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## Nurses Communicating Risks: Strategies from the Literature

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### Abstract

Risk communication interventions can provide benefits at both the individual and population level, however, there is a paucity of research that explores the effectiveness of risk communication strategies by nurses. A literature search yielded twelve studies that investigated the components and effectiveness of risk communication by nurses. This article presents some of the key theories used in risk communication, current nursing science exploring risk communication strategies, and recommendations for future research and practice.

*Keywords:* risk communication, nursing, research

### Introduction

Every day Americans are inundated with news about potential health risks such as infectious outbreaks (e.g., Ebola, Corona virus; Kilgo, Yoo, & Johnson, 2019), safety concerns with chemicals in consumer products and drinking water (e.g., perfluoroalkyl substances—PFAS; Anderko, Pennea, & Chalupka, 2020), or a new medical treatment or therapy (e.g., gene editing tools; Sullivan, Aikin, & Poehlman, 2019). As trusted conveyers of health information (Brenan, 2019), nurses play an important role in sorting through the information and communicating potential risks to the public.

Risk communication is intended to help people make informed decisions about whether and how to address the risks they encounter. Communication increases awareness and understanding of protective actions and improves the response to risks. Typically, risk communication involves a discussion about adverse outcomes, including the probabilities of those outcomes occurring. Through risk communication, the communicator (nurse) hopes to provide the audience (individual or public) with information about the expected type (good or bad) and magnitude (weak or strong) of an outcome from a behavior or exposure. Goals of risk communication include: (a) sharing information, (b) changing beliefs, and (c) changing behavior (Fischhoff, Brewer, & Downs, 2011).

Risk communication can be used to improve decision making in response to a perceived threat such as:

- How do I protect myself from sexually transmitted diseases?
- What are the potential occupational health hazards in a particular work setting?

- What are the long-term health risks for my child following a nuclear disaster?

In some cases, risk communication is used to help individuals or the public adjust to something that has already occurred, such as exposure to harmful toxins, possibly putting them at greater risk for disease. Risk communication offers steps to reduce chances for disease through medical testing (Fischhoff et al., 2011).

Several societal changes have influenced the field of risk communication such as the widespread use of online sources and social networks to gather health information, as well as the rise of opinion pieces versus evidence-based reports that are used to procure health information about the perceived risk (Gallone, Tafuri, Preziosa, Quarto & Germinario, 2014). In addition, as the world has become more interconnected and interdependent, people's exposure to previously remote risks has increased (e.g., Zika virus; Pan American Health Organization—PAHO— & World Health Organization—WHO, 2016). There is a broad range of risk events or issues that require nurses to have skills in communicating risk. These include (but are not limited to):

- Acute disease prevention and management
- Chronic disease prevention and management
- Genetic counseling
- Occupational exposures
- Public health threats (e.g., extreme weather events, toxic exposures in the environment)
- Safety of medical, food, tobacco and other consumer products including pharmaceuticals

Possible consequences of risk events include injury, disease, loss of livelihood or earning potential, emotional distress, loss or damage to property, damage to environment, and/or death. Certain risks can cause significant public concern, particularly where there is

uncertainty of the outcome. Ineffective risk communication can result in wasted resources and other undesirable outcomes. During emergencies, messaging can be lost in the commotion, resulting in unintended consequences, such as rejected messages, or public fear and confusion. Conducted effectively, risk communication can help to prevent illness or complications from developing, lead to better decisions about how to handle risks, ensure smoother implementation of plans to tackle risks, and help to empower the individual and public.

In the past, risk communication was viewed primarily as the dissemination of information about health risks and events, such as outbreaks of disease and instructions on how to change behavior to mitigate those risks. Today, effective risk communication strategies are increasingly recognized as facilitating trust, engagement, and multi-directional communications with at-risk populations (Dickmann et al., 2016). As the most trusted health professional group, it is essential that nurses not only become more skilled at communicating risk, but that efforts are studied to determine the impacts of such interventions. This article presents some of the key theories behind risk communication, current nursing science exploring risk communication strategies, and recommendations for future research and practice.

