

Preparedness for the Future Pandemic: Understanding the Impacts of Risk Perception in Public Health Emergencies

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ABSTRACT

This paper emphasizes the significance of risk perception in public health emergencies and its impact on preparedness for future pandemics. It investigates the influence of risk perception on individual and community behaviors during previous outbreaks, highlighting factors that shape people's perceptions of risk. Effective risk communication strategies are identified as crucial in shaping risk perception and promoting proactive preparedness measures. It is believed that tailored interventions addressing psychological, cultural, and socioeconomic factors are required to address the diverse risk perceptions among different populations. Understanding risk perception dynamics enables policymakers and public health practitioners to develop targeted strategies for enhanced preparedness and response efforts in future pandemics, ultimately mitigating the impact on public health and society.

Keywords: *Impact, Pandemic; Preparedness; Public Health Emergencies; Risk Perception*

INTRODUCTION

Risk communication plays a critical role in public health emergencies and assists in meeting the public's needs under stressful situations. It is one of the key principles of health emergency preparedness outlined in the International Health Regulations (IHR) and is essential for preparedness, response, and recovery from major public health problems, including new infectious diseases. During public health emergencies, the public's perception of risks influences their behavioural decisions to some extent. The public's perception of risk is influenced by public trust in the government, the news media, and the public's capacity to gather information. This paper proposes that risk perception affects risk communication and subsequently influences the public's behaviors in response to risks. This information will provide strategies for risk communication during future public health emergencies.

During public health emergencies, unpredictable conditions and asymmetric pandemic information can lead to theatrical swings in the public's risk perception. Extreme risk perception often leads to overreactions and awkward behaviors, negatively impacting economic progress and social order. Conversely, low risk perception diminishes awareness of prevention and control measures, undermining the government's efforts in pandemic prevention and control. Therefore, understanding the public's risk perception is crucial for strengthening government risk management plans. In this commentary paper, the authors explore how risk perception influences risk communication strategies and the preventive and protective actions of the public during public health emergencies. Additionally, the paper provides valuable insights for risk assessment and management personnel involved in risk management action plans.

A. Risk Communication

Risk communication has become a common concept in the current era and can be applied in various situations, such as infectious diseases, natural hazards, disasters, and technological accidents, among different groups like

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employees, households, and minority groups. Risk refers to a state where there is a chance that people or property could suffer negative effects (Abrams & Greenhawt, 2020). Risk communication refers the real-time exchange of information, suggestions, and opinions between authorities and those who are at risk. The goal of risk communication is to enable individuals at risk to make informed decisions to mitigate the negative consequences of risk, such as disease outbreaks, by taking timely protective and preventive measures (World Health Organization, 2020). Moreover, risk communication considers the evaluation of risk and risk perception to effectively communicate and places significant importance on engaging in conversations with affected and targeted individuals to assist them in making appropriate decisions during public health emergencies (World Health Organization, 2017). Therefore, effective risk communication necessitates the ability to detect and manage rumors, misinformation, and other communication challenges from the early stages of a risk situation. By clarifying misunderstandings and providing accurate information, effective risk communication empowers people to make informed decisions and can help maintain or improve their well-being, ultimately saving lives (Berg *et al.*, 2021).

B. Risk communication strategies

Risk communication is crucial in any health emergency as it provides critical information for saving lives, preserving health, and minimizing harm by influencing the perceptions and behaviors of those at risk. Risk communication strategies aim to fulfil the needs of the population at high risk (World Health Organization, 2021). Risk communication involves multidirectional communication and engagement with vulnerable populations to enable them to make informed decisions about their own safety (World Health Organization, 2021). Various communication techniques, such as social media, mass media, interest groups, and community engagement, are employed in risk communication. Therefore, understanding the perceptions, concerns, beliefs, knowledge, and behaviors of stakeholders, experts, and individuals at risk is essential in effective risk communication (World Health Organization, Regional Office for South-East Asia, 2019).

Risk communication strategies encompass several elements, including early announcements, transparency, information sharing, coordinated public communication, risk communication for public gatherings, active listening through dialogue, building risk communication capacity, and creating national action plans for risk (Pan American Health Organization, 2022). Drawing lessons from the previous COVID-19 pandemic, it is important to foster improved relationships among experts, policymakers, and the vulnerable population. Empowering government authorities with science-based knowledge and providing them with effective methods for communicating that information can help in making better decisions to protect public health and the environment. It is also necessary to establish teams of experts or professionals to develop transparent and effective risk communication techniques (Paulik, 2020).

C. Risk perception

Risk perception is crucial in risk communication during public health emergencies as it influences how individuals perceive threats, respond to them, and take measures to mitigate them. One widely used strategy to modify the behavior of individuals at risk from acute emergencies or long-term public health hazards is to address their risk perceptions. Several models have been proposed to explain how people perceive risks, evaluate risk information, and take action to reduce or eliminate those risks. One such model is the heuristic-systematic model (HSM), which explains how individuals construct their risk perceptions while receiving information. For instance, during the COVID-19 pandemic, people have gained new experiences, leading them to rely on heuristics, such as trust in institutions, to form their risk perceptions. Additionally, individuals also systematically scrutinize information to shape their risk perceptions. Consequently, trust serves as a predictor of risk perception (Choi *et al.*, 2018).

