Go directly	94	27.5	96	22.7	24.8
Other	14	4.1	5	1.2	2.5

Multiple answers allowed

the information, and methods of conveying information when one is a source of information, etc., from the standpoint of a health crisis such as the spread of an unknown infectious disease or damage caused by a chemical substance. We can put forward the hypothesis that the characteristics of each method of conveying information and each individual's sense of sight and hearing are associated with the transmission of information. The purpose of this study was to clarify the dual nature of the general citizenry as both a recipient of information (receiver of information) —i.e., what organizations it uses as a source of health crisis information; to what degree it trusts the information it obtains; and what it thinks of the accuracy, speed, and volume of information of organizations that provide information—and as a source of information (issuer of information) —i.e., to whom and how it conveys health crisis information. We divided the discussion into five sections: governmental agencies and medical organizations, the mass media, the Internet, friends/acquaintances, and future response.

1. Governmental agencies and medical organizations

Governmental agencies that are associated with health crises include public health centers, municipal offices, prefectural offices, and the Ministry of Health, Labor and Welfare. Respondents felt information from governmental agencies can be trusted, but on the other side of the coin, 30% to 35% of respondents answered they cannot obtain information from governmental agencies, while 50% do not make use of them. The general citizenry has not yet determined that it can obtain the health crisis information it wants to know from governmental agencies. The respondents' appraisal of medical institutions was similar to that of governmental agencies. The general citizenry feels it cannot obtain the information it needs from medical institutions and governmental agencies such as public health centers, municipal offices, prefectural offices, and the Ministry of Health, Labor and Welfare. The fact that the general citizenry does not make use of them suggests that the content of such information provided and methods of providing it might be flawed. Respon-

dents' appraisal of medical institutions and governmental agencies as sources of health crisis information in terms of the speed and the volume of information was markedly low: less than 3%. In terms of accuracy, as well, the appraisal was low in comparison to television and newspapers. In the case of local governments (villages, towns, cities, and prefectures), in particular, the appraisal was less than 1% in terms of the speed, volume, and accuracy of information. These results pose a major problem for the Ministry of Health, Labor and Welfare, which is the responsible government office for health crisis management.

The general citizenry cited governmental agencies and medical institutions as the best places to confirm the credibility of information it has obtained, ranking them higher than television stations and newspapers. It is conjectured that the general citizenry confirms information related to health crises at governmental agencies due to the specific nature of the information. The most common method of confirming information was using a landline at 80%, while 25% of respondents answered they would go directly to confirm information. The reason why an overwhelming frequency of respondents would use a landline needs to be elucidated in a future study. The role required of governmental agencies and medical institutions as sources of health crisis information is the provision of accurate information in response to inquiries from the general citizenry and the accurate and rapid provision of information to the mass media. The general citizenry should be made aware of who to contact for information, and more should be done to encourage more people to make use of it.

2. Mass media

Television and newspapers are valuable sources of information related to health crises, with less than 10% of the general citizenry not making use of them. Their reliability as sources of information is also high. More than 80% of respondents favored them. However, only about 30% of respondents trust information from the radio. The frequency of those who determined they could not obtain information from the radio was 20%, and over 50% of respondents do not make use of the

radio. It is conjectured that this is related to the fact that, in the case of television and newspapers, information can be processed both aurally and visually, and the volume of information is large and the information is highly accurate, while information from the radio is one-way information that can only be obtained aurally, thus making it difficult to judge instantaneously.

Television garnered the most endorsements in terms of the speed, volume, and accuracy of information. As for newspapers, the speed with which it issues information is by nature slow, but respondents ranked it high in terms of volume and accuracy of information. It is conjectured that this is because of its two-way nature, i.e., once information is obtained it can be confirmed handily at any time. In other words, the combination of television and newspapers may be the most suitable source of information in contemporary society. The fact that less than 1% of respondents endorsed magazines is the general citizenry's accurate appraisal of the vagueness of information in magazines. The general citizenry feels that the value of magazines is very low and the information is not trustworthy when it comes to the danger of a health crisis, which could affect them personally.

The role of the mass media as a source of easily accessible information is of major importance. However, the general citizenry does not think highly of the mass media as a means of confirming the credibility of information. In other words, the number one role of the mass media as a source of health crisis information should be to obtain accurate information from governmental agencies and experts as quickly as possible and to report the information. When doing this, what the mass media must never do is change or delete information at its own discretion. The mass media should be aware of the fact that it bears a great responsibility for any confusion it might cause as a result of conveying inaccurate health crisis information to the general citizenry.

