



Narrative Mechanisms and Digital Technologies in Health Communication: A Systematic Review of Shuo Zhou's Research Contributions

Journal of Medicine, Humanity and Media
2026, Vol. 4(1)
© The Author(s) 2026



ISSN: 2817-5166
mhmjournal.net

Yiyi Zhang

School of Foreign languages, Peking University

Abstract

New technology brings new narrative studies. This review synthesizes Shuo Zhou's research on health communication, highlighting the integration of narrative mechanisms and digital technologies. It demonstrates how narrative features such as character identification, moral framing, and personalization influence cognition, emotion, and health behaviors. This study also explores technology-mediated interventions, including virtual reality, AI, and mobile health applications, showing how digital platforms enhance engagement and behavioral outcomes. Combining quantitative and qualitative methods, her research bridges theory and practice, emphasizing interdisciplinary integration, cultural sensitivity, and evidence-based strategies. Zhou's scholarship provides a model for designing effective, inclusive, and technologically informed health interventions.

Keywords

Health Communication; Narrative Persuasion; Digital Health Technologies

CONTACT Yiyi Zhang ysabelyio725@gmail.com

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Introduction

Health communication has increasingly recognized the importance of narratives and technological interventions in shaping health beliefs, attitudes, and behaviors. Narrative analysis has become a central methodological and theoretical approach in health communication, offering a lens through which researchers can understand the experiences, perceptions, and behaviors of patients. By foregrounding patient stories, narrative approaches bridge the gap between biomedical knowledge and patients' lived experience. Such studies can foster empathy, improve patient–doctor communication, and inform patient-centered care. Moreover, narrative functions as important tools for persuasion, which can influence the public's understandings of health and behaviour tendency. With the rise of digital technologies, the ways in which health narratives are constructed, disseminated, and received, creating new opportunities and challenges for health communication scholarship. Building on Zhou's research, this review traces the evolution of narrative studies in health communication, highlights the interplay between narrative mechanisms and digital technologies, and outlines directions for future research that integrates theory, methodology, and applied innovation.

Theoretical Foundations for Narrative Studies and the Expansion to Digital Health Communication

Narrative approaches in health communication derive from literary theory, which believes that narrative is a way to foster empathy through the exploration of patients' understanding, meaning-making, and interaction in healthcare contexts from their own perspective (Bruner, 1991; Charon, 2006). Moreover, it also functions as a way of persuasion, emphasizing the centrality of storytelling in meaning-making, identity construction, and social interaction (Bilandzic & Busselle, 2013). In clinical contexts, narrative analysis enables researchers and practitioners to explore how patients interpret illness, negotiate social roles, and communicate needs, often revealing subtleties that quantitative approaches overlook (Charon, 2001). This qualitative turn reflects a shift from a strictly biomedical model toward more psychosocial, patient-centered frameworks that recognize the role of subjective experience in health and healthcare.

Beyond its clinical relevance, narrative also functions as a persuasive mechanism. Narrative persuasion shapes beliefs, attitudes, and behaviors by leveraging story structure, character attributes, and perceived realism (Niederdeppe et al. 2014). In health communication, narrative persuasion can influence treatment adherence, preventive behaviors, and patient engagement, highlighting the intersection between storytelling, psychology, and social influence (Zhou, & Niederdeppe, 2017). Scholars have further emphasized the sociocultural dimensions of narratives, demonstrating how illness stories reflect broader norms, values, and power relations within healthcare systems and society (Greenhalgh & Hurwitz, 1999).

The integration of digital technologies into health communication has expanded the scope and scale of narrative research. Shuo Zhou's scholarship exemplifies this convergence, investigating

how narrative processes interact with technological interfaces such as mobile health applications, virtual reality platforms, and artificial intelligence systems (e.g., Zhou et al., 2023; Zhou & Won, 2024; Zhou et al., 2024; Lyu & Zhou, 2025). Zhou's work demonstrates that technology-mediated narratives not only deliver information but also shape cognitive processing, emotional responses, and behavioral intentions in health contexts. By linking narrative mechanisms with digital innovation, her research highlights the potential for interdisciplinary frameworks that combine communication theory, psychology, and emerging health technologies.

