What is needed to effectively communicate risk during a health crisis? A qualitative study with international experts based on the COVID-19 pandemic

Paulina Bravo 1,2, Alejandra Martinez-Pereira 1,3, Loreto Fernández-González 1,4, Angelina Dois 1

ABSTRACT

Objective To identify a framework for risk communication during health crises by using the current pandemic as a case study.

Design A qualitative study based on individual interviews.

Setting Different countries with diverse levels of perceived success on risk communication during the COVID-19 health crisis.

Participants International experts with experience in health crisis management or risk communication.

Analysis A thematic analysis was performed supported by Atlas.ti.

Results Four men and six women took part in the study (three from Europe, two from Latin America, two from North America, one from Asia and two from Oceania). Three major themes emerged from the data: (1) institutionalising the communication strategy; (2) defining the problem that needs to be faced; (3) developing an effective communication strategy.

Conclusion Risk communication during a health crisis requires preparation of governments and of health teams in order to produce and deliver effective messages as well as to help communities to make informed and healthy decisions. This is particularly relevant for slow disasters, such as COVID-19, as the strategy must innovate to avoid information fatigue of the audience. The findings of this article could inform guidelines to best equip countries for a clear communication strategy for future crises.

INTRODUCTION

The COVID-19 crisis has put important pressure on health systems, as these must cover the medical needs of those affected by the disease (while maintaining basic services for non-COVID conditions) while considering the social implications of such a crisis.1 2 Governments and health teams are expected to minimise the risk of the population and act through strategies to overcome the pandemic in the best possible way. In order to do so, communicating risk is a fundamental element of the COVID-19 response.3 However, the pandemic has challenged health communication worldwide.4 While the health authorities could be working on an effective response, the population receives a large amount of unofficial information related to the crisis. Many times, this information is inaccurate, wrong or false, and rapidly spread by mass communication channels, like social networks. This large amount of information—known as an infodemic5—can negatively affect the way people receive and process health information. To overcome this, risk communication emerges as a strategy that, when allowing the exchange of information between groups of experts and the community at risk, helps people to understand the threat, to assess their level of vulnerability towards the risk and to make informed decisions to mitigate or avoid this risk. Although different recommendations have been developed in the context of previous health crises,6 7 the global magnitude and duration of COVID-19 makes this pandemic a unique experience for risk communication, particularly at the early stage of the crisis where uncertainty was at its highest level. The COVID-19 pandemic has
been challenging the ways in which health information is provided. As a crisis, spontaneous and reactive communication strategies were initially delivered to provide information about the magnitude, potential causes and consequences of the easily spread disease. However, the long-term feature of COVID-19 brought the need to continuously inform the community about the potential risk of infection and the means to reduce it. Thus, risk communication was needed to tackle the pandemic. In this scenario of an ongoing health crisis that has affected globally, it remains unknown if what has proven to work on past epidemics or health emergencies could also be effective for long-term crises.

Although WHO has made an effort to generate general guidelines the views of experts from countries with different levels of success/failure at the COVID-19 communication strategy can contribute to better comprehend what works in such a crisis. The aim of this article is to identify a framework for risk communication during health crises from the voices of international experts by using the COVID-19 as a case study.

METHODS
Design and study population
A qualitative methodology was used, with data from interviews with international experts in risk communication and health crisis management.

Data collection
We conducted in-depth interviews with experts by videoconference between December 2020 and March 2021. A convenience sampling was used to include experts working on countries with different levels of success during the first year of the COVID-19 pandemic. Participants were identified through professional networks, ensuring gender parity. We contacted them by email and invited them to participate in an interview by Zoom. Interviewers and potential participants did not have any previous relationship. Twenty-three potential participants were approached; from them, seven did not answer the invitation and six declined to participate, mostly due to time constraints. The interviews were conducted by three researchers (PB, LF-G, AM-P), they were performed in English or Spanish, depending on the preference of the expert. The interviews involved the participant and one researcher. Each participant took part in only one interview. Interviews lasted 51 min on average. Field notes were made after the interviews. Interviews were video recorded and transcribed verbatim by a native English or Spanish research assistant. The transcriptions were not returned to participants for comment or correction.