Trust: Trust in organizations such as the news media or the government's ability can indeed influence how the public perceives risk (Choi *et al.*, 2018). For instance, during public health emergencies like the COVID-19 pandemic, the public's trust in the government's ability to manage such issues can shape their risk perceptions and lead to the acceptance of government-recommended actions. Trust plays a crucial role in enabling individuals to make risk-related decisions, even in situations where complete information or understanding may be lacking. When people have faith in institutions like the government or media outlets, they are more inclined to accept recommendations and

information from authoritative sources, which reduces complexity and confusion. In the context of risk perception, social trust, which refers to the public's perception of the government's responsibility for a specific issue, is particularly significant. People trust the government's ability to manage risks since it is responsible for informing the public about risks and responding to them (Salwa *et al.*, 2022). Therefore, the public's trust in the government is crucial in addressing serious public health problems such as infectious disease outbreaks.

News Media: The news media is another predictor of risk perception. Media platforms such as television, newspapers, and the internet play a crucial role in informing the public about risks, shaping public acceptance of those risks, and motivating the public to adopt certain behaviors (Choi, Doo-Hun *et al.*, 2018). During a pandemic, such as the COVID-19 outbreak, the media serves as a primary source of news and information, enabling the public to assess and understand the risks involved.

Information Gathering Ability: Information gathering ability is also a significant factor in predicting risk perception as it helps individuals seek the necessary information to form their perceptions of health issues. In times of public health emergencies, individuals with higher information-gathering abilities are more likely to conduct thorough searches for information from media or other sources, aiming to reduce uncertainties (Ellen Ter Huurne & Jan Gutteling, 2008). In general, effective risk communication encourages individuals to engage in self-protection when the conditions for risk perception are met. Therefore, risk communication should be well-structured and planned, considering the behavioral activities of the affected population.

D. Risk perception (RP), Risk communication (RC) and Protective and Preventive Behaviours (PPB)

Risk perception, which refers to the subjective perception, assessment, and appraisal of risk by individuals, plays a crucial role in public health emergencies (Zhang *et al.*, 2022). Assessing people's views, attitudes, and behavioral responses during a pandemic can provide valuable data for effective risk communication and promoting public health behavior changes (Vaughan & Tinker, 2009). Public behaviors in response to risk are strongly correlated with risk communication, trust, risk perception, and negative emotions (Gu *et al.*, 2022).

Individuals may find themselves unprepared for situations if their risk perception is overstated, while underestimating risk perception may lead to exclusion from decision-making processes. Risk perception among the general population is highly influenced by the framing and communication of messages, as well as the presenter of the information. Furthermore, cross-cultural differences can contribute to inequities in risk perception. To explore the relationship between risk communication (RC), risk perception (RP), and their influence on protection and preventive behaviors (PPB) during the COVID-19 pandemic, Heydari *et al.* (2021) employed structural equation modeling. The study revealed a reciprocal relationship between RC and RP, highlighting the impact of these connections on the effective use of risk communication strategies during a pandemic (Heydari *et al.*, 2021). The literature indicates that risk perception poses significant challenges to risk communication approaches. Understanding people's risk perception is critical to successful risk communication, as improper risk perception can lead to misinterpretation or confusion regarding empirical information. Conversely, high risk perception and extreme anxiety within the community can also influence risk communication (Terpstra *et al.*, 2017).

According to Roger's protective motivation theory, protective motivation (PM) can encourage behavior by prompting individuals to inhibit harmful outcomes when they perceive risks. When faced with risk, individuals are more likely to take action to reduce the threat or avoid it (Rogers, 1975). For example, during an outbreak of an infectious disease, people often practice physical distancing. Several studies have shown a significant correlation between participants' risk perceptions and their knowledge of risk, as well as a high correlation between their knowledge and risk perceptions (Cihan *et al.*, 2020; Lu *et al.*, 2021). Moreover, individuals with a high level of knowledge and risk perception are more inclined to actively engage in preventative behaviors (Lu *et al.*, 2021).

CONCLUSION

In summary, risk perception and risk communication are interconnected in a two-way dynamic process. In the realm of risk management, individuals' perceptions of risks serve as crucial early indicators of their health-related behaviors. Effective risk communication should consider how people perceive potential hazards and how they are

likely to respond to those risks. To achieve this, there is a need for active collaboration, where appropriate behaviors are developed, reinforced, and individuals are made aware of their responsibilities in taking preventative and protective measures. By gaining a deeper understanding of the dynamics of risk perception, policymakers and public health practitioners can devise more targeted strategies to enhance preparedness and response efforts in future pandemics. Ultimately, this will help mitigate the impact on public health and society as a whole.

Conflicts of Interest

The authors declare no conflict of interest.

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