### Risk Communication and Nursing

Communicating and understanding risk is an essential role of nurses and the patients, families, and/or communities they serve. This includes conveying risks about a variety of health issues, causes, diagnoses, treatments, side effects, and long-term health implications.

Risk communication encompasses a large body of literature focused on the dissemination of information, as well as perception of risks (Centers for Disease Control and Prevention—CDC, 2018; Dickmann, McClelland, Gamhewage, de Souza, & Apfel, 2015). In particular, in times of public health crises, epidemics, or natural disasters, the skills and practices of effective risk communication are necessary for the health and welfare of many (Dickmann et al., 2015). Such skills involve managing perceptions of multiple audiences of the risk, hazard or crisis, partnering with stakeholders and the media, and establishing credible and trustworthy spokespersons. Addressing the reliance on different media strategies to effectively communicate risks is also an important consideration (Centers for Disease Control and Prevention—CDC, 2018; Parme et al., 2016).

As trustworthy spokespersons, nurses have been integral in communicating risks to communities in areas ranging from emergency preparedness related to natural disasters to protection from pollution in drinking water. Kuntz, Ricco, Hill, and Anderko (2010) outlined best practices for risk communication strategies by nurses with sensitive populations such as Native Americans related to methylmercury toxicity and fish consumption. These best practices included: (a) determining both the risks and

benefits of an action (e.g., fish consumption); (b) providing a list of resources (e.g., alternative sources of omega-3 fatty acids—a reason many eat fish); (c) investigating sources of exposures, such as national and local fish advisories; and (d) providing guidelines to reduce exposures (e.g., safe fish consumption advice using the precautionary principle). These efforts, however, have yet to be investigated.

In addition to providing risk communication messages to large audiences, nurses are also integral to communicating with patients and families regarding specific health issues that require long-term strategies for health decisions. Communicating risk within this arena is more personal and is the primary focus of nursing research today.

### Health Communication Frameworks

Within health communication and the concept of communicating risk generally, there are many perspectives to understand how individuals may understand their own health and make health decisions. Often, the focus is on how individuals perceive their own risks towards avoiding negative outcomes, and how understanding risk can motivate behavior change. These assessments could come in the form of dyadic conversations, but more often these perspectives are trying to identify processes after individuals are exposed to a health message. In terms of nursing and individual interactions, these perspectives offer a way to understand how patients may understand the risk communicated to them by healthcare professionals and how they may act upon the information shared to them.

**Risk perceptions.** While there are several health communication frameworks that can be drawn upon to explain how individuals may understand risk, three perspectives may have the most utility for nursing communication.

The Risk Information Seeking and Processing (RISP) model (Griffin, Neuwirth, Dunwoody, & Giese, 2004) offers information about how individuals may seek and process information from different sources using the principles of the Heuristic-Systematic Model (Eagly & Chaiken, 1993). The RISP offers that “information seeking is the joint outcome of the belief that one has less knowledge than needed for one’s purposes, one has the capacity to seek and find needed information, and that potential information sources provide needed information,” (Turner, Skubisz, & Rimal, 2011, p. 151). In other words, this perspective suggests that individuals need information to understand their risk and make assessments on their ability to find credible risk information sources (Clarke & McComas, 2012). Thus, the element of information (in)sufficiency is a critical component of subsequent health information seeking behaviors (Griffen et al., 2004).

