

# Exploring the Role of Social Support in Promoting Patient Participation in Health Care among Women with Breast Cancer

Mengfei Guan , Jeong Yeob Han , Dhavan V. Shah & David H. Gustafson

To cite this article: Mengfei Guan , Jeong Yeob Han , Dhavan V. Shah & David H. Gustafson (2020): Exploring the Role of Social Support in Promoting Patient Participation in Health Care among Women with Breast Cancer, Health Communication, DOI: [10.1080/10410236.2020.1773704](https://doi.org/10.1080/10410236.2020.1773704)

To link to this article: <https://doi.org/10.1080/10410236.2020.1773704>



Published online: 05 Jun 2020.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)



# Exploring the Role of Social Support in Promoting Patient Participation in Health Care among Women with Breast Cancer

Mengfei Guan<sup>a</sup>, Jeong Yeob Han<sup>b</sup>, Dhavan V. Shah<sup>c</sup>, and David H. Gustafson<sup>d</sup>

<sup>a</sup>Department of Communication, University of Arkansas; <sup>b</sup>Department of Advertising & Public Relations, University of Georgia; <sup>c</sup>School of Journalism and Mass Communication and Center for Health Enhancement Systems Studies, University of Wisconsin-Madison; <sup>d</sup>Department of Industrial and Systems Engineering and Center for Health Enhancement Systems Studies, University of Wisconsin-Madison

## ABSTRACT

Scholars have adopted Street's (2003) ecological model of communication in medical encounters to investigate the factors promoting patient participation in health care. However, factors demonstrated in the ecological model were bounded in the context of medical care primarily focusing on health care providers and patients. Social factors, such as patients' relationships and supportive communication with others *outside* the context of health care remain relatively unexplored. To expand the purview of our understanding of factors that influence patient participation, this research integrated social support literature into the research on physician-patient communication and proposed a model which described a process through which social support can enhance patient participation in health care. The data analyzed in this study were a part of two larger clinical trials in which 661 women with breast cancer were recruited from three cancer institutions in the United States. The results from structural equation modeling analysis from cross-sectional and longitudinal data provided strong evidence for the hypotheses predicting that perceived social support was positively associated with health information competence, which in turn fully mediated the association between social support and patient participation in health care. Theoretical and practical implications are discussed.

Attacking one in eight American women, breast cancer is the second leading cause of cancer death among women in the United States (American Cancer Society, 2019a). Coping with breast cancer can be a stressful process during which effective communication with the cancer care team is crucial. As suggested by the American Cancer Society (2019b), taking an active role in cancer treatment is conducive to receiving satisfying health care. In other words, patient participation in health care, such as having open discussions with health care professionals (Cegala et al., 2007), helps women with breast cancer understand treatment options and make informed treatment decisions. Research has shown that active patient participation in health care is associated with better health outcomes (Griffin et al., 2004), and also encourages physicians to provide more information in response to patients' questions (Cegala et al., 2007). As women with breast cancer are often faced with both physical suffering and psychological distress, participating in health care may not be as smooth as can be expected. Therefore, understanding factors that can contribute to patient participation is fruitful.

As suggested by the buffering hypothesis, social support from others could protect individuals from pathogenic effects of stressful events (Cohen & Wills, 1985), which has received substantial empirical evidence in various health contexts, such as coronary heart disease (Uchino et al., 1996), diabetes (Cheng & Boey, 2000), and breast cancer (J. Y. Han et al., 2011). In line with the buffering hypothesis, social support may also exhibit salutary effects on patient participation in health care, which

remain relatively unexplored. To expand the understanding of the factors promoting patient participation, this study suggests that social support is a significant factor facilitating patient participation in medical encounters where patients feel confident about and comfortable with communicating with health care providers. In addition, this study proposes emotional management competence and health information competence as the theoretical mechanism through which social support could exert positive effects on patient participation.