3. Internet

In present-day society, using the Internet to get a variety of information is now routine. People who get health crisis-related information are highly concerned with information about health

hazards related to themselves,¹²⁾ and fewer than 10% of respondents do not use the Internet. We know that there is no difference between Internet-based surveys and mail-based surveys in terms of their results.¹¹⁾¹³⁾¹⁴⁾ The fact that 80% of respondents answered they can obtain the information they want to know from the Internet is related to the large volume of information and speed, which are characteristics of the Internet. The large volume of information at the same time requires the quality of the information be high. In other words, the reliability of health crisis information on the Internet becomes a major issue. Approximately 20% of respondents answered they cannot trust information on the Internet, and fewer than 10% endorsed the accuracy of information on the Internet. These facts suggest that the Internet has a dual nature, i.e., on the one hand, as a source of information it offers speed and a high volume of information, whereas on the other hand, there is an element of uncertainty about it as a provider of information, as people do not know where the information being issued has come from. How to prevent irresponsible posts to Internet websites is an important problem for firms and organizations that manage the Internet. It is speculated that the level of the quality of information disseminated on the Internet, i.e., its accuracy and reliability, will be called into question even more as more and more people use the Internet. The appraisal of the Internet as a source of information in terms of the credibility of information is an important problem that should be investigated further and clarified.

4. Friends and acquaintances

The fact that the general citizenry is both a receiver of information and a source of information is an important factor in terms of the quality of information. Over 80% of the respondents answered that they ordinarily exchange information with friends and acquaintances. It is natural that respondents would choose friends and acquaintances as those with whom they exchange general information. As for persons to whom they would convey information directly related to a risk to themselves, such as health crisis information, the highest rate of respondents answered family, but about half of the respondents answered they would

also convey such information to friends and acquaintances. Regarding how they would convey information, the highest rate of respondents answered they would meet the other person directly to convey the information, but one-third of respondents answered they would use a landline, send an e-mail using a cell phone, and send an e-mail using a personal computer, respectively. Given the fact that use of the Internet is expected to grow, the proportion of one-to-one correspondence using e-mail may increase.

The spread of vague, irresponsible information from friends and acquaintances has caused various incidents in the past.¹⁵⁾¹⁶⁾ Opinion was divided over the reliability of information obtained from friends and acquaintances. In our study, more respondents answered that they cannot obtain health crisis-related information from friends and acquaintances than those who said they can ($p < 0.001$). Furthermore, no respondents endorsed the speed, volume, and accuracy of information obtained from them. These results indicate that people do not think the health crisis-related information obtained from friends and acquaintances is highly credible. In addition, the fact that people do not choose friends and acquaintances as sources for confirming the credibility of information obtained from friends and acquaintances is proof that people do not believe the information obtained from friends and acquaintances. While it is easy to choose friends and acquaintances as people to convey information to, there exists a one-way relationship in which, when one is on the receiving end, the information obtained from friends and acquaintances is not highly credible.

5. Future response

In the case of a health crisis, during which one-self is at risk, many people use the television because they can obtain information the fastest using both their eyes and ears, the volume of information is large, and the information is highly accurate. Persons engaged in television-related work should recognize the extent of the impact that the information it issues has on the general citizenry, and they should always be aware of their responsibility to society. Newspapers did not fair

as well as television in terms of the speed at which information is conveyed, but they received a higher rating than commercial television in terms of accuracy of information. This is because once information is obtained it can be easily confirmed at any time. The fact that governmental agencies and their ancillary organizations can be trusted as sources of information but are not used as sources of information is an important issue, and governmental agencies must elucidate the reason for this. They should realize that they will not be accepted by the general citizenry if they are content with simply issuing a sufficient amount of accurate information. In light of the fact that the general citizenry uses the mass media as sources of information and that governmental agencies are not used by the general citizenry as sources of information, what is required of governmental agencies is to determine how to provide the mass media with enough accurate information as quickly as possible. The division of roles must be examined in view of the respective characteristics of governmental agencies and the mass media as sources of information.

Use of the Internet will become more and more pervasive in society.¹⁷⁾ The Internet is used as a source of information, but we found that trust in it as a source of information is very low. As a transmitter of information, the Internet is fast and it is trusted, but as a provider of information, trust in it is low because of uncertainty, i.e., the people who input the information cannot be seen. The low degree of trust is a major shortcoming in the case of health crisis information.¹⁸⁾¹⁹⁾ On Internet websites, individuals are given opportunities to reach large groups of people with their messages. As such, a many-to-many relationship is realized like never before. In other words, irresponsible personal health crisis information could reach the general public and cause mass confusion. The challenge remains to find trusted Internet modalities. The cause of the current problems faced by the Internet, i.e., its dual nature in terms of accuracy and credibility, thus needs to be uncovered, and a solution needs to be found. Solving these problems will also likely be very beneficial for people making a living off the Internet.