In the Risk Perception Attitude (RPA) model,

Rimal and Real (2003) contend that perceived risk is an attribute of the individual, and that taking action is a function of their risk perception and beliefs about their efficacy. When high risk perceptions are associated with strong efficacy beliefs, the highest levels of protective action will occur. Conversely, when low risk perceptions with weak efficacy beliefs occur, the lowest levels of protective action are reported (Rimal, Bose, Brown, Mkandawire, & Folda, 2009). Thus, it becomes important to understand an individual's risk perception, but also the efficacy beliefs they may have about the recommended actions to avoid or mitigate such risks (Rimal & Real, 2003). Recent studies utilizing this framework have explored its utility in promoting diabetes screening (Rains, Hingle, Surdeanu, Bell, & Kobourov, 2019), as well as the effects of RPA on health information-seeking intention when combined with social media (Deng & Liu, 2017).

The Extended Parallel Process Model (EPPM) offers another perspective of how individuals may or may not act in response to a risk, or more specifically, a threat. In the EPPM, Witte (1992) proposes fear may be associated with individuals performing maladaptive behaviors rather than the recommended behaviors to reduce their risks. The EPPM incorporates a two-appraisal approach in which individuals first assess their level of threat, as estimated by their susceptibility and severity, and their second assessment is regarding the self- and response-efficacy of the recommended action. When the threat is sufficiently motivated, and appraisals of efficacy are high, then individuals will take the recommended action. Yet, if levels of threat are high and efficacy appraisals are low, then individuals may experience fear and resort to ignoring the recommended actions (Witte, 1992; 1994). Despite some of the gaps found using this framework (Popova, 2012), such a perspective may offer nurses an understanding as to why individuals may ignore risk-reducing information shared or their inability to follow health recommendations.

These perspectives are only suggestions for how individuals may process their risk information and circumstances that is being communicated by healthcare professionals. These perspectives would suggest there is an element of appraisal not only of the risk, but the information needed and efficacy assessments that occur. Thus, in order for communicating risk to be done effectively, such considerations must be made of how individuals make these assessments.

**Numeracy.** In addition to the theoretical perspectives offered to explain and define risk and how individuals process it, numeracy has emerged as an equally important concept. This approach presents numerical information regarding the probability of a given risk occurring (Brake, 2013). It is recognized that in order to understand one's own risks, it often

involves probabilities and, at times, scientific knowledge to fully process the information being shared and displayed (Turner, Skubisz, & Rimal, 2011). It can include communicating a numerical probability such as, "you have a 6% chance of dying from cancer from smoking over your lifetime" or how frequently someone will die in the community as a result of a disaster (Weinstein, Kolb, & Goldstein, 1996). It is important to note that there are cultural variations in understanding these approaches and not everyone can readily grasp numerical approaches to risk. Research suggests that individuals often vary on their numeracy skills which, in turn, influences their perceptions of risk (Schwartz, Woloshin, Black, & Welch, 1997).

Many patients have low numeracy, reducing their understanding of health information. Although there were no studies found that investigated nursing risk communication and numeracy, one study investigated whether physicians adapt their risk communication to accommodate the needs of patients with low numeracy. It found that while most physicians are able to adapt their risk communication accordingly, those with low numeracy are more likely to misunderstand risks and unintentionally mislead patients (Petrova, Kostopoulou, Delaney, Cokely, Garcia-Retamero, & Cancer Research UK, 2018).

### Strategies

While risk communication interventions can provide benefits at both the individual and population level, the types of outcomes used to assess the effectiveness of risk communication interventions vary greatly. This makes comparison of research findings and recommendations for best practices difficult.

For this review we included research articles which spanned the spectrum of methods that examined how nurses communicate risk to patients. Further inclusion criteria included: (a) published in 2007 or later; (b) written in English; and (c) published in a nursing journal. Studies that involved communication of risk from nurse to nurse or nurse to other healthcare provider were excluded.

Articles were identified through a search using PubMed (2007 to February 2020), CINAHL (2007 to February 2020), Google Scholar (2007 to February 2020) and from reviewing relevant articles reference lists. The search terms used were "nurses or nurse", "communication," "communicate," "communicates," or "communicating and risk," "risk reduction behavior," "risk-taking," "risk" or "risks." The search strategy was reviewed by a medical librarian.