The present study starts with an overview of the literature on patient participation, followed by social support, which offers insights into the relationship between social support, emotional and informational competence, and patient participation in health care. The proposed mediational model is tested with structural equation modeling (SEM) utilizing data as part of a primary dataset collected in three cancer institutions in the United States. Finally, theoretical and practical implications of applying social support in the context of enhancing breast cancer patients' participation in health care are discussed.

## Patient participation in health care

The concept of patient participation in health care has garnered much scholarly attention due to its robust role in physician-patient communication. Despite a variety of ways of conceptualizing patient participation, the common theme that runs through them involves patients' *communication*

with physicians (Cegala et al., 2007) that patient-generated responses can potentially alter health care providers' attitudes and actions (Street & Millay, 2001). More recently, Street (2017) has suggested that patient participation can be operationalized as either patients' behavior (such as patients' communication in medical encounters, Cegala et al., 2007) or judgment (such as patients' perception of communication goals achieved in health care settings, Mazor et al., 2016; Ting et al., 2016). The distinction between behavior and judgment is important, as patients' self-report of involvement in health care decision making and researchers' observation of patients' involvement based on coding schemes sometimes do not align well with each other (Saba et al., 2006). In the present study, we focus on the perception aspect, a critical layer in the notion of patient participation tapping into patients' subjective evaluation of communication experiences in health care settings.

Existing research has identified pathways to explain the linkage between patient participation and improved outcomes, such as physicians' communication style, quality medical decision, and patients' commitment to treatment (Street et al., 2009). High-participation patients motivate physicians to provide more information in response to their questions and volunteer more information than low-participation patients (Cegala et al., 2007). In primary care settings, patient participation can increase their recall of medical information discussed during medical interviews (Dillon, 2012) and enhance medical adherence, which leads to improved clinical outcomes (Loh et al., 2007). Similar effects of patient participation have also been observed in cancer care encounters. For instance, active cancer patients encourage their physicians to adjust pain management and medication, which leads to better pain control (Street et al., 2014). In the context of breast cancer care, patients who frequently assert their treatment preferences report increases in their fighting spirit and decreases in their anxious preoccupation (Venetis et al., 2015).

Given the capacity of patient participation to explain and predict improved health outcomes and enhanced physician-patient communication, understanding influential factors that promote patient participation is important. A bulk of research has adopted Street's (2003) ecological model of communication in medical encounters to explore factors that exert impact on patients' communication with physicians, or patient participation. This model proposes that physician-patient communication is enacted within a combination of various social contexts, including interpersonal, organizational, political, cultural, and media, with the interpersonal context being the core in which medical encounters are embedded. In support of this model, research has found that demographic and interpersonal factors (e.g., patient age, patient medical condition, and physician perception of patient desire for information) are positive predictors of patient participation (Cegala, 2011). More recently, patient activation (e.g., knowledge, skills, and confidence) has been found to be a positive predictor of effective physician-patient communication (Jiang & Street, 2017). As reviewed above, interpersonal context factors examined in these studies were mostly bounded in the characteristics of parties involved *within* medical encounters – patients and physicians. Broader interpersonal context factors that may

also contribute to patient participation, such as patients' interaction with and support received from members of their social network *outside* medical encounters, have yet to be explored.

Another critical layer of the present study is the uniqueness of breast cancer care settings. Breast cancer is deemed to be a threat to one's health and well-being, which often induce psychological distress accompanied by negative feelings (Weber & Solomon, 2008). Moreover, breast cancer patients often have a high need for seeking information to understand their cancer and treatment options after diagnosis (Robinson et al., 2016). Taken together, women are faced with not only ongoing management of chronic illness but also a continuous experience of unmet needs associated with physical, emotional, and social concerns (Harrison et al., 2009). We suggest that these challenges may be alleviated by supportive interactions in one's social networks outside medical encounters. To fill this theoretical gap and to extend the scope of the ecological model of communication in medical encounters, the next section examines the positive effect of social support on enhancing patient participation.

