

# Addressing resistance to adopting relevant health promotion recommendations with strategic health communication

Gary L. Kreps\*

*George Mason University, Fairfax, VA, USA*

**Abstract.** Health promotion is a complex communication process that involves identifying and recommending adoption of the best available evidence-based guidelines for addressing the most dangerous health risks confronting modern society. Despite the steady proliferation of major scientific advances in knowledge about the best available strategies for preventing and responding to many of these health risks, it has been frustratingly difficult to mobilize widespread adoption of recommended evidence-based health promotion guidelines by at-risk populations around the globe. Even worse, there has been a growing number of frustrating instances of active public resistance to adopting evidence-based public health guidelines concerning participation in screening efforts for detecting dangerous health risks as early as possible (when many health risks are most responsive to treatment), getting vaccinated help build public immunity to deadly infectious diseases, actively seeking needed health care to address health problems, following health care recommendations (including adhering with prescribed medications and treatment regimens), as well as integrating important behavioral practices into daily living, such as good nutrition, regular exercise, and strategies to prevent the spread of disease (like social distancing and wearing protective masks in public settings to reduce the spread of airborne infectious diseases). Effective health communication is needed to help members of the public, especially those who are at greatest risk for poor health outcomes (such as elderly, homeless, disenfranchised, disabled, immigrant, and those suffering from multiple co-morbidities) to recognize the seriousness and salience of public health threats, engage in recommended actions to minimize the likelihood of contracting these health problems, and to respond effectively when they encounter serious health risks. This article examines the significant challenges to communicating relevant health information to those who are confronting serious health risks, especially to members of the most vulnerable populations, and suggests strategies for effectively using communication messages and media for promoting adoption of recommended health promotion actions.

Keywords: Strategic health communication, relevant health information, persuasion, adherence, vulnerable populations

## 1. Challenges to implementing health promotion recommendations

Health promotion is a complex communication process that involves identifying and recommending adoption of the best available evidence-based guidelines for addressing the most dangerous health risks confronting modern society. Dangerous health risks include a broad range of diverse issues such as cardiac diseases, cancers, infectious diseases (such as COVID-19, influenza, monkeypox, and HIV/AIDS), non-communicable diseases (such as diabetes, asthma, and stroke), as well as many debilitating mental health and chronic health conditions [1–3].

Despite the steady proliferation of major scientific advances in knowledge about the best available strategies for preventing and responding to many of these health risks, it has been frustratingly difficult

---

\*E-mail: [gkreps@gmu.edu](mailto:gkreps@gmu.edu).

to mobilize widespread adoption of recommended evidence-based health promotion guidelines by at-risk populations around the globe [1,3]. Even worse, there has been a growing number of frustrating instances of active public resistance to adopting evidence-based public health guidelines concerning participation in screening efforts for detecting dangerous health risks as early as possible (when many health risks are most responsive to treatment), getting vaccinated help build public immunity to deadly infectious diseases, actively seeking needed health care to address health problems, following health care recommendations (including adhering with prescribed medications and treatment regimens), as well as integrating important behavioral practices into daily living, such as good nutrition, regular exercise, and strategies to prevent the spread of disease (like social distancing and wearing protective masks in public settings to reduce the spread of airborne infectious diseases).

Inevitably, health promotion implementation problems have resulted in dire health outcomes, such as the sadly high rates of infection and death from the COVID-19 pandemic, both in the U.S. and worldwide, especially for the most vulnerable populations. These problems are fostered by the spread of widespread health misinformation, flagging levels of public trust in science across society, and active public resistance to health promotion mandates [2,4–6]. Effective health communication is needed to help members of the public, especially those who are at greatest risk for poor health outcomes (such as elderly, homeless, disenfranchised, disabled, immigrant, and those suffering from multiple co-morbidities) to recognize the seriousness and salience of public health threats, engage in recommended actions to minimize the likelihood of contracting these health problems, and to respond effectively when they encounter serious health risks [5–9].

A major factor leading to societal problems with health risks has been the continuing failure to meaningfully disseminate, translate, and implement advanced health risk knowledge to help guide informed decisions about risk prevention and response [2,10,11]. This is a major health communication issue that has been abetted by significant challenges to communicating relevant prevention and response information to those confronting these risks, including affected health care consumers, providers, and policymakers. The latter challenges stem from the complexities to clearly explain risk information, especially emerging health risks such as pandemics and the intricacies of communicating current knowledge about responding to these health issues, particularly when attempting to interact meaningfully with diverse and vulnerable populations [12].

There is a pressing need to use the most effective strategic communication practices to motivate adoption of the best guidelines for addressing serious health risks for different audiences, such as designing the best communication strategies for promoting early detection of risks, developing accurate detection and diagnosis for sharing these diagnoses meaningfully, motivating adherence with important prevention and response recommendations, implementing the best available treatment strategies, and helping consumers adapt over-time to continuing health risks (including chronic health problems and side effects). This article examines the significant challenges to communicating relevant health information to those who are confronting serious health risks, especially to members of the most vulnerable populations, and suggests strategies for effectively using communication messages and media for promoting adoption of recommended health promotion actions.