The completion criteria were until code saturation, following the parameters developed by Hennink et al; thus, we finished the data collection process when the emerging themes were repeated, and the reports did not add new information to describe the phenomenon.

A semistructured interview guide was developed by using information from a systematic review that aimed to identify good practices of risk communication (PROSPERO: CRD42021234443).

The interview guide can be found in the online supplemental appendix of this article.

Data analysis
A thematic analysis was performed using a qualitative approach with the help of the Atlas.ti software. Three researchers (PB, AM-P, AD) followed the thematic analysis process proposed by Braun and Clarke: (1) In order to become familiar with the data through in-depth reading of the transcribed interviews, we uploaded the transcriptions into the software and read them. (2) Initial codes were generated by researchers independently and the data that were relevant to each of them were gathered; the first two interviews were coded independently and the resulting codes were compared to create a code list in Atlas.ti. (3) Codes were compiled into potential themes: we created a coding tree with themes and codes in the software. (4) The themes were reviewed to ensure consistency with the data: each of the three researchers coded a number of interviews and we had meetings to compare our analysis. (5) The themes were refined. (6) Data extracts were selected to illustrate the themes: we had meetings to compare our analysis and selected the data to show in this article. The researchers involved in the analysis made descriptions of the coding tree.

Participants were not asked to provide feedback on the findings.

RESULTS
Ten experts took part in the study, including six women and four men. On average, they had 14 years of experience in risk communication and health crisis management at the time of the interview. The participants were from Paraguay (n=1, female), Uruguay (n=1, female), the USA (n=1, female), Canada (n=1, male), Germany (n=2, male), Spain (n=1, female), New Zealand (n=1, male), Australia (n=1, female) and South Korea (n=1, female) (table 1).

Three main themes emerged from the interviews (table 2).

Institutionalising the strategy
Structural continuity
Participants agreed on the importance of having a permanent institutional structure for risk communication that is
consistent over time and not just activated as a response to health emergencies. A desirable and effective practice is to ensure the institutionalisation of the strategy, that is, that risk communication is conceived as an element that should be formally integrated transversally within the Ministry of Health, through a permanent department or an office with resources and tools for a rapid response in a collaborative and intersectoral way to ensure a comprehensive approach to the crisis. This institutionalisation provides governments the means to better respond to the health crisis. This enables continuity in planning, avoiding the implementation of reactive responses and improvisation during health crises.

Institutionalization is really helpful because if you have an office that is dedicated to pandemic communications, like South Korea and Taiwan, suddenly, when you need to start communicating with people, you just have the resources to be able to pump out: Facebook posts and tweets and memes and cartoons; and you can just do it! Because you have that capacity. (Canada)

We must have public policies that continue even without… I mean, regardless of colors and regardless of who is in the ministry. (Paraguay)

Table 1  Characteristics of the experts interviewed

<table>
<thead>
<tr>
<th>Gender</th>
<th>Country</th>
<th>Workplace</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Canada</td>
<td>Independent research</td>
<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>Spain</td>
<td>Healthcare centre</td>
<td>10</td>
</tr>
<tr>
<td>Male</td>
<td>Germany</td>
<td>University</td>
<td>25</td>
</tr>
<tr>
<td>Male</td>
<td>Germany</td>
<td>Research centre</td>
<td>6</td>
</tr>
<tr>
<td>Female</td>
<td>Paraguay</td>
<td>Non-governmental organization</td>
<td>12</td>
</tr>
<tr>
<td>Male</td>
<td>New Zealand</td>
<td>University</td>
<td>11</td>
</tr>
<tr>
<td>Female</td>
<td>USA</td>
<td>University</td>
<td>15</td>
</tr>
<tr>
<td>Female</td>
<td>Uruguay</td>
<td>Government</td>
<td>19</td>
</tr>
<tr>
<td>Female</td>
<td>South Korea</td>
<td>Government</td>
<td>16</td>
</tr>
<tr>
<td>Female</td>
<td>Australia</td>
<td>University</td>
<td>21</td>
</tr>
</tbody>
</table>

