



# Theoretical and Practical Explorations of Information Design and Persuasion: Research Contributions of Professor Zhao Xiaoquan to Health Communication

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### Abstract

Professor Zhao Xiaoquan currently serves as a professor at George Mason University and Editor-in-Chief of the international top-tier journal Health Communication. As a leading scholar in the field of health communication, he earned his doctoral degree from the Annenberg School for Communication at the University of Pennsylvania, and possesses both a solid academic foundation and practical experience in tobacco regulation at the U.S. Food and Drug Administration (FDA). His research follows a coherent logical thread of “audience cognition → information design → behavior change,” with key focuses on three thematic areas: tobacco control and health communication campaigns, COVID-19 pandemic information communication, and general health communication. Employing diverse research methods (e.g., large-scale national survey data, experimental methods, interview methods), his work systematically explores the laws and intervention effects of information design across different public health scenarios, and deeply reveals the health information cognitive characteristics and behavioral decision-making mechanisms of specific populations such as adolescents, ethnic minorities, and patients with chronic diseases.

His research findings have provided direct scientific evidence and practical guidance for practical initiatives, including the FDA’s national tobacco control education campaigns and information management in public health emergencies. Professor Zhao’s research is characterized by strong logical consistency, a distinct practical orientation, and diverse methodologies. It has promoted the two-way interdisciplinary empowerment of communication studies and public health, and

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constructed a multi-dimensional research framework covering “routine-emergency” and “general-special” contexts. This article systematically sorts out his representative research achievements over the past 15 years, clarifies his academic ideas and research characteristics, analyzes his academic contributions and practical implications, and accordingly points out potential directions for future research.

## Keywords

Zhao Xiaoquan; Information Design; Tobacco Control; Public Health; Behavior Change

## Introduction: Scholar Background and Academic Positioning

Professor Xiaoquan Zhao earned his Ph.D. from the Annenberg School for Communication at the University of Pennsylvania in 2005, and joined George Mason University (GMU) in the same fall. He has long been deeply engaged in the field of health communication. The core of his research revolves around health information design and effect evaluation, optimization of public communication campaigns, the impact of news on health risk perceptions, health information-seeking behavior, and the mechanism of the self's role in persuasive communication. The substantive areas of his research cover multiple public health fields, including tobacco control, substance abuse prevention, cancer risk education, medical adherence, and climate change.

In terms of academic achievements, Professor Zhao has published a large number of papers in top-tier journals of communication and public health, such as *Journal of Communication*, *Human Communication Research*, *Health Communication*, and *Nicotine & Tobacco Research*. His research has received support from both public and private funding institutions. Currently, he also serves as the Editor-in-Chief of the international top-tier journal *Health Communication*, holding significant academic influence in the field.

In terms of practical experience, Professor Zhao possesses both policy research and practical support experience. From 2013 to 2014, he worked as a Tobacco Regulatory Science Fellow at the Center for Tobacco Products (CTP) of the U.S. Food and Drug Administration (FDA). Since 2014, he has continuously served as a Subject Matter Expert and Scientific Adviser at the Division of Research and Evaluation in the Office of Health Communication and Education under the FDA's CTP, providing research support for the FDA's national tobacco education campaigns. In his teaching, he offers courses such as *Health Communication*, *Persuasive Communication*, *Health Communication Campaigns*, and *Research Methods*, promoting the integration of theory and practice.

This article aims to examine the academic ideas and characteristics of Professor Zhao Xiaoquan, starting from his representative papers over the past 15 years, and analyze his explorations into the theory and practice of health information design and persuasion.

## **Core Research Areas and Academic Contributions**

Professor Xiaoquan Zhao's research is characterized by a “problem-oriented, practice-grounded” approach. It focuses on the laws governing information communication in diverse public health scenarios and adopts multiple research methods, including survey methods (incorporating large-scale datasets such as the U.S. National Youth Tobacco Survey), experimental methods, and interview methods. His core achievements are concentrated in the following three areas:

### **Tobacco Control and Health Campaign Research: Information Design and Audience Mechanisms**

Since 2010, tobacco control has been Professor Zhao's most central research direction, with the most concentrated outcomes. His research revolves around how information design influences tobacco control effectiveness and is deeply integrated with the FDA's tobacco education practices, rendering the research conclusions highly valuable for practical guidance.