## **2. The need to share relevant health information**

Relevant health information is a valuable, but largely unrecognized, resource for helping guide both health care consumer and provider responses to serious health risks by increasing understanding about a

host of complicated, but relevant, impending health issues [2,5]. Unfortunately, health risk prevention and care processes often are exceedingly complex, especially for lay people, and are frequently misunderstood - often leading to serious missteps concerning adoption of health promotion recommendations [5].

Effective dissemination of relevant and motivating health information can provide needed guidance for helping increase understanding and guide effective responses to many difficult health risk issues that cut across the continuum of care, including enhancing responses to guide prevention, detection, diagnosis, treatment, survivorship, and end-of-life care [13–15]. For example, relevant health information can guide effective disease prevention by increasing public awareness about and participation in engaging in relevant lifestyle behaviors (involving personal actions concerning dietary practices, exercise routines, participating in screening and vaccination services, following safer sexual practices, and avoiding health risks) to help promote public health and wellbeing [16–18].

Provision of timely, accurate, and personally motivating information can promote early recognition of emerging risks and symptoms of illness, which is valuable to both health care consumers and providers and enables the rapid implementation of responsive treatments [19]. For example, relevant information concerning symptoms and incidence can be identified from patient interviews/reports, physical examinations, and lab-tests that provide useful clues for enhancing risk detection and response.

Health care providers should seek ongoing feedback from their patients to actively gather and analyze physical surveillance data so they can provide relevant information updates about response strategies, monitor changes in condition, and evaluate patient responses to medications and medical procedures. Provision of ongoing treatment surveillance information can guide evaluations about how well treatments are working over-time and to determine whether there are any problematic side effects from treatment. Relevant health information can impact important decisions about making needed refinements to treatment regimens, as well as to help guide important decisions about whether to introduce new strategies for mitigating any new health risks or undesirable side effects from treatments.

Meanwhile, it is important to recognize that every health issue has both physical and symbolic dimensions, especially concerning health issues, such as cancer, COVID-19, or mental illness, that have deep symbolic resonance for many people [19,20]. The best care involves communicating meaningfully about both the physical and symbolic dimensions of health and illness. Communicating effectively about the physical aspects of disease demands attention to sharing accurate and timely content-related scientific health information, such as sharing understandable details about the results of lab tests, diagnoses, and treatment strategies, to guide treatment decision making.

Yet, responding effectively to the symbolic dimensions of illness demands greater attention to sharing relevant relational information concerning emotions, concerns, stress, fatalism, and the need for social support. Content (data-related) information is needed to help increase understanding about the physical aspects of illness by providing insights about complicated health science and treatment data concerning biological, chemical, and pharmacological issues. Both types of health information issues have long been the primary focus of health care communication [2,19].

In addition, there is an enduring need to provide relational information to address emotional issues undergirded by powerful feelings (such as fear, anxiety, worry, shame, and anger) that can often emerge when coping with illness [20]. Responsive and sensitive relational information can provide needed support, empathy, encouragement, and solidarity for helping to address health-related stress, worry, and depression [21,22]. Supportive information also can increase cooperation and commitment to confronting health risks [21–23]. Since the content and relational dimensions of health are deeply intertwined, the strategic use of appropriately clear and sensitive communication is needed to provide relevant information and support to help address the powerful symbolic dimensions of illness [24].

Disseminating and seeking health information are important aspects of effective health promotion that demand high levels of communication strategy and competence [25–27]. Relevant health information can be provided by many different sources, including by health care experts, family members, health advocates, peer support group members, as well as from a variety of different health information resources (health education materials, news articles, online resources, and from other media) [28–30]. It is important for health care providers and consumers to identify good, reliable, and up-to-date sources for seeking relevant health information. However, care must be taken to make sure the materials recommended are easy for consumers to understand and apply to their lives. Besides referring patients to health information sources, it may be necessary for health care providers to discuss complex health information with patients to answer questions and provide examples that can enhance their comprehension of the material, especially when communicating with vulnerable health care consumers who may have health literacy challenges [30–32].

It is crucially important to effectively communicate clear, accurate, and motivating information to vulnerable populations about health risks, disease prevention, and health care due to both the serious public health threats that major health risks pose for these individuals and because the misinformation and resulting confusion concerning the causes, strategies for early detection, and best treatments often leads to late-stage diagnoses and treatments, accompanied by suboptimal health outcomes [33,34].

Unfortunately, current efforts to educate the public about the complexities of health risks, as well as about risk prevention, detection, treatment, and control often are insufficient to help consumers make informed decisions about their best health care choices [5,6]. Strategic health communication is needed to provide consumers with the information and support needed to reduce health threats and improve health outcomes. (Strategic communication refers to the planned application of key evaluation and social marketing principles in health communication efforts, such as conducting in-depth audience analyses to learn more about and to segment target audiences, adapting persuasive message design and delivery to the unique characteristics and orientations of targeted groups, and introducing culturally-sensitive interventions for reinforcing the adoption of health behaviors by targeted audiences) [8].