Involving other sectors

Although participants agreed on the need of placing the institutional organ of risk communication within the Health Ministry, they also highlighted the importance of involving other sectors and disciplines when developing a risk communication strategy. This would ensure that the crisis is faced not just from a health perspective, but acknowledging the social, economic and political conditions that unfold along with the health crisis, and that must also be taken into consideration. Experts emphasised the importance of transparency of health authorities as part of a larger body of government as key to building trust in the public.

We have to build and understand the problem well, what is the problem we are facing as a society, what problems are all of the citizens facing, to understand … that there would be a scientific-expert, political-citizen, public and transparent debate, in order to build the ways by which it has to be addressed. (Spain)

Table 2  Themes and subthemes from the data

<table>
<thead>
<tr>
<th>Themes</th>
<th>Subthemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutionalising the strategy</td>
<td>► Structural continuity: a permanent department or office with resources and tools for a rapid response.</td>
</tr>
<tr>
<td></td>
<td>► Involving other sectors: including members beyond the health sector.</td>
</tr>
<tr>
<td></td>
<td>► The logic of the strategy: promoting healthy decisions rather than inducing fear.</td>
</tr>
<tr>
<td>Defining the problem</td>
<td>► Emergency versus slow disaster: acute emergencies need a different risk communication strategy than crises that unfold over time.</td>
</tr>
<tr>
<td></td>
<td>► Crisis inside another crisis: building and restoring trust in communities affected by sociopolitical conflicts.</td>
</tr>
<tr>
<td></td>
<td>► Assessment of community’s risk perception: strategies will differ depending on the risk perception of people and its variation over time.</td>
</tr>
<tr>
<td>Developing the strategy</td>
<td>► Defining the objective and the content of the message using available evidence and addressing uncertainty: what is intended to achieve with the message?</td>
</tr>
<tr>
<td></td>
<td>► Identifying the audience through which channels, with a focus on health equity: who is intended to receive this message?</td>
</tr>
</tbody>
</table>

The logic of the strategy

Although it might be tempting to threaten people if they disobey health recommendations, experts strongly proposed that an effective risk communication strategy must rely on promoting health rather than punishing those who are not compliant. In this way, the strategy should focus on informing people and helping them to make informed and healthy decisions to minimise the risk that they are facing, rather than inducing fear and terror management responses.

I personally think that a fear-based appeal can only take people so far. It’s like the kind of decay effect that you get with graphic anti-drink driving ads where you see bodies and car parts strewn across the road, and after a while when these sorts of advertisements come on TV, people just change the channel. Because they are inoculated against, you know, through the repetitions of it. (New Zealand)
**Defining the problem**

**Emergency versus slow disaster**

According to some participants, COVID-19 has proven that the usual strategies to build a risk communication campaign might not work. This is because any effective practice must consider the distinction between a health emergency and a slow disaster. Both are different problems and need to be addressed differently. While the first one requires rapid action in the face of an acute, unforeseen risk, the other one requires to consider a threat whose temporality is not possible to predict, with a high level of uncertainty. The experts emphasise the importance of planning strategies that need to be flexible over time in order to avoid information fatigue in the medium and long terms among the population.

The slow disaster… perhaps some approaches that have worked very well for a while, of course, that deep down, I don’t know why, there are countries or regions that have done very well at some point, but of course after 15 or 20 days the scenario changes completely and that strategy falls apart. (Spain)

**Crisis inside another crisis**

Participants highlighted the relevance of considering the sociopolitical climate when planning a risk communication strategy. This is particularly important for countries where there is an unsettled sociopolitical context, and the health crisis comes to add up to the instability. A health crisis inside a sociopolitical crisis will require to build up—and often restore—trust with the community on a deeper level, especially when considering the implementation of measures that limit freedom of movement, such as quarantine mandates. At the same time, this will set up some minimum requirements when choosing a spokesperson as some political figures might affect the way in which the community receives, accepts and processes any message towards their health.