### Social support and patient participation

Social support is conceptualized as the perception of being cared for and loved, being esteemed and valued, and being involved in social networks (Cobb, 1976). From a psychological perspective, social support is examined as individuals' cognitive and emotional processes, with the focus on perceived availability of support (MacGeorge et al., 2011). This perspective draws from the appraisal theory to explain that stress typically results from appraised availability of coping resources as opposed to the stressful events themselves (Lazarus & Folkman, 1984). Given that coping with breast cancer is undisputedly a stressful process and perceived availability of support can reduce stress from negatively appraised events (Uchino, 2009), this study will particularly explore the effects of social support from the psychological perspective, or perceived social support.

The salutary effects of social support on individuals' physical and psychological well-being have received much scholarly attention since the 1970s. Social support plays a vital role in the etiology of disease and illness, as well as treatment and rehabilitation following the onset of illness (Cohen & Syme, 1985). Individuals tend to be healthier when they have greater social support compared to those who are deprived of support (Albrecht & Goldsmith, 2003). Particularly for breast cancer patients, social support has been found to increase self-efficacy of dealing with health issues, reduce uncertainty, and improve mental health and quality of life (Arora et al., 2007; Shim et al., 2011).

More relevant to the present research, we argue that the effects of social support on health and well-being can be extended to patient participation in health care. Specifically, social support outside medical encounters may have a positive spillover effect on patients' interaction with health care professionals in medical encounters, thus facilitating patient participation. Although very few, if any, studies have investigated the effects of social support directly on patient participation, research has shown that social support can exert potent effects on patient engagement and medical adherence, proximal

correlates of patient participation. For example, a meta-analysis has evidenced the positive relationship between social support and patient adherence to medical treatment (DiMatteo, 2004). Among the facilitating factors of adhering to diabetes self-management programs, one is to have a support person who provides encouragement and promotes accountability (Nagelkerk et al., 2006). Moreover, George et al. (2009) found that, among HIV-positive Latinos and African Americans, social support is a crucial facilitator for engagement in HIV-specific medical care. In addition, Kelly et al. (2010) found that, among opioid-dependent adults, compared with individuals who were out of treatment, those who were in treatment perceived significantly greater social support at treatment entry. In line with these findings, we argue that social support has positive impact on patient participation, which can be explained by improved management of undesired emotions under stressful situations (e.g., emotional management competence) and enhanced acquisition and understanding of health information (i.e., health information competence). In the sections that follow, we further explicate these associations.

### **Social support and competence**

Self-determination theory (Deci & Ryan, 1985) posits competence, autonomy, and relatedness as three innate psychological needs of human beings. Two of them are relevant to the present study: relatedness and competence. Individuals who feel supported in their network (i.e., relatedness) tend to be more competent in achieving goals (i.e., competence) than those who do not feel connected to others (Ryan & Deci, 2000). Two types of competence are particularly relevant to coping with breast cancer: (a) emotional management competence, which refers to one's perceived ability to manage self-relevant emotions (Ciarrochi & Deane, 2001), and (b) health information competence, which refers to one's perceived ability to obtain and understand health information (Basu & Dutta, 2008). To apply the relationship between relatedness and competence in the present study, it is anticipated that social support can exert significant impacts on individuals' competence in emotional management and information acquisition in the context of coping with breast cancer. We further explicate these relationships below.

Social support offers individuals comfort and security through care and concern (Cutrona & Russell, 1990). Through social support, individuals can modify undesired emotional states and feel better under stressful situations (MacGeorge et al., 2011). Research has shown that individuals who perceive social support are able to effectively manage upset feelings (Burlson, 1994), enhance psychological adjustment (Cramer, 2000), experience boosted optimism (McNicholas, 2002), and increase self-efficacy of performing the health behavior advocated by their social community (Guan & So, 2016). Therefore, social support may enable women with breast cancer to maintain a positive mood and stay away from negative ones, which enhances their emotional management competence. In addition to care and affection, social support also provides individuals with advice and guidance on possible solutions to a problem (Cutrona & Russell, 1990). In health contexts, a prominent aspect of social support

is the provision of information relevant to medical treatments and social services to those in need (MacGeorge et al., 2011). Through interacting with others who have undergone similar experiences (e.g., breast cancer patients and survivors), social support may enable women with breast cancer to acquire relevant information and understand basic medical terms, thus enhancing health information competence.