### **3. Attention to the communication needs of vulnerable populations**

The need for effective strategic communication about health risks and benefits is particularly acute, yet also quite complex, for reaching the most vulnerable health care consumer populations, who are at great risk to suffer significantly higher levels of health-related morbidity and mortality than other segments of the general population [35]. These vulnerable groups, typically the poorest, lowest educated, and most disenfranchised members of modern society, are heir to serious disparities in health outcomes, resulting in alarming levels of morbidity and mortality, especially in comparison to the general population [35–37].

Vulnerable populations regularly encounter serious challenges to accessing and making sense of relevant health information, often abetted by health literacy difficulties that make it difficult for them to understand complex medical information, cultural barriers, and economic limitations that make it difficult to access and negotiate modern health care systems, as well as a host of challenging social determinants (such as reduced social status, lower education levels, environmental barriers, employment issues, and limited social support networks) that make it difficult to get the best care [31,35–37]. Vulnerable consumers often are confused and misinformed about health risks, prevention and early detection strategies, as well as about optimal treatments, leading to serious errors, omissions, and resultant health problems [35]. Vulnerable consumers also may feel intimidated by health care professionals and the

modern health care system, so they may need to receive health care provider support and encouragement to share and seek relevant cancer-related information [38,40].

Members of vulnerable populations, who often bear significant health disparities, are in especially high need of relevant, accurate, and timely health information about health risk prevention and control that is presented to them in sensitive, caring, and meaningful ways that they can easily understand and use [41,42]. Members of these vulnerable groups often include elderly, immigrant, socioeconomically deprived, and minority health care consumers who may need special support and personal advocacy from family members, health care providers and intermediaries (such as health navigators) to effectively access and use relevant health information [42,43]. Furthermore, many vulnerable immigrant consumers in the U.S. are non-native English speakers and encounter serious language barriers and health literacy challenges that necessitate adaptive, culturally sensitive communication strategies to provide them with needed health information [31,44–46].

This article examines health communication strategies for developing culturally sensitive communication programs that can provide vulnerable consumer populations with the relevant health information they need to effectively understand, evaluate, and determine how to use health promotion recommendations to make informed health care decisions, and engage in health behaviors that will enable them to address health risks. A large body of research literature suggests that culturally sensitive health communication intervention programs are likely to be effective at reaching and influencing vulnerable populations because these programs are designed to be relevant, interesting, and easily understood by target audiences [47–49].

Consumers' unique cultural backgrounds and orientations have powerful influences on their communication practices that must be carefully accounted for in strategic health communication efforts [50,51]. It is critically important to identify and examine the relevant cultural issues that are likely to influence the ways consumers, particularly members of vulnerable populations, respond to communication about health risks, prevention, detection, and control. Several of the key cultural variables that influence health communication outcomes include the unique health beliefs, values, norms, and expectations that different consumers bring to health situations [39]. It is also important to assess consumers' culturally based language skills and orientations, their health literacy levels, their motivations to seek health information, and their unique media use patterns [31,52]. Examination of these key cultural factors provides relevant information for determining how to best design and deliver key messages to effectively communicate complex health information to diverse and vulnerable populations [38]. Culturally sensitive health communication is essential to providing vulnerable consumers with relevant information about health risks, prevention, early detection, treatment, and survivorship [48].

#### **4. Encouraging cooperation with health promotion recommendations**

Meaningful health promotion communication not only can help build strong cooperative health care relationships, but it also can dramatically enhance the quality of health care decision-making and improve the outcomes of care.

A large body of research suggests effective communication has improved a variety of health outcomes, such as reducing morbidity and mortality, decreasing pain and suffering, increasing adherence with treatment recommendations, promoting shared understanding, and enhancing confidence in care [53,54]. Research additionally has suggested a strong relationship between collaborative clinician-patient communication as a major factor in promoting cooperation with health promotion recommendations by providing consumers with relevant health information to encourage collaborative health decision making that can

improve health outcomes [55]. Sharing relevant health information also can improve interprofessional cooperation between members of health care teams (including patients and family caregivers who should be considered as central links within health care teams) by utilizing the unique expertise and experiences of health care team members to exchange insights concerning complex health care issues, promoting coordination of care, and encouraging collaborative decision-making [56].

## **5. The demand for strategic health communication**

Health communication messages must be carefully designed and delivered to be effective [57]. The critical factor in strategic message design is adapting health messages to meet the unique needs and communication orientations of specific audiences [38,48,57]. This means that effective health communication efforts should adopt a consumer orientation to encoding messages that will resonate well with specific audiences [55].

Careful audience analysis is essential to identifying the salient consumer characteristics for guiding message design [47]. Messages should be designed to appeal to key beliefs, attitudes, and values of targeted audience members, using familiar and accepted language, images, and examples to illustrate key points [57]. It is wise to pre-test sample health communication messages with representatives of key audiences before implementing health communication intervention programs [47]. Formative evaluation data gathered through message pre-testing is essential to refining health messages [47]. This is a form of user centered design, where health messages are shaped and refined by representatives of the actual audiences targeted in health communication programs [58–61].