People who obtain new health crisis information

mainly convey the information to family, friends and acquaintances, and associates at work. In addition to meeting them directly to tell them, they also use personal computers or cell phones to send e-mails, and they use landlines or cell phones to call. People who receive information from friends and acquaintances choose to pass on the information to friends and acquaintances even though they question the credibility of the information. A psychological factor likely plays a major role in this behavior, i.e., the desire to convey new information takes precedent over the accuracy and volume of information. This is clear from the fact that many respondents cited governmental agencies and medical institutions as places where they would confirm the credibility of health crisis information they come by, i.e., where they would confirm the accuracy and reliability of information. The general citizenry expects governmental agencies to be organizations that confirm information. It thinks less of their value as sources of information.

The present survey yielded results related to organizations for obtaining health crisis information, organizations for confirming the credibility of information, and methods of conveying information. The relationship between issuing and receiving information used to be mainly a one-to-many relationship, as represented by television. Recently, however, the structure of society is one in which we see one-to-one relationships, as represented by cell phone e-mail, and many-to-one or many-to-many relationships by means of the Internet. Division of roles so that the best use can be made of the traits of each organization/facility will be more and more necessary in the future in the field of health crisis information. In addition, the results of this study suggest that both seeing and hearing are involved in conveying information. However, there are still many issues that need to be investigated including the reason why the places from which we get information and the places we use to confirm the credibility of information differ

and what the criteria are for selecting methods of conveying and confirming information. We must further examine and analyze the associations, etc., between the individual results.

Conclusion

Organizations for obtaining information concerning a health crisis and confirmation of the credibility of information obtained are important issues for individuals dealing with a health crisis. Approaches that make the best use of the traits of organizations that will be sources of information play a major role in the conveying of health crisis information. Furthermore, it should never be forgotten that both those who use sources of information are ordinary citizens and those who convey information are ordinary citizens. Failure to recognize this fact will give rise to a large, unbridgeable gulf in credibility and accuracy of information. We think the fact that the survey revealed that sources of information and parties that people turn to confirm information differ will clarify the division of roles related to health crisis information for governmental agencies, the mass media, and Internet-related companies. Making the best use of the traits of each field and contributing to the prompt and accurate transmission and spread of health crisis information will greatly benefit the general citizenry.

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[We will ask some questions related to infectious diseases such as SARS, BSE, and avian influenza, and to outbreaks of food poisoning caused by *E. coli* O-157 and the norovirus.]

Question 1

Topics related to infectious diseases and outbreaks of food poisoning are frequently seen in the media. Can you obtain the information you want to know from the following sources of information ?

	I can obtain enough information.	I can obtain some information.	I cannot obtain much information.	I cannot obtain any information at all.	I do not use it.
1. Television (NHK)					
2. Television (commercial)					
3. Television (local cable television)					
4. Radio (NHK)					
5. Radio (commercial)					
6. Newspapers					
7. Magazines					
8. Internet					
9. Public health centers					
10. Municipal offices					
11. Prefectural offices					
12. Ministry of Health, Labor and Welfare					
13. Friends and acquaintances					
14. Medical organizations					

Question 2

How much do you trust the information related to these infectious diseases and outbreaks of food poisoning that you get from the following sources of information ?

	I trust it.	I trust it to a good extent.	I do not trust it very much.	I do not trust it.	I do not use it.
1. Television (NHK)					
2. Television (commercial)					
3. Television (local cable television)					
4. Radio (NHK)					
5. Radio (commercial)					
6. Newspapers					
7. Magazines					
8. Internet					
9. Public health centers					
10. Municipal offices					
11. Prefectural offices					
12. Ministry of Health, Labor and Welfare					
13. Friends and acquaintances					
14. Medical organizations					

Question 3

Where did you inquire to get necessary information about these infectious diseases and outbreaks of food poisoning ? (Multiple answers allowed)

1. TV station
2. Radio station
3. Newspaper publisher
4. Publisher
5. Public health center
6. Municipal office
7. Prefectural office
8. Ministry of Health, Labour and Welfare
9. Medical organization
10. Friends and acquaintances
11. Other ()
12. I did not inquire.