While various types of social support can be distinguished conceptually (e.g., emotional support, informational support, and esteem support), they usually exhibit integrated function in real-life supportive communication encounters (Cohen & Wills, 1985). It is likely that people who have more emotional and social companionship tend to have more access to informational sources. For example, scholars have pointed out that individuals can help others cope with an emotionally upsetting event through providing information (Goldsmith & MacGeorge, 2000), as information offered through social support may relieve uncertainty and anxiety caused by the upsetting event (MacGeorge et al., 2011). Therefore, we examine social support as an integrated concept consisting of multi-dimensional support that may enhance emotional management competence and health information competence among women with breast cancer. Accordingly, we propose the following hypothesis:

H1: Women with breast cancer who perceive greater social support will have higher emotional management competence (H1a) and health information competence (H1b).

### **Competence and patient participation in health care**

As articulated earlier, the positive outcomes of patient participation have been well documented in the existing literature (e.g., Cegala & Post, 2009). However, engaging in conversations with health care professionals during medical encounters may not be as easy as can be expected. Robinson (2003) identified several reasons that explain the extent to which patients participate in health care. Among them, two are relevant to the present research: psychology and resource. Psychology touches upon one's emotional management competence while resources concern one's health information competence. The impact of the two types of competence on patient participation is further explicated below.

Emotional management competence is an important aspect of competence for coping with cancer (Ciarrochi & Deane, 2001). Women living with breast cancer who are better at emotional expressions are likely to have fewer cancer-related morbidities, enhanced physical health, and decreased distress than their counterparts (Stanton et al., 2000). Negative emotions (e.g., anxiety, sadness, worry) resulting from concerns about health issues are common among cancer patients (Street et al., 2009), yet unpleasant emotional arousal is considered as a factor debilitating self-efficacy or competence (Bandura, 1977). Therefore, psychological distress induced by cancer diagnosis, if not managed effectively, may weaken patients' confidence in their capabilities of participating in health care. For example, research has found that greater levels of breast cancer-related traumatic stress are associated with more

problems interacting with physicians and nurses (W. T. Han et al., 2005). Women with breast cancer who feel more confident about expressing and managing negative emotions report fewer difficulties in interacting with health care professionals (Collie et al., 2005). Furthermore, women with breast cancer who have higher levels of emotional regulation tend to be more proactive and more successful in expressing their feelings during medical encounters (Collie et al., 2005; W. T. Han et al., 2005). Given this, we argue that emotional management competence that enhances patients' expressions of concerns and emotions can be regarded as a facilitator of effective patient participation. Thus, the following hypothesis is advanced:

H2a: Emotional management competence is positively associated with patient participation in health care among women with breast cancer.

In addition to managing emotional reactions, another critical aspect of competence for coping with cancer is obtaining and understanding information about health care and treatment, or health information competence (Basu & Dutta, 2008). Health information competence refers to one's perceived capability of obtaining and understanding health information (Basu & Dutta, 2008). One of the challenges in engaging patients in shared decision making is the information imbalance between physicians and patients (Frosch et al., 2011). Patient participation in health care requires basic health literacy, which involves understanding information related to diagnosis, prognosis, and treatment (Arora, 2003). Cegala and Post (2009) identified information seeking and information provision as important components of patient participation in health care. Specifically, information seeking involves asking questions and verifying information (e.g., clarifying and paraphrasing), and information provision concerns answering questions and volunteering information (e.g., describing symptoms). Empirical evidence has supported the relationship between patients' health information competence and participation in health care. For example, in an investigation of the factors influencing patients' interaction with physicians and nurses among women living with breast cancer, Collie et al. (2005) found that low self-efficacy for seeking and understanding medical information was associated with reported difficulties in medical interactions. Moreover, narrative and didactic information competence positively influence participation in health care among breast cancer patients (Wise et al., 2008). In line with these findings, it is anticipated that health information competence that equips patients with the capabilities of acquiring and understanding information will enhance patient participation in medical encounters. Hence, the following hypothesis is derived:

H2b: Health information competence is positively associated with patient participation in health care among women with breast cancer.