Pre-testing is also a strategy for increasing audience participation in health communication efforts, which can increase not only the cultural sensitivity of communication efforts but can also enhance audience receptivity and cooperation with health promotion efforts [60]. Involving consumers, their family members, key members of their social networks, and community representatives can increase the support and social encouragement for paying attention to, accepting, and utilizing health education messages [60,61].

To be most effective, it is wise to plan multiple message strategies for reaching and influencing vulnerable audiences with relevant health information, utilizing the communication principles of redundancy and reinforcement to enhance message exposure and impact [7,8]. Multiple messages can help to capture audience attention, reinforce message content, and illustrate key health education concepts. The use of personalization, vivid imagery, and narratives in health communication messaging also can reinforce message content, especially with audiences who may have limited health literacy and problems with numeracy that make it difficult for them to understand complex, statistical, and other numerically based messages [31,63]. For example, the use of narratives and visual illustrations that are familiar and appealing to different audiences often can enhance attention to health promotion messages and increase the influence of these messages [61].

An effective strategic communication approach to designing health messages that often meets the unique needs of individuals is the use of tailored communication systems, where relevant background information about an individual (such as use of their names, their occupations, or other groups/organizations that they are affiliated with) to, inform customized use of messages for that individual [61]. Typically, tailored communication systems inform message design by employing interactive computer systems that gather relevant background information from consumers on key communication variables through questions posed to these individuals, including questions eliciting information about individual demographic, psychographic, and health belief/behavior information [61].

Once key background information is gathered from the individual, the information is used to select specific messages stored in a library of messages that match the unique background features of users. In this way, information can be provided about the individual health risks and orientations of a specific consumer. For example, a computer-generated tailored information system can automatically adjust health messages to match demographic, personal, and health factors for an elderly, Japanese, female health care consumer with a history of hypertension and diabetes. As the consumer continues to interact with the tailored health information system, providing the system with additional background information, this kind of tailored health communication program can continually refine information responses to this consumer to match the person's unique personal characteristics and interests.

In addition to developing strategic messages that match the cultural orientations of at-risk consumers, it is critically important to determine the most effective communication channels for reaching targeted populations of consumers. The best communication channels to utilize are those that are close, familiar, and easily accessible for targeted audience members [63]. For example, the use of indigenous media, such as community newspapers, local radio stations, and cable television programs targeted at specific populations, have been shown to be effective media channels for disseminating health information and influencing health behaviors. It is important to employ communication channels that are easy for members of the intended audience to use. It would be a serious error to develop an online health education website for consumers who do not have access to computers and who are not sophisticated computer users.

Communication channels that are dramatic and memorable can have strong influences on audience attention and interpretation of health messages [61]. Health educators should consider using communication channels that can be accessed over time, channels that can retain important information for later review, and even interactive channels that enable consumers to ask questions and receive clarifications about complex health information [64,65].

It is important to decide the best sources for delivering key messages about potential health risks, prevention strategies, opportunities for early detection, and optimal treatment modalities. It is crucial to identify the most credible sources of health information for members of the intended audiences. Decisions need to be made about whether it is best to utilize familiar sources of information, expert sources, or perhaps peer communication may be most influential with different audiences. Just as with the use of strategic messages, it is a good idea to pre-test different information sources and different communication channels with target audiences [60].

## **6. Evaluating and refining communication programs and practices**

A critical juncture in communicating health risk, prevention, detection, and treatment information to vulnerable audiences is evaluating how well different communication strategies work to educate targeted audiences about important health issues [48]. It is important to assess how well consumers really understand the risks and benefits that are being communicated and what difference communication programs make in promoting informed consumer decision-making.

An important first step is to establish clear baseline measures of consumer understanding before introducing new health education programs. These baseline measures can be used as a starting point for tracking the influences of communication efforts [47]. Feedback mechanisms, such as consumer surveys, focus groups, hotlines, helpdesks, and comment cards, should be introduced as integral parts of communication interventions for tracking and evaluating consumer understanding of health messages. The data gathered through these feedback mechanisms can be used to refine health communication programs and track progress in health education.

There are three primary levels for evaluating health communication programs: formative evaluation, process evaluation, and summative evaluation that are used at different points in the development and implementation of communication programs [47,66].

1. Formative evaluation is used to plan health communication efforts, such as the design of health education programs, materials, and campaigns. It involves conducting both needs analysis to determine what is known about specific health issues facing different populations and audience analysis to examine the unique beliefs, concerns, information levels, and communication characteristics of different populations. Surveys, interviews, analysis of documents, and use of past research and records are often used for conducting formative evaluation research.

2. Process evaluation involves testing audience reactions to different communication strategies and messages to see how well they are understood and how influential they are. Process evaluation data are essential in guiding the design and refinement of communication programs. Surveys, interviews, and message testing experiments often are used to collect process evaluation data.