I think that… you know, the theories that we have in the best practices don’t pay enough attention to the fact that when you go into an emergency situation or a crisis situation…. if the trust in those institutions is already low, you’re going to have to immediately deal with that before you can start thinking about the population accepting your proposed actions and solutions, right? (USA)

[In South Korea] the public trust in the government was more than like 80% or something. So, it was huge, a huge trust behind all the communication efforts. I think that was very helpful, and so the… you know, all those crisis communication… kinds of principles like fast, consistent, open and routine communication with a credible spokesperson is probably the key to this, you know, risk communication strategy. (South Korea)

**Assessment of community’s risk perception**

As part of defining the problem, any effective strategy must assess how the community is perceiving the risk. Specific information strategies should be applied depending on whether the community feels highly, moderately or scarcely vulnerable to the risk. These strategies will also differ depending on the risk perception of people over time. This assessment stage should also identify groups with a particularly high/low-risk perception, and their variations over time.

A lot of people who have already gone to Italy, a lot of people who have already gone to Spain, who... and understood the language, so, it’s like... it was like a more real fear, it was as if it really is something that can come to us. So, when it was in China it was very... it was very far away, it was not going to reach us. (Spain)

**Developing the strategy**

**Defining the objective and content of the message**

The experts highlighted that an effective risk communication strategy includes a clear definition of what is wanted to be achieved. Thus, the objective of communicating a certain message is essential. This could be: to update on the current situation, to inform about any health authority’s decision, to correct or clarify circulating information, or to request some specific behaviour from the community. These objectives should be aligned with the overall purpose of the strategy, that is, to empower people to make informed and healthy decisions.

After defining the objective, the content needs to be developed. In doing so, it is important to consider all of the available scientific evidence. However, and at the same time, the message must acknowledge and transmit the level of uncertainty that characterises health crises, and how this lack of evidence will be addressed by the health authorities. Also, all the technical terms must be defined and explained to enhance the understanding of the target audience.

Empowerment, that is for me the main thing, to really explain to people why we are doing things and that people understand, educate themselves and in this... why we use a mask, why we wash our hands, why? In other words, that there is a real... that there is a good communication explaining why each step is being taken. (Paraguay)

I mean, that’s why they were calling it a novel... because nobody knew anything. However, they didn’t adequately acknowledge it, like, you know, we’re doing this kind of investigation here. We’re doing... you know, this is what contact tracing means... nobody ever explained what that was... There was very little information about all of the work that was going on to try and figure out what this outbreak really was. (USA)
Identifying the audience

Participants agreed on the relevance of identifying the audience when designing a risk communication strategy. This includes a thorough analysis of the characteristics of the community (including age groups, gender, level of risk/vulnerability to the health threat and risk perceptions). This will allow them to select the most appropriate channels to communicate with them (such as traditional mass media, social media, etc). Another important topic on defining the audience is to avoid the stigmatisation of certain groups. A health crisis such as COVID-19 could bring people some stigma, particularly when the message includes information about minority groups or anything that could increase health inequalities.

The stigma that might be associated with it, and really thinking carefully about the metaphors being used. So that’s just an example of where, in a concrete way, that attention must be placed in order to accomplish what is showed up in a manual. (Canada)

I think it involves doing some very good audience research… and identifying not only target groups, but subgroups within those, and then, I think it comes down to doing some focus group-based pretesting of messages. Ideally, a budget permitting ongoing monitoring of which messages are working best and which might need to be replaced or adjusted. (Australia)

DISCUSSION

This study identifies, from the views of international experts, a framework for risk communication during a health crisis. According to the interviewees, the COVID-19 pandemic has challenged what was known as effective communication strategies. Three salient themes emerged as recommendations for best practices in this context: providing a governmental structure to the strategy, carefully defining the problem that is being faced and developing an effective strategy.