Drawing on Zhou's contributions, two major thematic directions emerge in contemporary narrative health communication research. The first is narrative-centered mechanisms, which explore how stories influence psychological processing, emotion, belief formation, and health behaviors. The second is technology-mediated health communication, which examines how digital platforms and interactive systems facilitate, amplify, or reshape narrative engagement and health decision-making. By synthesizing these strands, this review illustrates how narrative analysis can be applied across both qualitative and quantitative paradigms, highlighting methodological innovations and theoretical advances that inform the design of effective, technology-enabled health interventions.

Narrative Technological Intervention

Zhou's scholarship is distinguished by its methodological diversity and thematic breadth. Narrative mechanisms have influence on cognition, attitudes, and behavior, which can be applied to a wide range of social and health issues, including alcohol use (Zhou & Shapiro, 2017), vaccination (Zhou et al., 2023), eating disorders (Zhou, Shapiro & Wansink, 2017), and traditional Chinese medicine practices (Lyu et al., 2025). Across these studies, narrative features such as character identity, moral attributes, and personalization are shown to shape psychological responses and behavioral intentions, consistent with models of narrative persuasion. With the advancement of technology, narrative inquiry has been extended to immersive and AI-mediated contexts. This shift maintains the same fundamental assumption as traditional narrative persuasion studies: interventions, whether discourse-based or technology-mediated, can influence health cognition, attitudes, and behaviors. Technological interventions in her work span virtual reality (VR), mobile health applications, and AI-based chatbots, examining how these platforms mediate health information processing, risk perception, and behavior change (Zhou et al., 2024; Zhou et al., 2023). Collectively, these research strands define the core of Zhou's contribution: a systematic investigation into the interplay among individuals, narrative content, and technological environments. Her studies are highly applied, often combining theoretical models with empirical designs to extract actionable insights from real-world contexts. Quantitative approaches, including large-scale surveys and multivariate regression analyses, are employed to assess population-level attitudes and inform health policy—for example, exploring smoking behavior and political engagement (Zhou et al., 2021). Complementing these, qualitative research investigates experiential processes, such as virtual global health activities, revealing both benefits and implementation challenges (Zhou et al., 2025).

Narrative-and Technology-Based Health Communication: Mechanisms, Pathways, and Behavioral Outcomes

Health communication research increasingly recognizes the dual potential of narratives and technology to shape health cognition, attitudes, and behaviors. Zhou's body of work exemplifies this integration, demonstrating how narrative mechanisms and emerging technologies jointly influence health outcomes. Her research combines experimental rigor, quantitative and qualitative methodologies, and theoretical sophistication to illuminate the psychological, social, and cultural processes underlying health communication.

4.1 Narrative-Based Health Communication: Quantitative Research

Zhou's quantitative studies examine how narrative strategies influence cognitive and emotional mechanisms underlying health message processing. Early work in 2017 laid the foundation for this research trajectory. Zhou, Shapiro, and Wansink (2017) explored how media portrayals and narrative structures shaped dietary habits, revealing key links between character identification, narrative mode, and health behavior. In a subsequent randomized controlled study, Zhou and Niederdeppe (2017) demonstrated that personalized narratives enhanced audience engagement and support for obesity-prevention policies compared to non-personalized narratives. Zhou and Shapiro (2017) further investigated the moderating effects of habitual risk behaviors and self-activation on resistance to narrative persuasion, highlighting contextual factors that influence narrative effectiveness.