3. Summative evaluation is used to determine how well communication programs and strategies achieve intended health goals, such as increasing audience understanding, improving adherence with health recommendations, reducing morbidity and mortality, as well as tracking the cost/benefit levels of communication programs. Pre/post intervention field experiments, surveys, tracking archival data, and observational research are often used for summative evaluation efforts. Evaluation data are essential in developing and implementing effective strategic health communication programs.

## **7. Conclusion**

To overcome resistance to adopting health promotion recommendations, health care policymakers, providers, and consumers must take the process of communication seriously. Too often they think of communication as a simple daily process without much thought.

However, health communication problems are typically extremely complex and fragile, involving many different factors. Major health issues, such as responding to pandemics and promoting prevention and control, are extremely complicated and highly equivocal problems that demand in-depth planning, strategy, and skill to achieve desired health outcomes [67].

The use of routine communication practices is likely to violate the systems principle of requisite variety that suggests effective responses to complex problems demand that the way to address difficult challenges is to match the situation's information complexity [65]. To be effective, health communication must be evidence-based, rigorous, and strategic, operating from a big science perspective [67].

This was the approach taken by the National Cancer Institute (NCI) when it identified cancer communication as an area of extraordinary research opportunity in the early 2000's (under the leadership of former NCI Director, Richard Klausner, and Director of the NCI Division of Cancer Control and Population Sciences, Barbara Rimer). NCI created an innovative large-scale multi-pronged program of cancer communication research and intervention programs, including the Health Information National Trends Survey, the Centers of Excellence in Cancer Communication Research, and Multimedia Technology and Health Communication, to advance cancer communication research and intervention for promoting cancer prevention and control [68–70].

Significant investments in health communication are needed to overcome resistance to following health promotion recommendations that have become so common during the COVID-19 pandemic era [64]. Building upon the ideas presented in this article, the following 17 specific recommendations are proposed to support strategic use of communication to enhance health outcomes:

- Health communication programs and practices must be designed to build widespread public awareness about relevant health risks, as well as the best current prevention and detection strategies, treatment modalities, and interventions to promote the best health outcomes. These information programs should provide needed health information to increase public understanding about the current state of knowledge about serious health risks to fill gaps in knowledge and correct misunderstandings.
- Health communication efforts also should be strategically designed to be persuasive, with a focus on motivating adoption of recommended actions to prevent and address health risks.
- Care must be taken in health communication efforts to focus on addressing the most salient health communication needs of vulnerable populations, those who are at greatest risk for poor health outcomes.
- Investments need to be made in conducting needed formative, process, and summative evaluation research to guide strategic health communication efforts.
- The best health communication programs should be designed for specific audiences so they can address the unique information needs, concerns, communication orientations, and competencies, and needs of segmented audiences, especially those who are at highest risk for poor health outcomes. One size does not fit all when it comes to communication. The best communication efforts adapt to the unique characteristics of different audiences.
- Community participative communication interventions should be adopted as a valuable strategy for integrating consumers' perspectives into health education efforts and building community commitment to health communication interventions. It is important to involve and empower consumers in health communication efforts through community-based participative research, user-centered design, and active collaborations with consumers and their advocates.
- Health promoters should consider using multiple relevant communication channels and media for health communication interventions, so audience members are exposed to important health messages in a variety of different ways. This can increase reinforcement, recall, and influence of messages with audience members through redundancy and repeated exposure.
- Developing coordinated interorganizational and intraorganizational partnerships to support intervention efforts can help address the complex sub-specialties and multi-organizational delivery of modern health care to promote cooperation and continuity of care.
- Providing appropriate training and support for both consumers and providers to promote effective health communication can enhance effective sharing of relevant health information and help address both content and relational health care issues.
- Designing culturally appropriate messages and materials for communication efforts can enhance understanding of and cooperation with prevention and control efforts.
- Conducting strategic media planning to match communication strategies (such as designing compelling messages, identifying credible information sources, and employing the most effective media channels) to the cultural orientations and communication predispositions of targeted vulnerable audiences.
- Designing relevant, interesting, and compelling health promotion messages, storylines, and images for use in campaigns that will capture audience attention, generate the greatest message exposure, and have powerful influences on targeted vulnerable populations [66].
- Delivering campaign messages via strategic multiple channels of communication (such as print, radio, television, online, and interpersonally) that are familiar, attractive, and easy for target audience members to use can enhance access to relevant health information.
- Building redundancy into communication campaigns to reinforce key messages over time by utilizing different, yet complementary, delivery channels and messages and improve understanding, retention, and use of health information.

- Focusing on the family and the community for delivering and reinforcing messages can use informal communication networks for supporting the formal efforts to deliver and reinforce health promotion recommendations.
- Providing consumers with preferred choices and options for promoting their health can enhance adoption of health recommendations by adapting these guidelines to the real lives, experiences, and cultures of individual health consumers.
- It is important to involve and empower consumers in health communication efforts through community-based participative research, user-centered design, and active collaborations with consumers and their advocates.