One reviewer independently screened the titles of all identified citations and studies that were irrelevant were excluded. Of those deemed eligible, two reviewers independently assessed each full text article and extracted those eligible articles on a standardized form. A third reviewer was consulted if disagreement

occurred.

### Review of the Literature

The PubMed and CINAHL literature search resulted in 1,297 articles that were initially screened for relevance by reviewing the title of the article using the identified search terms. Seventy potentially eligible papers were retrieved then reviewed by the study team for relevance determining whether the paper addressed research that explored risk communication between nurses and patients/communities.

Several studies failed to meet these criteria with many exploring quality assurance issues: three reported on nurse-to-nurse communication, one on risk management, and six on risks in the workplace. Twelve papers were “think pieces” discussing the importance of communicating risk and effective ways to communicate risks, but not empirical in its approach.

There were 10 duplicates when the CINAHL and PubMed searches were compared. Twelve were irrelevant to risk communication in nursing, despite the search terms. There were seven papers that addressed risk communication by non-nursing professions.

One additional study was discovered during our in-depth review. This paper did not include search terms in title or abstract and, therefore, was not captured in the original search. A total of 12 papers were then reviewed in-depth for research design, findings, and recommendations.

A search of the existing literature reveals that there is a larger focus of studies on “providers,” which can include nurses, doctors, physical therapists and more. For example, Komatsu and Yagasaki (2014) interviewed breast care team members including nurses, physicians and counselors about their readiness for personalized breast cancer risk management in clinical practice. Clarke and McComas (2012) sought to understand low uptake of influenza vaccines among medical professionals that included nurses, but did not focus specifically on nurses. Green and Kodish (2009) examined strategies used by nurse practitioners and physician assistants when discussing the sensitive topic of erectile dysfunction with patients, such as initiating the topic when there is a high-risk factor. Nguyen, Terry, Phan, Vickers, and McInerney (2019) found that educational interventions incorporating face-to-face and instructional delivery methods in dementia communication showed positive outcomes for communication skills in all care giver groups (including nurses).

This review focused exclusively on studies exploring risk communication and those in the nursing profession.

Overall, approaches for effective risk communication by nurses within the research literature included: (a) understanding nursing’s perceived role in disclosing sensitive health information and communicating risk; (b) establishing trust with patients and families; (c) tailoring messages to meet needs; (d) using technology to facilitate risk communication; (e) using health education interventions to improve risk communication effectiveness; (f) understanding patient’s perceptions of nursing’s role in communicating risk; and (g) training in risk communication strategies.

### Nursing’s Perceived Role in Communicating Risk

Several studies have explored how nurses perceive their role in disclosing sensitive health information and as risk communicators. Israeli nurses, untrained in genetics, were asked for their perspectives and any actions they would take should a patient refuse to disclose genetic information to family members (Barney & Tabak, 2007). Over 92% reported that patients should inform family members about their decision to participate in genetic testing and 69% believed it was their role to communicate to patients the importance of sharing genetic information with family members to mitigate risk and prevent harm to family members.

Zayts and Sarangi (2013) analyzed the conversations of 50 nurses in Hong Kong who engaged with parents about a hereditary disorder, and reported on how nurses tailored the conversations to parents’ previous knowledge and interactions. Findings suggested that although physiological and hereditary explanations of genetic risk prevail in conversations, there is a need for reassurance in these conversations.

Jorstad et al. (2015) investigated nurses’ experiences working in nurse-coordinated prevention programs with cardiac patients with coronary artery disease. Nurses working in these programs are responsible for communicating information to patients about their risk factors following an acute coronary episode including diet, nutrition, smoking and medication adherence. These nurses were surveyed, reporting confidence in communicating cardiovascular risk to patients, and perceived the prevention programs to be effective in improving patient’s cardiovascular risk profiles.