#### **Tobacco Control Information Design and Intervention Effects**

Theoretically, he compared the communication efficacy of messages with different appeals in the context of tobacco control information design. In his research on “The Real Cost” tobacco control health campaign, he found that both fear appeals and humor appeals could effectively reach the target group, and proposed the use of these two strategies in combination to achieve information diversification and sustain audience attention (Zhao et al., 2019). He also explored the dynamic correlation mechanism of information effects: based on five-wave evaluation data from a national youth tobacco education pilot program, he confirmed that perceived message effectiveness and campaign-targeted beliefs do not exhibit a one-way causal relationship, but rather a lagged association—changes in perceived message effectiveness in the previous wave affect targeted beliefs in the subsequent wave, and the two interact dynamically (Zhao et al., 2022).

In terms of practice, he analyzed the adaptability of information frames to segmented populations. He examined the impact of temporal framing (long-term vs. short-term) and individuals' “Consideration of Future Consequences (CFC)” traits on the effectiveness of cigarette health warnings. The findings revealed that individuals with high CFC responded more positively to long-term frames, while those with low CFC were more receptive to short-term frames; among smokers, the high-CFC group showed a more significant response to short-term frames (Zhao et al., 2015). He also developed a measurement tool for perceived argument strength: for tobacco control and anti-drug messages, he designed a self-reported scale to address the limitations of traditional

measurement methods, reduce interference from issue sensitivity, and confirmed that scale scores were positively correlated with smoking cessation intention and anti-smoking cognition (Zhao et al., 2011).

### **Cognitive and Behavioral Characteristics of Tobacco Control Audiences**

In his research on general smokers, he explored the mechanism underlying their health information-seeking behavior. Based on the Risk Perception Attitude (RPA) framework and data from the 2005 National Health Information Trends Survey (HINTS 2005), he found that personal risk perception and response efficacy not only directly influenced smokers' information-seeking behavior regarding cancer (e.g., lung cancer) but also exerted an effect through the mediation of anxiety. Meanwhile, optimistic comparative risk perception reduced anxiety and moderated the relationship between personal risk perception and information seeking, whereas communication efficacy served as a negative predictor of cancer information seeking (Zhao & Cai, 2009).

In his research on specific smoking populations, he paid greater attention to how specific groups (such as adolescents) perceive tobacco control information. He studied adolescents' receptivity to tobacco control information, investigating the communication effects of campaigns like "The Real Cost" and "Tips from Former Smokers" among adolescents, and analyzed the characteristics and influencing factors of adolescents' acceptance of campaign messages (Zhao & Cai, 2016; Zhao et al., 2016). He also focused on emerging tobacco products such as e-cigarettes: he explored the impact of e-cigarette pictorial warning label frames on smoking cessation motivation among young smokers (Mays et al., 2015), and examined differences in cigarette/e-cigarette use and risk perception among sexual minorities (the LGBTQ+ community)—providing a basis for tobacco control interventions targeting segmented populations. Additionally, he explored potential effective themes for e-cigarette prevention campaigns among adolescents and young adults, offering directions for targeted information design (Zhao et al., 2024).

### **Research on Health and Risk Information Communication During the COVID-19 Pandemic**

After 2020, Professor Zhao focused on information communication issues amid the COVID-19 pandemic, centering on key topics such as information design and information attitudes of specific populations. This research provided academic support for information management in public health emergencies.