## References

- [1] Centers for Disease Control and Prevention. Future Health of Our Nation. September 2022. [https://www.cdc.gov/healthreport/infographics/aging/index.htm#:~:text=Future%20Health%20of%20our%20Nation%20\(Text\)&text=Greater%20numbers%20of%20older%20people,killing%2064%2C000%20people%20each%20year](https://www.cdc.gov/healthreport/infographics/aging/index.htm#:~:text=Future%20Health%20of%20our%20Nation%20(Text)&text=Greater%20numbers%20of%20older%20people,killing%2064%2C000%20people%20each%20year). Accessed February 9, 2023.
- [2] G. Kreps, The central role of relevant health information for promoting cancer prevention and control, *Med Research Archives* **11**(2) (2023).
- [3] F. Ahmad and R.N. Anderson, The leading causes of death in the US for 2020, *JAMA* **325**(18) (2021), 1829–1830.
- [4] Centers for Disease Control and Prevention. Leading causes of death. September 2022. <https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>. Accessed February 9, 2023.
- [5] G. Kreps, Addressing challenges to effectively disseminate relevant health information, *World Medical & Health Policy* **14**(2) (2022), 220–224.
- [6] Y. Yang, G. Yu, J. Pan and G. Kreps, Public trust in sources and channels on judgement accuracy in food safety misinformation with the moderation effect of self-affirmation: Evidence from the HINTS-China database, *World Medical and Health Policy* **14**(3) (2022).
- [7] G. Kreps, Strategic communication for cancer prevention and control: eaching and influencing vulnerable audiences. in: *Cancer Prevention*, A. Georgakilas (ed.), 2012, pp. 375–388. [https://cdn.intechopen.com/pdfs/35599/InTech-Strategic\\_communication\\_for\\_cancer\\_prevention\\_and\\_control\\_reaching\\_and\\_influencing\\_vulnerable\\_audiences.pdf](https://cdn.intechopen.com/pdfs/35599/InTech-Strategic_communication_for_cancer_prevention_and_control_reaching_and_influencing_vulnerable_audiences.pdf).
- [8] G. Kreps and R. Sivaram, The central role of strategic health communication in enhancing breast cancer outcomes across the continuum of care in limited-resource countries, *Cancer* **113**(S8) (2008), 2331–2337.
- [9] G. Kreps, The impact of communication on cancer risk, incidence, morbidity, mortality, and quality of life, *Health Communication* **15**: (2003), 163–171.
- [10] C. Yip, R. Smith, B. Anderson et al., Guideline implementation for breast health care in low and middle-income countries: Early detection and resource allocation, *Cancer* **113**(S8) (2008), 2244–2256.
- [11] S. Khan, D. Chambers and G. Neta, Revisiting time to translation: Implementation of evidence-based practices (EBPs) in cancer control, *Cancer Causes & Control* **32**(3) (2021), 221–230.
- [12] L. Finney-Rutten, B. Hesse, R. Moser and G.L. Kreps, *Building the Evidence Base in Cancer Communication*. Hampton Press, Cresskill, NJ, 2011.
- [13] G. Kreps and D. Chapelsky Massimilla, Cancer communications research and health outcomes: Review and challenge, *Communication Studies* **53**(4) (2010), 318–336.
- [14] H.D. O’Hair, G. Kreps and L. Sparks, *Handbook of Communication and Cancer Care*. Hampton Press, Cresskill, NJ, 2007.
- [15] G. Kreps, Transdisciplinary health communication research across the continuum of care. in: *Health Communication as a Transdisciplinary Field*, C. Lambert and M. Grimm (eds), Nomos Verlag, Berlin, 2017, pp. 13–22.
- [16] M. De Jesus, C. Rodrigue, S. Rahmani and C. Balamou, Addressing cancer screening inequities by promoting cancer prevention knowledge, awareness, self-efficacy, and screening uptake among low-income and illiterate immigrant women in France, *Intl J of Public Health* **66** (2021), 1604055.
- [17] G. Kreps, Strategic use of communication to market cancer prevention and control to vulnerable populations, *Comunicação e Sociedade* (2012), 11–22, Special Issue. doi:10.17231/comsoc.23(2012).1358.
- [18] G. Kreps and E. Bonaguro, Communication and cancer prevention, control, and care. in: *Applied Health Communication*, K.B. Wright and S. Moore (eds), Hampton Press, Cresskill, NJ, 2007, pp. 257–269.