A formal structure to design risk communication campaigns has proven to be essential in health crises.16 The Centers for Disease Control and Prevention developed guidelines to communicate risk during emergencies15 and highlighted the importance of planning immediately during a crisis to provide the most credible information to the audience. While having the resources to plan is important, the way in which the strategy is developed is also crucial for these critical health situations. According to the participants of this study, it is important to involve other sectors and disciplines in the design of the communication strategy. This ‘health in all policies’ approach aligns with health promotion principles.18 As such, risk communication should avoid fear, guilt, submissiveness, or a punishing or paternalistic approach19 as this has proven to be insufficient, and contrary to the main purpose of health communication, that is, to promote people’s autonomy.20

The results of this study provide important recommendations for the characterisation of the health crisis that is faced and how this could affect the way in which a risk communication strategy should be built. In fact, facing a slow disaster could bring people information fatigue. This is a risk that has been identified during the COVID-19 pandemic, and special attention should be given to channels and frequency for health messages. Previous international recommendations have focused on emergencies where the duration of the threat is mentioned,19 but the endless feature of the COVID-19 threat might make the recommendation insufficient for how to communicate risk. So, while it is important to avoid overwhelming people with information, it is also necessary to assess their level of risk perception. Previous studies have shown that perception is related21 to objective and subjective determinants that impact people’s lives,22 so it is important to deliver complete information to the population to develop their own perceptions23 and help them make informed decisions within the crisis. This was also reported in studies conducted during the COVID-19 pandemic,24 where the role of risk communication to enhance preventive behaviours is crucial.

The sociopolitical context must be taken into account, particularly in situations of political unrest or polarisation that might be delved into the health crisis.25 Although previous recommendations remarked on the importance of choosing the right spokesperson,19 they lack information about the context of political unrest. In the COVID-19 scenario of ‘crises within a crisis’, the choice of the spokesperson that communicates the measures taken by authorities is crucial. In this sense, community involvement26 might be useful to ensure that the message is neutral and polarisation is avoided.

The participant experts described best practices for the development of a communication strategy. This includes a clear definition of the objective and content of the message. We found that the content of the message should be based on scientific evidence and be tested to ensure the population’s understanding. This finding is consistent with other studies27 28 that show detailed pandemic information had a significant positive effect on protective behaviour.

Another critical point when designing the message is associated with avoiding information that could stigmatise certain groups, for example, placing some as the cause of the crisis or putting the rest at risk. Previous studies recommended that risk messages address disparities that made some populations particularly vulnerable.29 30 Also, it is necessary to identify the target population and their need for information, including the means to provide it. According to previous studies,31 32 the message has to be formulated regarding the specific characteristics of the population and considering their values, needs and interests. Finally, the communication strategy should inform about what is unknown and uncertain, with a clear message about the work that is being conducted to make evidence-based decisions, so the community understands
that these decisions are made based on science and not on political or economic strategies exclusively. A COVID-19 study showed how the lack of trust in the information and recommendation given can impact on adherence to the recommended measures to decrease risk exposure.\textsuperscript{33} Therefore, information should be trustworthy to achieve its effectiveness.

This point should also consider the work to be done to avoid the infodemic and information fatigue,\textsuperscript{34,35} which can accompany crises that last for long periods, as this continuous exposure to health information could desensitise the population (leading to a perception of low risk) and weaken their self-care measures.

To the best of our knowledge, this is the first study that identifies a framework for risk communication based on the views of international experts and using the lessons they have learnt during the first year of the COVID-19 pandemic. As for practical implications, our findings could help inform guidelines for the development of a risk communication strategy. Recommendations include the institutionalisation of risk communication at the health authority level, the accurate definition of the health crisis that is being faced and some minimum requirements for the development of a communication strategy. This could be useful for different key members, such as health authorities and managers, health practitioners, science and media communicators and all those who could have a heard voice during such a crisis. It is expected that the best practices reported in this article could help to effectively develop messages, deliver information in an appropriate manner and to evaluate such interventions; in this way, the main goal of effective risk communication is achieved.