Taken together, we expect that the two aspects of competence will mediate the relationship between social support and patient participation in health care. More importantly, we also consider the effect of social support over time. Existing literature has

largely utilized a cross-sectional approach to investigating the relationship between social support and health outcomes, with predictor and outcome variables often measured at one point in time. Relatively less attention has been given to the effects of social support over a period of time. The present study devotes equal attention to the longitudinal effects of social support on patient participation. Of note, a growing body of literature has examined the longitudinal effects of social support in various health contexts. For example, social support at baseline predicted fewer depressive symptoms, less symptom impact, and better self-rated health at follow-up points (i.e., 4, 12, and 18 months) among women with heart disease (Janevic et al., 2004). Higher levels of baseline social support predicted better emotional well-being two years later among survivors of prostate cancer (Zhou et al., 2010).

We test both the cross-sectional and the longitudinal models because each approach has unique advantages. The cross-sectional model does not take advantage of the panel design adopted in the current study, but we include it here for two reasons: (a) it serves as a baseline against which we compare the longitudinal model, and (b) it allows us to connect this research to previous scholarship that has mainly relied on cross-sectional analyses. The longitudinal model does take advantage of the panel design, allowing us to examine the effect of social support over a period of time and its process. In line with the literature reviewed earlier, we anticipated both concurrent and lagged effects of social support on patient participation through the mediating roles of the two aspects of competence, thereby proposing the following hypotheses:

H3: At baseline (i.e., T1), emotional management competence (H3a) and health information competence (H3b) will mediate the relationship between social support and patient participation in health care.

H4: Emotional management competence (H4a) and health information competence (H4b) at T2 will mediate the relationship between social support at T1 and patient participation in health care at T3.

## Method

### *Participants and procedure*

The data analyzed in this study were a part of two larger clinical trials (see Gustafson et al., 2005 for details) in which 661 women with breast cancer were recruited from three cancer institutions: Hartford Hospital's Helen and Harry Gray Cancer Center, The University of Texas M.D. Anderson Cancer Center, and the University of Wisconsin Paul P. Carbone Comprehensive Cancer Center. Eligibility criteria required that women were 18 years or older, within two months of diagnosis or recurrence of breast cancer at the time of recruitment, and able to read and understand English. The primary goal of the original project was to investigate the effects of an Internet-based breast cancer support system – Comprehensive Health Enhancement Support System (CHESS) – on quality of life among underserved breast cancer patients. After consent, participants filled out a baseline survey. They were then

randomized to intervention conditions and invited to respond to follow-up surveys.

The present research sought to explore the cross-sectional and longitudinal relationships between social support, emotional management competence, health information competence, and patient participation in health care, independent from intervention conditions. To this end, this research analyzed three waves of surveys: at baseline (i.e., T1), after six weeks (i.e., T2; 86% retention rate), and after three months (i.e., T3; 85% retention rate). Participants' age ranged from 23 to 88 ( $M = 52.05$ ,  $SD = 10.01$ ). The majority of participants described themselves as white (88.4%), followed by African American (4.8%), Latinx (4.2%), Asian (1.8%), and Native American (0.9%).

## Measures

### Social support

A six-item scale (Gustafson et al., 2005) was used to measure women's perception of social support. Responses were on a 5-point scale ranging from 0 = *not at all* to 4 = *very much*. Sample items included "There are people I could count on for emotional support," and "There are people who can help me find out the answers to my questions" ( $M = 3.40$ ,  $SD = .66$ ,  $\alpha = .87$  at T1).