The infodemic emerged as a critical issue during COVID-19. He conducted a study on the willingness to change among COVID misinformation endorsers. Based on a nationally representative survey conducted from October to November 2021 (with a sample of 1,991 misinformation endorsers), he found that ethnic minority identity and the use of government/community/personal health information channels were positively correlated with willingness to change. In contrast, Republican affiliation, high income, being unvaccinated/vaccine hesitant, better health status, endorsement of more misinformation, and the use of online media were negatively correlated with willingness to change. Drawing on these

findings, he proposed targeted intervention strategies to reduce the public health impact of misinformation (Zhao et al., 2023).

## **General Health Communication: The Significance of Information Design as a Health Intervention**

Beyond tobacco control and public health emergencies, Professor Zhao has long focused on a range of general health issues, exploring the universal impact of information design on health behaviors.

### **Information Design for General Health Issues**

In the context of promoting medical adherence among patients with chronic diseases, he investigated the joint effect of information framing (gain vs. loss) and temporal perspective on treatment adherence in this patient group. Using a sample of 1,108 patients with treatment non-adherence behaviors, he found that patients with a high Consideration of Future Consequences (CFC) tendency were more receptive to gain-framed information and more likely to develop adherence intentions, whereas patients with moderate to low CFC tendencies showed no significant preference for either frame (Zhao et al., 2012). These findings provide segmented strategies for communication interventions targeting patients with chronic diseases.

### **Practice in General Health Issues**

In exploring factors influencing HPV vaccine acceptability, his research revealed that parents' high perceived personal cancer risk and strong trust in health information from medical authorities significantly increased HPV vaccine acceptability. However, perceived cancer severity and fatalistic beliefs about cancer prevention were not predictors of vaccine acceptability. This research offers references for information communication in HPV vaccine promotion (Nan et al., 2014).

### **Audiences for Information Design**

In investigating health information-seeking behaviors of specific populations, he focused on Korean American women. Through a mixed-methods approach, he found that this group most easily accessed cancer information from mass media they used daily, and that key concerns included the accessibility, language appropriateness, cultural sensitivity, and timeliness of information sources. Meanwhile, the frequency of use and level of trust in doctors/healthcare providers and the Internet showed weak correlations. Based on these insights, he recommended developing health intervention measures through Korean-language media (print, television, and the Internet) (Oh et al., 2015).

## **Research Logic and Academic Characteristics**

Professor Xiaoquan Zhao's research consistently follows the core logic of "audience cognition - information design - behavior change," with prominent academic value and practical significance. In summary, the characteristics of Professor Zhao's academic research are as follows:

### **Consistency in Research Logic**

With "health promotion" as the goal, Professor Zhao identifies the cognitive and behavioral characteristics of audiences through surveys and data analysis—such as adolescents' receptivity to tobacco control information and differences in temporal perspectives among patients with chronic diseases. He then designs targeted information intervention programs, including tobacco control messages with different appeals and adherence-related information using gain/loss frames. Finally, he verifies the effects of information design on changes in cognition, attitudes, and behaviors, such as the impact of tobacco control campaigns on smoking cessation intention and the effect of misinformation interventions on willingness to change.

Taking youth tobacco control research as an example, his team has successively explored the impact of "The Real Cost" campaign on adolescents' perceived smoking risks (Farrelly et al., 2017), the role of perceived message effectiveness in youth tobacco prevention (Zhao et al., 2022), and college students' responses to counter-marketing messages for electronic nicotine products (Christian et al., 2024). This research presents a coherent trajectory, continuously deepening the understanding of the laws governing youth tobacco control information communication.

### **Distinct Practical Orientation**

Professor Zhao's research is closely aligned with the practical needs of public health, with linkage to practical work such as the FDA's tobacco education campaigns and information management for public health emergencies. The research conclusions can directly guide the design of health communication activities—for instance, the selection of appeals for tobacco control messages—realizing the efficient transformation of academic research into public health practice.