Question 3-2

By what means did you inquire ? (Multiple answers allowed)

1. Landline
2. Cell phone
3. Fax
4. E-mail (cell phone)
5. E-mail (personal computer)
6. Went directly.
7. Other ()

Question 4

Which source of information do you think provides information about these infectious diseases and outbreaks of food poisoning the fastest ? Choose one. (Single response)

1. Television (NHK)
2. Television (commercial)
3. Television (local cable television)
4. Radio (NHK)
5. Radio (commercial)
6. Newspapers
7. Magazines
8. Internet
9. Public health centers
10. Municipal offices
11. Prefectural offices
12. Ministry of Health, Labor and Welfare

- | | |
|----------------------------------|---------------------------|
| 13. Friends and acquaintances | 14. Medical organizations |
| 15. Other () | 16. It is not listed here |

Question 5

Which source of information do you think provides the most information about these infectious diseases and outbreaks of food poisoning? Choose one. (Single response)

- | | |
|--|---|
| 1. Television (NHK) | 2. Television (commercial) |
| 3. Television (local cable television) | 4. Radio (NHK) |
| 5. Radio (commercial) | 6. Newspapers |
| 7. Magazines | 8. Internet |
| 9. Public health centers | 10. Municipal offices |
| 11. Prefectural offices | 12. Ministry of Health, Labor and Welfare |
| 13. Friends and acquaintances | 14. Medical organizations |
| 15. Other () | 16. It is not listed here |

Question 6

Which source of information do you think provides the most accurate information about these infectious diseases and outbreaks of food poisoning? Choose one. (Single response)

- | | |
|--|---|
| 1. Television (NHK) | 2. Television (commercial) |
| 3. Television (local cable television) | 4. Radio (NHK) |
| 5. Radio (commercial) | 6. Newspapers |
| 7. Magazines | 8. Internet |
| 9. Public health centers | 10. Municipal offices |
| 11. Prefectural offices | 12. Ministry of Health, Labor and Welfare |
| 13. Friends and acquaintances | 14. Medical organizations |
| 15. Other () | 16. It is not listed here |

Question 7

If there are sources of information that release information related to these infectious diseases and outbreaks of food poisoning that appears untrustworthy, which source of information is the worst offender? (Single response)

- | | |
|--|---|
| 1. Television (NHK) | 2. Television (commercial) |
| 3. Television (local cable television) | 4. Radio (NHK) |
| 5. Radio (commercial) | 6. Newspapers |
| 7. Magazines | 8. Internet |
| 9. Public health centers | 10. Municipal offices |
| 11. Prefectural offices | 12. Ministry of Health, Labor and Welfare |
| 13. Friends and acquaintances | 14. Medical organizations |
| 15. Other () | 16. It is not listed here |

Question 8

Do you think the spread of an unknown infectious disease such as SARS will occur near you?

1. I think so.
2. I do not think so.
3. I do not know.

Question 9

If there is a possibility that you are infected with an unknown infectious disease, would you tell anybody about it? (Multiple answers allowed)

- | | |
|-----------------------------|--|
| 1. Family | 2. Friend/acquaintance |
| 3. Person at work | 4. Neighbor |
| 5. Public health center | 6. Public office/governmental agency, etc. |
| 7. Medical organization | 8. Other () |
| 9. I would not tell anyone. | |

Question 10

If personnel from a public health center, etc., came to you to interview you, would you cooperate in order to prevent the further spread of an unknown infectious disease?

1. Yes
2. No

Question 11

If there were a service dedicated to providing information concerning the spread and prevention of infectious diseases, what distribution medium do you think would be the easiest to use? (Multiple answers allowed)

- | | |
|---|---|
| 1. Television | 2. Radio |
| 3. Telephone information service (landline) | 4. Telephone information service (cell phone) |
| 5. Fax information service | 6. Internet |
| 7. Other () | 8. I would not use it. |

[We will ask some questions about methods of obtaining and conveying information.]

Question 12

Which of the following media and equipment do you use often? (Multiple answers allowed)

- | | |
|--|-----------------------------------|
| 1. Television | 2. Radio |
| 3. Landline | 4. Cell phone (E-mail) |
| 5. Cell phone (call) | 6. Fax |
| 7. Personal computer (Internet) | 8. Newspapers |
| 9. Hometown newspaper/magazines with a very small readership | |
| 10. General magazines | 11. Municipal office publications |
| 12. Technical books/professional journals | 13. Other () |
| 14. It is not listed here | |

Question 13

How much television do you watch a day (weekday)?