### Emotional management competence

Seven items adopted from Antoni et al.'s (2006) Measure of Current Status (MOCS) scale were used to measure women's emotional management competence. Responses were on a 5-point scale ranging from 0 = *I cannot do this at all* to 4 = *I can do this extremely well*. Sample items included "I can easily recognize situations that make me feel stressed or upset," and "I can come up with emotionally balanced thoughts even during negative times" ( $M = 2.28$ ,  $SD = .71$ ,  $\alpha = .87$  at T1;  $M = 2.27$ ,  $SD = .76$  at T2).

### Health information competence

Five items adopted from previous research (Gustafson et al., 2005) were used to assess women's perception that she could get and understand health information. Responses were on a 5-point scale ranging from 0 = *not at all* to 4 = *very much*. Sample items included "I know exactly what it is that I want to learn about my health," and "I can figure out how and where to get the information I need" ( $M = 2.85$ ,  $SD = .72$ ,  $\alpha = .81$  at T1;  $M = 3.07$ ,  $SD = .70$  at T2).

### Patient participation in health care

A five-item scale developed in previous research (Gustafson et al., 2001, 2005) was used to measure women's interaction with providers in health care situations. Drawing from prior research on patient-centeredness (e.g., Mazor et al., 2016), we measured patient participation by assessing patients' perception regarding whether communication goals were achieved in health care settings as opposed to what they actually communicated in those settings. Responses were on a 5-point scale ranging from 0 = *strongly disagree* to 4 = *strongly agree*. Sample items included "I went to the right healthcare provider at the right time," "I understood what was going on," and "I knew the

right question to ask" ( $M = 2.90$ ,  $SD = .73$ ,  $\alpha = .83$  at T1;  $M = 3.07$ ,  $SD = .69$  at T3).

## Covariates

Participants' age, race, education level, stage of breast cancer, and breast cancer knowledge were included as covariates. In the longitudinal model, the intervention conditions, including access to CHES systems and peer support groups, were controlled, and the baseline score of patient participation in health care was included as an additional covariate.

## Results

Prior to testing the model, bivariate relationships between the variables at baseline were examined. All variables in the model were significantly and positively correlated as expected (see Table 1). We examined the cross-sectional mediation model and longitudinal mediation model, respectively. In each model, all hypotheses were tested simultaneously with SEM using *Mplus* version 7.0 (Muthén & Muthén, 1998) with maximum likelihood estimation.

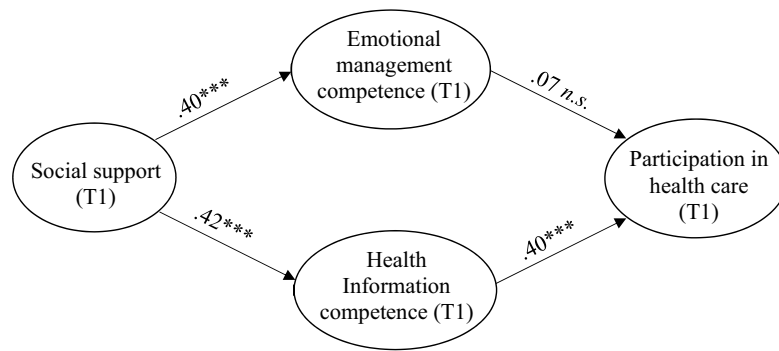
First, in the cross-sectional analyses, the overall model had a good fit  $\chi^2(20) = 63.71$ ,  $p < .001$ , CFI = .92, RMSEA = .06 (.04, .08), SRMR = .04 (see Figure 1). Specifically, social support was positively associated with emotional management competence ( $\beta = .40$ ,  $p < .001$ ; supporting H1a), which, however, was not significantly correlated with patient participation in health care ( $\beta = .07$ ,  $p = .15$ ). Thus, H2a was not supported, rendering the mediation hypothesis (H3a) not supported. As predicted, social support was positively associated with health information competence ( $\beta = .42$ ,  $p < .001$ ; supporting H1b), which in turn positively predicted patient participation in health care ( $\beta = .40$ ,  $p < .001$ ; supporting H2b). Taken together, health information competence mediated the relationship between social support and patient participation, which supported H3b. Consistent with these findings, additional analyses revealed that the total indirect effect of social support on patient participation ( $\beta_{ind} = .20$ ,  $p < .001$ ) was mostly explained the mediating role of health information competence ( $\beta_{ind} = .17$ ,  $p < .001$ ), compared with the mediating role of emotional management competence ( $\beta_{ind} = .03$ ,  $p = .16$ ).