### **Diversity in Research Methods**

He comprehensively applies quantitative and qualitative methods, including survey methods (incorporating large-scale secondary data and primary sampling), experimental methods, and interview methods. He selects appropriate research methods based on the characteristics of the research topic; some studies also adopt mixed research methods, integrating quantitative and qualitative approaches. This approach balances the breadth and depth of research, ensuring the scientific validity and reliability of the research conclusions.

## **Academic Contributions and Practical Implications**

### **Academic Contributions**

With health information design and persuasive communication as its academic core, Professor Xiaoquan Zhao has constructed a systematic research framework centered on health promotion. His main research trajectory demonstrates a clear evolutionary trajectory: while long focusing on tobacco users (adolescents and smokers) as research subjects, he has expanded his studies to cover key general health issues with the changing times, including diverse health-related populations such as patients with chronic diseases, audiences of COVID-19 information, and Korean American women. His research methods also encompass diverse approaches, such as experimental methods and large-scale secondary data surveys. Beyond conventional public health topics, his research scenarios align with real social needs and extend to information communication during the COVID-19 public health emergency, forming a multi-dimensional research landscape covering “routine-emergency” and “general-specific” contexts.

In practice, his research has always been closely connected to public health operations. It has not only provided extensive research support for the FDA’s Center for Tobacco Products in its national tobacco education campaigns (e.g., “The Real Cost” and “Tips from Former Smokers”) and delivered directly applicable information design strategies but also translated academic achievements into teaching content by offering courses such as Health Communication and Persuasive Communication at George Mason University—realizing the synergy of “research-practice-talent development.”

Theoretically, he takes communication theory as the methodological foundation to address core issues in public health. By developing a pathway to solve public health challenges through communication methods, he has promoted the two-way empowerment of the two disciplines (communication studies and public health). This effort has enriched the application scenarios of health communication and provided precision information intervention tools for the field of public health.

### **Practical Implications**

Professor Zhao’s systematic research, centered on information design and health promotion, provides a reference for research pathways in health communication that integrate both theoretical depth and practical value.

Health communication research is highly practical and applied, and it should proactively align with key needs in public health practice—such as tobacco control, vaccine promotion, and information management for public health emergencies. It is essential to translate the pain points of policymakers and practitioners into research topics, establish long-term cooperative relationships with public health institutions and policy-making departments, and enable scholars to deeply participate in the entire process of designing, implementing, and evaluating practical

projects. This way, theoretical models can be translated into practical tools, and research directions can be iteratively refined based on practical feedback—avoiding the disconnect between academic research and practice.

Furthermore, Professor Zhao's focus on specific populations (e.g., adolescents, the LGBTQ+ community, and ethnic minorities) reveals that research based on the assumption of a "general audience" may overlook the unique characteristics of certain groups. Instead, targeted research should be conducted by focusing on the cognitive characteristics, preferences for information channels, and differences in cultural backgrounds of diverse populations.

## Future Directions

Professor Xiaoquan Zhao's research achievements have formed a systematic framework; however, from the perspectives of academic development and global public health needs, they also point to directions for further advancement.

Existing studies are mostly based on Western (primarily the United States) cultural and social contexts, with insufficient attention to the laws governing health information communication in non-Western cultural backgrounds. Across different cultures, significant differences exist in audiences' health literacy performance, information trust models, and persuasive pathways. In the field of health communication, more cross-cultural comparative studies could be conducted, or health information design solutions tailored to non-Western contexts could be developed.

Current research focuses heavily on traditional health information carriers, such as warning labels, campaign advertisements, and questionnaires, while conducting limited exploration into the application of emerging technologies—such as artificial intelligence (AI) and virtual reality (VR)—in health information design. Future research could attempt to apply these new technologies to further enhance the intuitiveness and precision of information interventions, expanding the boundaries of technological application in health communication.

Most existing studies focus on the short-term intervention effects of health information, with insufficient attention to the long-term impacts of intervention measures and cost-benefit analysis. In the future, more long-term follow-up studies could be carried out; by integrating health economics methods, these studies could evaluate the long-term effects of information intervention programs, providing more robust support for public health resource allocation.

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