Building on these foundations, Zhou refined her focus on two distinct yet related psychological mechanisms: character identification and self-projection. Zhou and Shapiro (2020) examined these mechanisms within food-safety narratives, showing that audiences engage both cognitively and emotionally with narrative content. Zhou and Shapiro (2022) further demonstrated that morally salient characters elicit stronger identification and self-projection, with confirmatory factor analyses confirming the conceptual independence of these mechanisms. Collectively, these quantitative studies extend traditional narrative persuasion models by emphasizing the dual contributions of emotion and cognition, providing actionable insights for designing interventions that effectively influence health attitudes and behaviors.

4.2 Narrative-Based Health Communication: Qualitative Research

Complementing her quantitative work, Zhou's qualitative studies investigate how individuals construct health experiences and resilience through narrative engagement. Liu et al. (2025) studied university students with eating disorders, applying the Communication Theory of Resilience (CTR) to analyze semi-structured interview data. The study revealed how interactions with families, communities, and healthcare providers either facilitate or impede adaptive resilience during the COVID-19 pandemic. In research on traditional Chinese medicine practices, Lyu et al. (2025) employed the Meaning in Embodied Experience (MME) framework, demonstrating how participants reinterpret health experiences through embodied practice, fostering identity

transformation and personal growth. Moreover, Zhou et al. (2022) examined vaccine communication among minority populations, highlighting the importance of culturally adapted messaging. Latinx participants emphasized scientific evidence, African American participants valued social modeling, and American Indian/Alaska Native participants foregrounded equitable access. These findings underscore the necessity of culturally sensitive health communication strategies and reveal how sociocultural contexts shape health behaviors and responses to narrative interventions.

4.3 Technology-Mediated Health Communication: VR, AI, and Mobile Health Applications

Zhou's more recent work investigates how immersive and intelligent technologies enhance health education and influence behavioral outcomes. In VR-based studies, Zhou and Won (2024) demonstrated that first-person perspectives and avatar similarity enhance immersion and behavioral intentions, highlighting VR's potential for experiential learning. Subsequent work (Won & Zhou, 2024) showed that avatar design and interactivity modulate emotional regulation and risk perception, extending research on virtual narratives and psychological engagement.

In mobile health (mHealth) applications, Zhou et al. (2024) developed a behavior-science-informed smoking cessation app, demonstrating that personalized messaging and user-centered design significantly improve engagement and cessation outcomes. In AI-mediated communication, Zhou et al. (2023) designed a multilingual chatbot for COVID-19 vaccine communication, which increased accessibility, reduced information asymmetry, and enhanced trust—illustrating AI's capacity to promote equitable public health outreach.

Theoretically, Lyu and Zhou (2025) introduced the concept of cognitive augmentation, showing how technological feedback loops enhance cognitive performance and self-regulated learning. Grounded in cognitive load theory, cultivation theory, cybernetics, and the extended self-framework, this work provides a conceptual foundation for integrating AI into health communication research, highlighting the synergistic potential of narratives and technology for shaping knowledge, attitudes, and behavior.

Methodological and Theoretical Integration

Zhou's research is featured by its methodological integration, combining quantitative and qualitative approaches to capture the complex interplay between narrative, cognition, and behavior. On the quantitative side, she employs randomized experiments, longitudinal designs, and multivariate statistical analyses to establish causal relationships between narrative variables—such as character identification, moral framing, and personalization—and health-related attitudes and behaviors. These methods allow for the systematic testing of theoretical predictions, the identification of mediating and moderating factors, and the quantification of intervention effects across diverse populations. Complementing this, Zhou's qualitative work relies on in-depth interviews, focus groups, and ethnographic observation to explore how individuals interpret health narratives, construct meaning, and negotiate identities within specific sociocultural contexts. Such

approaches uncover nuanced insights into the lived experiences, values, and beliefs that shape responses to health communication, providing rich contextual understanding that quantitative measures alone cannot capture.