Second, the overall longitudinal model also had a good fit  $\chi^2(28) = 79.47$ ,  $p < .001$ , CFI = .92, RMSEA = .05 (.04, .07), SRMR = .05 (see Figure 2). As anticipated, social support at T1 was positively associated with emotional management competence at T2 ( $\beta = .33$ ,  $p < .001$ ; supporting H1a). Similar to the findings yielded in the cross-sectional model, emotional management competence at T2 did not significantly predict patient participation in health care at T3 ( $\beta = .07$ ,  $p = .19$ ). Thus, H2a was not supported, rendering the mediation hypothesis (H4a) not supported. Additional analyses also confirmed that the

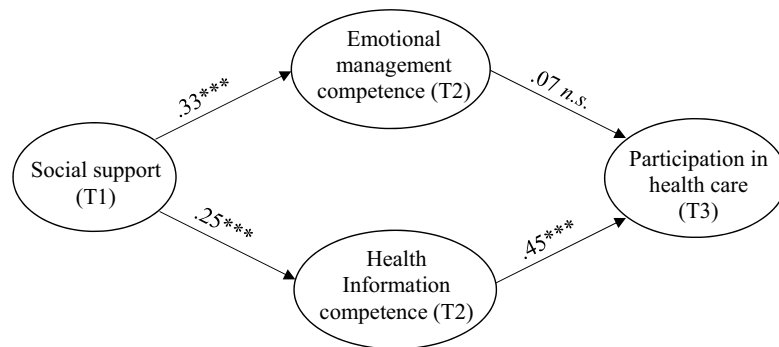
**Table 1.** Summary of zero-order correlations between variables at baseline.

|                                    | 1      | 2      | 3      | 4 |
|------------------------------------|--------|--------|--------|---|
| 1. Social support                  | –      |        |        |   |
| 2. Emotional management competence | .40*** | –      |        |   |
| 3. Health information competence   | .45*** | .32*** | –      |   |
| 4. Participation in health care    | .24*** | .19*** | .33*** | – |

Note: \*\*\* $p < .001$



**Figure 1.** The cross-sectional model of the effect of social support on participation in health care through emotional management competence and health information competence at baseline (i.e., T1). \*\*\* $p < .001$ .  $\chi^2(20) = 63.71$ ,  $p < .001$ , CFI = .92, RMSEA = .06 (.04, .08), SRMR = .04.



**Figure 2.** The longitudinal model of the effect of social support (T1) on participation in health care (T3) through emotional management competence (T2) and health information competence (T2). \*\*\* $p < .001$ .  $\chi^2(28) = 79.47$ ,  $p < .001$ , CFI = .92, RMSEA = .05 (.04, .07), SRMR = .05.

indirect effect of social support at T1 on patient participation at T3 was not significant when mediated by emotional management competence at T2 ( $\beta_{\text{ind}} = .02$ ,  $p = .20$ ). In line with H1b, social support at T1 was positively associated with health information competence at T2 ( $\beta = .25$ ,  $p < .001$ ), which in turn positively predicted participation in health care at T3 ( $\beta = .45$ ,  $p < .001$ ; supporting H2b). Taken together, health information competence at T2 mediated the relationship between social support at T1 and patient participation at T3 ( $\beta_{\text{ind}} = .11$ ,  $p < .001$ ). Thus, H4b was supported.

