

## BACKGROUND

### Introduction

The impact of human activities has increasingly affected the quality of the environment globally. This has influenced the health of all forms in ecosystems and threatens public health.

- To overcome and mitigate the impact of these environmental changes on health, timely awareness creation through different communication channels with proper framing messages on risk and impact of environmental degradation on the health of the environment.
- Designing effective risk communication messages on environmental issues is essential to educate the public on the dangers associated with some activities aimed at limiting their overall negative consequences.

### Research Gap

Despite this importance, to our knowledge, no prior studies examine the state of the arts in the effectiveness of risk messages on behavior change related to environmental health.

### Objective

Therefore, the purpose of this review was to assess the trajectory of research on environmental health and risk communication message framing, and the channels of communication.

## METHODS

### Overview

A comprehensive search of peer-reviewed articles were assed using two databases such as Google Scholar and PubMed. These searches were made using a combination of the following search terms: environmental health, risk communication, message framing, communication channels, effectiveness, or efficacy.

- We screened the abstracts of the articles to assess their relevance to our topic.
- We conducted an annotated bibliography to obtain more information about the studies.
- The authors further scrutinized the articles and reached a consensus on the relevant articles for this review.

Title & Authors	Methods	Aim of the study	Significance of the study
<b>Fear, Efficacy, and Environmental Health Risk Reporting: Complex Responses to Water Quality Test Results in Low-Income Communities</b> Nowicki, S., Bukachi, S. A., Hoque, S. F., Katuva, J., Musyoka, M. M., Sammy, M. M., Mwaniki, M., Omia, D.O., Wambua, F., & Charles, K. J. (2022)	Mixed Method- Using Cross-Sectional and Longitudinal surveys, semi-structured interviews	Highlight the responses to risk communications which were determined by specificity, framing, and repetition of messaging in low-income communities	Placed emphasis on the importance of specific threat information, proactive framing of risk, repeated messaging
<b>Informing Public Attitudes to Non-potable Water Reuse- The Impact of Message Framing</b> Goodwin, D., Raffin, M., Jeffrey, P., & Smith, H. M. (2018)	Quantitative- Using surveys	Evaluate how different ways of framing messages impact public attitudes	The study helps to better understand if an increased understanding of risks associated with water reuse will positively or negatively influence the willingness of support
<b>The Influence of Water-Conservation Messages on Reducing Household Water Use</b> Addo, I. B., Thoms, M. C., & Parsons, M. (2019)	Quantitative- Using online surveys	Examine the effectiveness of messages that are related to household water use on water scarcity and conservation strategies	The study gave insight into what message appeal method would cause households to have a better message water-conservation behavior
<b>Threat Without Efficacy? Climate Change on US Network News</b> Hart, P. S., & Feldman, L. (2014)	Quantitative- Content analysis	Investigate how U.S. network television news stories have conveyed threat and efficacy information about climate change, both directly and indirectly, through the discussion and framing of climate change impacts and actions	The study gives us insight into the role of threat and efficacy in climate change risk communication
<b>The Influence of Climate Change Efficacy Messages and Efficacy Beliefs on Intended Political Participation</b> Hart, P. S., & Feldman, L. (2016)	Quantitative- Online experimental survey	Examine how changing the type and valence of efficacy information in news stories discussing global climate change may impact intended political participation through the mediators of perceived internal, external, and response efficacy	The study makes an important contribution to our understanding of the relationship between efficacy and intended political participation by demonstrating that all three types of perceived efficacy examined here—internal, external, and response—have unique, significant positive associations with intentions to become politically engaged on the issue of global climate change.
<b>Using Political Efficacy Messages to Increase Climate Activism: The Mediating Role of Emotions</b> Feldman, L., & Hart, P. S. (2016)	Quantitative- Using an online experimental survey	Test the effects of political efficacy messages on two types of climate-related political participation via the discrete emotions of hope, fear, and anger and compared these effects across ideological groups	The study provides preliminary evidence that messages focused on response efficacy may be a way to reach otherwise resistant conservatives and help reconcile ideological differences in the public's engagement with climate change
<b>Communication about Environmental Health Risks: A Systematic Review</b> Fitzpatrick-Lewis, D., Yost, J., Gilska, D., & Krishnaratne, S. (2010)	Systematic Review	Identify the effectiveness of communication strategies for environmental health risks, and factors that impact communication uptake	The findings help to understand the best strategies for communicating risk
<b>Effectiveness of Environmental Health and Loss Framing on Household Pharmaceutical Take-Back Schemes</b> Mitkidis, P., Chrysochou, P., Obolevich, V., & Mitkidis, K. (2022)	Quantitative – Employing a randomized, cross-cultural trial conducted in 4 countries	Explore the effects of the availability of information on pharmaceutical take-back schemes and the effects of the framing of information provided to individuals on their intentions and reported behaviors to collect unused and/or expired household pharmaceuticals and return them to a pharmacy	The study shows that a communication intervention delivering environmental health information with a loss framing that is designed to inform participants of the threats of improper disposal of household pharmaceutical waste (HPW) and edging them to return HPW to a pharmacy increased the chances of making use of take-back schemes compared to interventions delivering personal health information and gain framing posters.
<b>Environmental Message Framing: Enhancing Consumer Recycling of Mobile Phones</b> Baxter, J., & Gram-Hanssen, I. (2016)	Scoping Review	Investigate consumer decision-making and how it might be positively influenced by environmental messaging	The study suggests that re-framing environmental messages about mobile recycling could ultimately give rise to higher rates of recycling

Table 1. Methods. Summary of selected articles detailing research methods, including the title, author(s), methods employed, aims of the study, and significance of the research.

## Final Analysis

After selecting the relevant article, we conducted our analysis by focusing on the aims of the study, methods employed, limitations of the study, and recommendations for future research.

### Inclusion and Exclusion Criteria

- The inclusion criteria were studies focused on message framing, message effectiveness or efficacy on environmental health and/or risk communication, sources of information on environmental health and or risk communication, and channels of communication, and channels of communication on environmental health or risk.
- Studies that focus on environmental health interventions, mitigation strategies, coping strategies in the event of environmental disasters, environmental reports, or workshops were excluded.

## RESULTS

### Summary

- The initial peer-reviewed article search yielded 24 articles. This was reduced to 9 relevant articles after applying inclusion and exclusion criteria, forming the focus of this review.

### Key Findings

- The review identified three primary areas of focus in environmental health and risk communication: air quality, water quality, and climate change.
- Various communication methods and message framing strategies were examined for their efficacy in shaping public attitudes and actions related to environmental health concerns.

### Limitations Identified

- The review highlighted several limitations in current research, including methodological rigor, generalizability of results, and limited existing literature on the subject.

### Implications and Future Directions

- This review serves as a guide for future research on environmental health and risk communication, providing valuable insights to inform policy decisions and strategies aimed at addressing environmental health issues.

## CONCLUSION

This study serves as a preliminary and promising research to draw attention to the limited research focus on message framing and efficacy on environmental health and risk communication. The authors will expand on this review to include articles published in other databases.



NativeNM. (2022). Sandia Mountain. photograph, Rio Rancho, NM.

## KEYWORDS

- Environmental Health
- Risk Communication
- Message Framing
- Message Effectiveness/ Efficacy

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