- [19] B. Fife, The conceptualization of meaning in illness, *Social Science & Medicine* **38**(2) (1994), 309–316.
- [20] G. Kreps and M. Canzona The role of communication and information in symptom management. in: *Textbook of Palliative Care Communication*, E. Wittenberg Lyles et al. (ed.), Vol. 23, Oxford University Press, New York, 2015, pp. 119–126.
- [21] G. Kreps, Relational communication in health care. in: *Perspectives on Health Communication*, B. Thornton and G. Kreps (eds), Waveland Press, Long Grove, IL, 1993, pp. 51–65.
- [22] H. Fisher, J. Winger, S. Miller et al., Relationship between social support, physical symptoms, and depression in women with breast cancer and pain, *Supportive Care in Cancer* **29**(9) (2021), 5513–5521.
- [23] M. Guan, J. Han, D. Shah and D. Gustafson, Exploring the role of social support in promoting patient participation in health care among women with breast cancer, *Health Communication* **36**(13) (2021), 1581–1589.
- [24] A. Seiler and J. Jenewein, Resilience in cancer patients, *Frontiers in Psychiatry* **10** (2019), 208.
- [25] G. Kreps, Disseminating relevant health information to underserved audiences: Implications of the digital divide pilot projects, *J of the Medical Library Assn* **93**(4 Suppl) (2005), S68.
- [26] G. Kreps, Public access to relevant cancer information: Results from the Health Information National Trends Survey and implications for breast cancer education in Malaysia. in: *Proceedings of the Malaysian National Breast Cancer Education Summit*, Z. Hashim (ed.), Universiti Putra Malaysia Press, Kuala Lumpur, 2007.
- [27] G. Kreps, Enhancing access to relevant health information. in: *Shaping the Network Society: Patterns for Participation, Action, and Change*, R. Carveth, S. Kretchmer and D. Schuler (eds), CPSR, Seattle, 2002, pp. 149–152.
- [28] E. Link, E. Baumann, G. Kreps et al., Expanding the Health Information National Trends Survey research program internationally to examine global health communication trends: Comparing health information seeking behaviors in the U.S. and Germany, *J of Health Communication* **27**(8) (2022), 545–554.
- [29] K.M. Oh, G. Kreps, J. Jun and L. Ramsey, Cancer information seeking and awareness of cancer information sources among Korean Americans, *J of Cancer Education* **26**: (2011), 355–364.
- [30] G. Kreps, Online information and communication systems to enhance health outcomes through communication convergence, *Human Communication Research* **43**(4) (2017), 518–530.
- [31] A. Pleasant, C. O’Leary and R. Carmona, Health literacy: Global advances with a focus upon the Shanghai Declaration on promoting health in the 2030 Agenda for Sustainable Development, *Information Services & Use* **40**(1-2) (2020), 3–16.
- [32] K.M. Oh, J. Jun, X. Zhao et al., Cancer information seeking behaviors of Korean American women: A mixed-methods study using surveys and focus group interviews, *J of Health Communication* **20**(10) (2015), 1143–1154.
- [33] G. Kreps, D. Gustafson, P. Salovey et al., The NCI digital divide pilot projects: Implications for cancer education, *J of Cancer Education* **22**: (2007), S56–S60.
- [34] G. Kreps, Communication and palliative care: E-health interventions and pain management. in: *Handbook of Pain and Palliative Care: Biobehavioral Approaches for the Life Course*, R. Moore (ed.), 2nd ed. Springer, New York, 2018, pp. 71–81.
- [35] H. Freeman, Poverty, culture, and social injustice: Determinants of cancer disparities, *Cancer J Clin* **54**: (2004), 72–77.
- [36] G. Kreps, Health advocacy and health communication for elderly health care consumers: Rationale, demand, and policy implications, *J of Elder Policy* **1**(2) (2021), 113–138. doi:10.18278/jep.1.2.5.
- [37] D.K. Kim and G. Kreps, *Global Health Communication for Immigrants and Refugees: Cases, Theories, and Strategies*. Routledge, Oxfordshire, England, 2022.
- [38] G. Kreps, One size does not fit all: Adapting communication to the needs and literacy levels of individuals, *Annals Family Medicine* (2006). <http://www.annfammed.org/cgi/eletters/4/3/205>.
- [39] G. Kreps and E. Kunimoto, *Effective Communication in Multicultural Health Care Settings*. Sage Publications, Newbury Park, CA, 1994.
- [40] G. Kreps, Stigma and the reluctance to address mental health issues in minority communities, *J of Family Strengths* **17**(1) (2017), 3.
- [41] G. Kreps and L. Sparks, Meeting the health literacy needs of immigrant populations, *Patient Ed and Counseling* **71**(3) (2008), 328–332.
- [42] J. Betancourt, A. Green, E. Carrillo and O. Ananeh-Firempong, Defining cultural competence: A practical framework for addressing racial-ethnic disparities in health and health care, *Public Health Reports* **118**: (2003), 293–302.
- [43] A. Surbone, Cultural aspects of communication in cancer care, *Supportive Care in Cancer* **16**(3) (2008), 235–240.
- [44] W. Beach, Making cancer visible: Unmasking patients’ subjective experiences, *Health Communication* **34**(14) (2019), 1683–1696.
- [45] M. Kreuter and S. McClure, The role of culture in health communication, *Annual Review of Public Health* **25**: (2004), 439–455.
- [46] G. Kreps, Communication and racial inequities in health care, *The American Behavioral Scientist* **49**: (2005), 1–15.