Although we used professional networks to identify experts, there could be a selection bias as experts self-selected themselves once invitation was sent out. We intended to include a variety of country experiences in terms of levels of success during the COVID-19 crisis and different work experiences. However, the participants of this study might not represent the vast majority of experiences and contexts (eg, six of them were researchers on the topic). Therefore, the generalisation of these findings should be cautious. Additionally, these findings report the experiences of risk communication prior the vaccination campaign, so future studies could also consider the vaccine variable and whether some of the recommendations given in this study may vary given the introduction of immunisation strategies. Future research could also report on the key recommendations to avoid information fatigue for long-term health crisis.

**CONCLUSION**

This study identified three main best practices for risk communication during a health crisis. In the views of international experts, designing a communication strategy during a health crisis is insufficient if it does not have an institutional structure that makes it sustainable over time, which also allows for an effective evaluation of the problem faced and, therefore, for proposing pertinent and feasible solutions to it.

The COVID-19 pandemic has raised the need to avoid information fatigue, having to plan medium-term and long-term strategies for the delivery of timely information, based on scientific evidence. The concept of slow disaster is a useful lesson learnt from the ongoing pandemic in order to strengthen the risk communication strategy.

It is important to consider that risk communication requires a community approach that seeks to promote people’s health and avoid stigma through the delivery of accurate, credible information that will ultimately allow communities to make informed health decisions.

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Patient consent for publication Not applicable.

Ethics approval This research was reviewed and approved by the Scientific Ethics Committee in Health Science of the Pontificia Universidad Católica de Chile (approval ID: 200511014). All methods were performed in accordance with the relevant guidelines and regulations. The informed consent was waived by the Scientific Ethics Committee in Health Science of the Pontificia Universidad Católica de Chile as the study was not interventional, did not address personal or sensitive information about participants and all data were unidentified for analysis and treated anonymously. All participants authorised the video recording of the interviews and provided verbal consent about their participation and the aims of the study. All information was kept strictly confidential.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as supplementary information. All data generated and analysed during this study are included in this published article.

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REFERENCES


### International experts interview template

<table>
<thead>
<tr>
<th>Question</th>
<th>Aspects to discuss</th>
</tr>
</thead>
<tbody>
<tr>
<td>How has the communication about the pandemic been?</td>
<td>- Explore local, regional, global levels</td>
</tr>
<tr>
<td></td>
<td>- What aspects do you consider positive?</td>
</tr>
<tr>
<td></td>
<td>- What are the opportunities or spaces for improvement?</td>
</tr>
<tr>
<td></td>
<td>- How should these improvements be implemented?</td>
</tr>
<tr>
<td>In your opinion, what are the main elements to ensure an effective risk communication strategy? How should a good practice in risk communication be like?</td>
<td>- Who must develop it?</td>
</tr>
<tr>
<td></td>
<td>- Which format is more appropriate?</td>
</tr>
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<td></td>
<td>- What timing would make it effective?</td>
</tr>
<tr>
<td>Which cases would you highlight in terms of the use of risk communication either on this or other crises?</td>
<td>- Refer to different levels of success of these strategies</td>
</tr>
<tr>
<td></td>
<td>- Identify examples of successes and failures</td>
</tr>
<tr>
<td>Regarding last question, how must messages be designed/developed in order to make them comprehensible by the community?</td>
<td>- Who must communicate</td>
</tr>
<tr>
<td></td>
<td>- Elements that must be present in the message</td>
</tr>
<tr>
<td></td>
<td>- How to manage uncertainty or lack of evidence</td>
</tr>
<tr>
<td></td>
<td>- How to include vulnerable groups?</td>
</tr>
<tr>
<td>Do you recommend any literature for the development of a guideline for good practices in risk communication?</td>
<td>- Ask for authors and if possible, to share them via e-mail</td>
</tr>
</tbody>
</table>