Goto et al. (2014) explored risk communication strategies used by public health nurses (PHNs), following the Fukushima nuclear disaster, using 150 parenting counseling records and discussion notes from PHN’s training workshops. As major health service providers, PHNs conducted hundreds of parental counseling sessions related to radiation risks, need for relocation, child safety, and interpersonal conflict due to varying perceptions of risk within families. PHNs recommended receiving training in risk communication skills to improve their ability to support residents in making well-informed decisions and a more standardized

method for information dissemination.

### **Establishing Trust**

An important area that emerged from several studies included the need for establishing trust and tailoring risk messages to meet the needs of patients, families, and communities. Boase, Mason, Sutton, and Cohn (2012) interviewed primary care nurses to explore how they approached communicating risk to cardiovascular patients. Nurses described the need to develop a relationship of trust with patients, as well as the need to make risk relevant by tailoring it to individual patient risk(s) within time constraints of the visit. The study also suggested that nurses recognized the need for additional skills in communication.

Browne, Hartrick Doane, Reimer, MacLeod, and McLellan (2010) interviewed public health nurses to explore how they conceptualize and address risk in high priority families (e.g. socially isolated and/or low-income families). Nurses reported the importance of working with family members to conceptualize risk and to balance numerous risks and strengths within a family unit to meet their needs.

### **Technology and Risk Communication**

In some situations, technology can enhance risk communication efforts. Cicolini et al. (2014) examined the effects of a nurse-led email reminder program to improve cardiovascular risk factors among hypertensive patients. The study group received emails over a six-month period that focused on compliance with prescribed healthy lifestyle changes (e.g. diet, exercise, smoking cessation, blood pressure monitoring and medication adherence). At six-month follow-up visits, many cardiovascular risk factors had improved significantly in both groups. However, several risk factors including low fruit intake, obesity, uncontrolled hypertension and cholesterol showed significant decreases in the email intervention group compared to the control group.

However, in one study nurse midwives (n=22) reported many barriers to using technology to communicate risk to patients. These barriers included access, lack of training and skill regarding technology, and potential privacy violations and communication errors (Dalton et al., 2014).

### **Using Health Education Interventions**

Health education interventions have been shown to effectively enhance risk communication efforts. Bonow et al. (2013) studied the effects of a health education intervention that included risk communication strategies with women apprentice welders in Brazil to evaluate if risk perceptions and self-reported health

disorders were changed. Findings revealed improved abilities to identify risks (e.g., air pollutants) and associated health disorders (e.g., lung and stomach cancer), along with preventive measures (e.g., use of respirator).

Multiple methods were used to explore the effects of using an event history calendar on adolescent sexual risk communication, including nurse practitioner perceptions of the communication efforts (Martyn, Saftner, Darling-Fisher, & Schell, 2012). The use of an event history calendar resulted in statistically significant improvement in student's post-test scores regarding the frequency of communication and satisfaction with the communication with the nurse practitioner around sexual risk. Nurse practitioners reported that their communication of sexual risk with adolescents improved after using the event history calendar.

Li et al. (2018) investigated the impact of using a risk communication approach in cancer patients, with a focus on smoking cessation using a randomized control trial (intervention group=268 patients; standard treatment group=260 patients). While the study did not result in significant findings for smoking, cessation data suggest that advice based on risk communication improved the rate of smoking reduction among smoking cancer patients.

### **Patient's Perceptions of Nurses Communicating Risk**

Persson and Friberg (2009) explored patient's perceptions of nurses communicating cardiovascular risk during health-related conversations. Patients reported that both the content and the structure of a health conversation around cardiovascular risk were important. Authors suggested that nurses should be prepared for the conversation and be able to assess the patient for their risk and level of motivation to make changes based on this risk.