The theoretical foundations underpinning Zhou's work are equally integrative, drawing from multiple perspectives to examine health communication at both micro- and macro-levels. Social cognitive theory provides a framework for understanding the interplay between personal factors, environmental influences, and behavior, highlighting the role of self-efficacy and observational learning in health decision-making. Narrative psychological mechanisms explain how storytelling, character engagement, and moral framing influence cognition, emotion, and behavioral intentions. The Communication Theory of Resilience (CTR) offers a lens for analyzing how individuals adaptively negotiate challenges and construct resilience through communicative practices. Similarly, the Meaning in Embodied Experience (MSEE) framework illuminates how embodied practices and lived experience contribute to identity formation and health behavior. Zhou further draws on self-perception and identification theories to understand how individuals internalize narrative perspectives and project themselves into mediated health scenarios. By integrating these frameworks, her research addresses both micro-level psychological processes, such as emotion, cognition, and self-identification, and macro-level cultural and structural influences, including social norms, institutional contexts, and technological environments. This multi-level methodological and theoretical integration enables Zhou's work to generate actionable insights for both the design of effective interventions and the advancement of health communication theory.

Conclusion

The effectiveness of narrative-and technology-based health communication is determined not only by the scientific rigor of theoretical models but also by structural, cultural, and technological constraints. Zhou's work demonstrates that while narrative and digital interventions offer pathways for influencing cognition, attitudes, and behavior, practical implementation is shaped by contextual factors such as cultural norms, technological access, and institutional capacity. More specifically, her work shows the psychological processes through which narrative engagement influences cognition, emotion, and health behaviors, providing robust theoretical models that extend traditional frameworks of narrative persuasion. By investigating how character identification, moral framing, and personalization shape behavioral intentions, Zhou offers critical insights into the design of effective, evidence-based health interventions. The complexity of implementing narrative-driven interventions is particularly evident in diverse populations and technological environments. Through innovative applications of virtual reality, AI, and mobile health platforms, Zhou demonstrates how immersive and interactive environments can enhance engagement, facilitate learning, and promote behavior change. However, Immersive VR or AI-mediated platforms may be highly effective in urban or resource-rich settings but less feasible in rural or low-access contexts. Similarly, culturally adapted narratives must navigate social norms, historical mistrust, and localized interpretations of health risks.

The foregrounding of cultural sensitivity and social responsibility in Zhou's work underscores the need to align narrative content and technological delivery with audience experiences, values, and capabilities to ensure engagement and efficacy. By attending to minority communities, sociocultural contexts, and health equity, she emphasizes that effective health communication must not only be theoretically sound but also ethically and socially attuned. Her scholarship bridges the gap between theory and practice, informing public health initiatives ranging from vaccination campaigns to AI-driven health information systems, and demonstrating how interdisciplinary research can address contemporary health challenges.

Collectively, Zhou's contributions advance both the theoretical foundations and practical applications of health communication. Her integrated approach—linking narrative mechanisms, digital innovation, and cultural context—provides a model for designing interventions that are psychologically compelling, technologically sophisticated, and socially responsible. In an era of rapidly evolving health challenges and digital technologies, Zhou's work offers invaluable guidance for researchers, practitioners, and policymakers striving to promote health and well-being through evidence-based, culturally sensitive, and technologically informed communication strategies.

Given these constraints, effective health communication requires balancing theoretical ideals with practical feasibility. Zhou demonstrates that interventions must be culturally resonant, technologically accessible, and tailored to specific audience segments to maximize impact. While theory identifies mechanisms for persuasion and behavior change, real-world implementation is shaped by structural, technological, and cultural realities. Successful health communication, therefore, integrates empirical evidence, technological tools, and contextual sensitivity to design interventions that are scientifically grounded, socially acceptable, and behaviorally effective. The value of narrative-and technology-mediated health communication lies not in the mechanical application of theory, but in its translation into interventions that achieve measurable psychological and behavioral outcomes. Zhou's scholarship exemplifies how combining narrative theory, technological innovation, and applied sensitivity can advance public health objectives in complex, real-world environments.

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7