- | | |
|-------------------------------|-----------------------|
| 1. I do not watch television. | 2. Less than 1 hour |
| 3. 1-2 hours | 4. 3-4 hours |
| 5. 5-6 hours | 6. 7-8 hours |
| 7. 9-10 hours | 8. More than 10 hours |

Question 14

How many hours do you listen to the radio a day (weekday) ?

- | | |
|----------------------------------|-----------------------|
| 1. I do not listen to the radio. | 2. Less than 1 hour |
| 3. 1-2 hours | 4. 3-4 hours |
| 5. 5-6 hours | 6. 7-8 hours |
| 7. 9-10 hours | 8. More than 10 hours |

Question 15

How many hours do you use the Internet a day (weekday) ?

- | | |
|-------------------------------|-----------------------|
| 1. I do not use the Internet. | 2. Less than 1 hour |
| 3. 1-2 hours | 4. 3-4 hours |
| 5. 5-6 hours | 6. 7-8 hours |
| 7. 9-10 hours | 8. More than 10 hours |

Question 16

How many hours do you spend reading the newspaper a day (weekday) ?

- | | |
|---------------------------------|---------------------|
| 1. I do not read the newspaper. | 2. Less than 15 min |
| 3. 20-30 min | 4. 40-50 min |
| 5. 60-90 min | 6. 2-3 hours |
| 7. 4-5 hours | 8. More than hours |

Question 17

To whom do you think you would pass on information when you get new information ?

- | | |
|------------------------------------|------------------------------|
| 1. Family | 2. Friends and acquaintances |
| 3. People at work | 4. Neighbors |
| 5. Others () | 6. I would not tell anyone. |

Question 17- 2

By what means would you pass on the information ? (Multiple answers allowed)

- | | |
|---|------------------------|
| 1. I would meet directly and tell them. | 2. Landline |
| 3. Cell phone | 4. E-mail (cell phone) |
| 5. E-mail (personal computer) | 6. Fax |
| 7. Other () | |

Question 18

Some of the information circulating in society is erroneous and unreliable. Where would you confirm the accuracy and reliability of information ? (Multiple answers allowed)

- | | |
|-----------------------------------|---|
| 1. TV station | 2. Radio station |
| 3. Newspaper publisher | 4. Publisher |
| 5. Public health center | 6. Public office/governmental agency, etc |
| 7. Medical organization | 8. Friend/acquaintance |
| 9. Other () | 10. I would not confirm it. |

Question 18-2

By what means would you confirm it ? (Multiple answers allowed)

- | | |
|-----------------------------------|-------------------------|
| 1. Landline | 2. Cell phone |
| 3. Fax | 4. E-mail (cell phone) |
| 5. E-mail (personal computer) | 6. I would go directly. |
| 7. Other () | |

Question 19

What do you think your stance is when talking with someone ?

1. More likely than not, I do the listening.
2. More likely than not, I do the talking.

Question 20

With what kinds of people do you exchange information ? (Multiple answers allowed)

- | | |
|------------------------------|-----------------------------------|
| 1. Friends and acquaintances | 2. People at work |
| 3. Neighbors | 4. Local merchants |
| 5. Club members | 6. Other () |
| 7. Nobody in particular. | |

Question 21

With about how many people do you exchange more than greetings with a week including on the telephone ? Do not include work - related conversations.

- | | |
|------------------------|----------------|
| 1. None | 2. 1-3 people |
| 3. 4-5 people | 4. 6-10 people |
| 5. More than 10 people | |

• We will ask some questions about you.

Question 22 [Gender]

- | | |
|---------|-----------|
| 1. Male | 2. Female |
|---------|-----------|

Question 23 [Age (years)]

- | | |
|----------|------------------|
| 1. 20-24 | 2. 25-29 |
| 3. 30-34 | 4. 35-39 |
| 5. 40-44 | 6. 45-49 |
| 7. 50-54 | 8. 55-59 |
| 9. 60-64 | 10. 65 and older |

Question 24 [Highest level of education attained]

*Students should choose the school they are currently attending.

1. Junior high school under new system, elementary school under old system, higher elementary school
2. High school under new system, junior high school under old system, higher girls' school
3. Junior college/technical college, higher school under old system, vocational school
4. University/graduate school
5. Other ()

Question 25

What is the present state of your health ?

1. Very good
2. Good
3. Normal
4. Not very good
5. Not good at all

Question 26

Is there a physician (personal physician) near you who you can consult about health – related issues ?

1. Yes
2. No

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