### **Improving Nurses' Risk Communication Skills**

Anderko, Otter, Chalupka, Anderko, and Fahey (2013) developed a web-based education program for health professionals regarding safe fish consumption to reduce the risk of MeHg toxicity in patients. Using interviews and real case studies, the 3- to 5-minute media modules provided a strong visual element while remaining conversational. The short media modules communicated the risks and benefits of fish consumption for busy clinicians to better communicate risk to families and patients. Of nurses who completed the post-test survey (n=121), 90% correctly identified the key factors that should be communicated to patients to reduce health risks of fish consumption. In addition, more than 98% correctly identified the importance of local and state advisories when communicating risk to patients.

Chater and Courtenay (2019) found that offering education and training in communication skills can help nurse prescribers more effectively communicate about using antibiotics responsibly to patients. The study also found that the development of communication skills resulted in a better understanding of patient expectations, leading to a patient-centered model of communication and care. These findings supported earlier studies that found that nurses trained in motivational interviewing perceived it as facilitating success in their work with patients in need of lifestyle changes, such as diabetics (Jansink, Braspenning, van der Weijden, Elwyn, & Grol, 2010; Östlund, Wadensten, Kristofferzon, & Häggström, 2015).

A review of the literature on interventions to improve nurses' communication skills with patients with dementia found that communication skills training led to positive communication outcomes with patients. However, the authors concluded that more research is needed to develop and evaluate communication interventions (Machiel, Metzethin, Hamers, & Zwakhalen, 2017).

Finally, Dalstrom, Parizek, and Doughty (2020) found that nurse practitioners can improve communication with adolescents about high risk behaviors by providing privacy and/or using both acute and preventative care visits as opportunities for discussions—with success measured by the frequency of topics discussed.

### Discussion

The importance of nurses communicating risk effectively is critical for positively impacting the health of patients, families, and communities. Yet, there is an extreme paucity of research conducted to explore risk communication efforts by nurses. The lack of a focus on the effectiveness of nurses in communicating risk may stem from a strong focus in health communication research that focuses on *patients'* understanding of risk. The available literature on the topic is varied methodologically and covers a broad range of diseases and audiences. As is evident from many of the frameworks on communicating risk, the focus is on how the receiver of the message may comprehend, process and act upon the risk information. While an emphasis on the audience's understanding of messaging should remain a focus, there is a critical need to conduct more research on the effectiveness of risk communication strategies by nurse as provider, using theoretical frameworks such as RISP, RPA, EPPM, or numeracy.

In the literature reviewed, statistically significant findings were reported for studies where health education interventions and/or technology were used to improve risk communication efforts. Health education interventions and technology as components of effective risk communication should

be a focus in future research efforts. This strategy may hold promise as health care organizations strive toward improved patient-centered care and health outcomes. Larger, randomized controlled trials are needed to strengthen the evidence on the nature and effectiveness of risk communication by nurses, as well as barriers to communicating risk. There is also a need to standardize measures for evaluating communication.

The impact of emotion and basic cognitive functioning (e.g., age-related) in risk perception and behavior changes to improve health must be considered as important variables in future studies, particularly as society experiences an increase in older populations and those experiencing dementia. Research exploring the effectiveness of customizing risk communication strategies to audiences with a consideration of these important characteristics will surely lead to improved health outcomes.

Future research risk communication efforts must also consider a wider range of audiences and health issues, including cultural nuances impacting literacy. Additionally, research should focus on both risk communication interventions for crisis situations and the general public (e.g., disasters).

Finally, findings suggest that nurses are open to learning more about risk communication and feel the need to be better prepared for encounters requiring these skills. We must educate our profession in the basics of risk communication and to study the impacts of these endeavors. Trustworthiness of the messenger is key to effective risk communication (Gamhewage, 2014). Nurses have a long history as the most trusted professional group (Brenan, 2019). We must use this advantage, expanding and deepening our knowledge through research on our effectiveness in reducing risks and improving health through our risk communication efforts.

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