- [47] G. Kreps, Evaluating health communication programs to enhance health care and health promotion, *J of Health Communication* **19**(12) (2014), 1449–1459.
- [48] G. Kreps and L. Neuhauser, Designing health information programs to promote the health and well-being of vulnerable populations: The benefits of evidence-based strategic health communication. in: *Meeting Health Information Needs Outside of Healthcare: Opportunities and Challenges*, C. Smith and A. Keselman (eds), Chandos Publishing, Oxford, England, 2015, pp. 3–17.
- [49] G. Kreps and H.D. O’Hair, *Communication and Health Outcomes*. Hampton Press, Cresskill, NJ, 1995.
- [50] R. Street Jr, G. Makoul, N. Arora and R. Epstein, How does communication heal? Pathways linking clinician-patient communication to health outcomes, *Patient Ed and Counseling* **74**(3) (2009), 295–301.
- [51] M. Stewart, Effective physician-patient communication and health outcomes: A review, *Canadian Med Assn. J.* **152**(9) (1995), 1423.
- [52] A. Krist, D. Nease, G. Kreps, L. Overholser and M. McKenzie, Engaging patients in primary and specialty care. in: *Oncology Informatics*, Academic Press, 2016, pp. 55–79.
- [53] N. Chumbler, R. Kobb, L. Harris, L. Richardson et al., Healthcare utilization among veterans undergoing chemotherapy: the impact of a cancer care coordination/home-telehealth program, *J of Ambulatory Care Mgmt* **30**(4) (2007), 308–317.
- [54] G. Kreps, M. Villagran, X. Zhao, C. McHorney et al., Development and validation of motivational messages to improve prescription medication adherence for patients with chronic health problems, *Patient Ed and Counseling* **83**: (2011), 365–371.
- [55] G. Kreps, Promoting a consumer orientation to health care and health promotion, *J Health Psychology* **1**: (1996), 41–48.
- [56] G. Kreps, Communication and effective interprofessional health care teams, *Int Arch Nurs Health Care* **2**(3) (2016), 51.
- [57] E. Maibach and R. Parrott, *Designing Health Messages: Approaches from Communication Theory and Public Health Practice*. Sage, Newbury Park, CA, 1995.
- [58] J. Alpert, A. Krist, R. Aycock and G. Kreps, Designing User-Centric patient portals: clinician and patients’ uses and Gratifications, *Telemedicine and e-Health* **23**(3) (2017), 248–253.
- [59] L. Gallant, C. Irizarry and G. Kreps, User-centric hospital web sites: a case for trust and personalization, *E-service Journal* **5**(2) (2007), 5–26.
- [60] L. Neuhauser and G. Kreps, Integrating design science theory and methods to improve the development and evaluation of health communication programs, *J of Health Communication* **19**(12) (2014), 1460–1471.
- [61] G. Kreps and L. Neuhauser, Artificial intelligence and immediacy: Designing health communication to personally engage consumers and providers, *Patient Ed and Counseling* **92**(2) (2013), 205–210.
- [62] E. Maibach, G. Kreps and E. Bonaguro, Developing strategic communication campaigns for HIV-AIDS prevention. in: *AIDS: Effective Health Communication for the 90s*, S. Ratzan (ed.), Taylor and Francis, London, 1993, pp. 15–35.
- [63] G. Kreps, Translating health communication research into practice: The influence of health communication scholarship on health policy, practice, and outcomes. in: *The Routledge Handbook of Health Communication*. Routledge, Oxfordshire, England, 2011, pp. 617–631.
- [64] G. Kreps, The role of strategic communication to respond effectively to pandemics, *J of Multicultural Discourses* **16**(1) (2021), 12–19.
- [65] G. Kreps, Applying Weick’s model of organizing to health care and health promotion: highlighting the central role of health communication, *Patient Ed and Counseling* **74**(3) (2009), 347–555.
- [66] G. Kreps and J. Alpert, Methods for evaluating online health information systems. in: *Handbook of Research Methods in Health Social Sciences*, P. Liamputtong (ed.), Springer Nature Publishers, New York, 2018, pp. 978–981.
- [67] G. Kreps, K. Viswanath and L. Harris, Advancing communication as a science: Research opportunities from the federal sector, *J of Applied Communication Research* **30**(4) (2002), 369–381.
- [68] B. Hesse, Health communication research and practice at the level of government, foundations, public policy, and NGOs 1. in: *The Routledge Handbook of Health Communication*. Routledge, Oxfordshire, England, 2021, pp. 572–586.
- [69] G. Kreps, Opportunities for health communication scholarship to shape public health policy and practice: Examples from the National Cancer Institute. in: *The Routledge Handbook of Health Communication*. Routledge, Oxfordshire, England, 2003, pp. 623–638.
- [70] G. Kreps, M. Bright, L. Fleisher, A. Marcus et al., Future directions for the Cancer Information Service and cancer education, *J of Cancer Ed* **22**(Supplement 1) (2007), S70–S73.