## Discussion

In the existing literature that investigates the factors promoting patient participation in health care, much of the attention has been given to factors that are bounded in the context of health care encounters *between* physicians and patients as demonstrated in Street's (2003) ecological model for communication in health care. While social influences *outside* the health care context may also exert an impact on patient participation, this pathway remained relatively unexplored. Recognizing this gap, this research integrated the social support theories into the literature on patient participation in health care, and proposed patients' competence as the mechanism explaining the relationship between social support and patient participation. Overall, the findings from both cross-sectional and longitudinal data provided evidence for the hypotheses predicting that perceived social support was positively associated with health information competence, which in turn positively predicted

patient participation in health care among women with breast cancer.

## Theoretical and practical implications

The findings have several theoretical implications. First, this research identified unexplored predictors of patient participation in health care from a social support perspective. This theoretical perspective implies that individuals' behaviors, including decision making in medical encounters, cannot be fully understood or explained without analyzing the social aspects of life, and the findings generally supported such assumption. Inspired by the existing literature that has documented the robust salutary effects of social support on cancer patients' emotional, physical, and functional well-being (e.g., Scrignaro et al., 2011; Shaw et al., 2006; J. Y. Han et al., 2011), the present research examined the effects of social support on cancer patients' participation in health care. Findings from this research extended the scope of Street's (2003) ecological model of medical communication and expanded the purview of our understanding of the role of interpersonal context factors in influencing patient participation. Through exploring factors outside the health care context, the findings bridged the disjointed literature on social support and patient participation.

Second, this research specified the mechanism through which social support could exert its influence on patient participation in health care. Drawing from social support theories and literature on coping with cancer, this research theoretically explicated how emotional management competence and health

information competence could effectively mediate the relationship between social support and patient participation. However, the findings only demonstrated empirical support for the mediating effect of health information competence. Contrary to our expectation, emotional management competence did not play a significant role in this process, which were observed in both the cross-sectional and longitudinal models. These findings emphasize the importance of distinguishing between the two types of competence. In the context of coping with breast cancer, managing uncertainty is considered as one of the continuous challenges (Miller, 2015). Information offered through social support helps relieve uncertainty resulting from upsetting events (MacGeorge et al., 2011), such as cancer diagnosis and treatment. More importantly, existing literature has suggested that receiving information from others facilitates coping with undesired emotions (Goldsmith & MacGeorge, 2000). Therefore, the ability to obtain and understand health information, compared with the ability to manage emotions, may play a more robust and more stable role in translating the indirect effect of social support on patient participation in health care. Also plausible is that the outcome measure of patient participation largely focuses on knowledge and understanding, which is more information-based than emotion-based, thus being more predicted by health information competence than emotional management competence. Future research could further substantiate the differences and relationships between different types of competence and how they influence decision-making processes in medical encounters.

The findings lead to some practical implications as well. The effectiveness of health interventions and training programs on promoting patient participation may be influenced by social factors outside the health care encounters. In most of the traditional training programs, improving patients' communication skills is the primary concern. For example, patients are instructed and encouraged to ask questions, provide information, and verify their understanding of information (Cegala & Lenzmeier Broz, 2003). However, such training programs are not always effective because even if patients know *how* to ask questions, they may still get lost or feel confused when they try to process the received information because of their lack of understanding, thus not clearly knowing *what* to ask (Cegala & Lenzmeier Broz, 2003). Thus, increasing patients' health information competence is an essential element that should be included in future training programs and health interventions that aim at promoting patient participation. Relatedly, as suggested by the findings that social support is a source of enhancing one's competence, encouraging patients to seek support from close others in their social networks should be a crucial element that deserves further attention in training programs as well.

### Limitations and directions for future research

Several limitations of this research should be noted. First, the sample in the current study was women with breast cancer. Whether the same mediating effects would be found in studies involving other types of cancer or health issues is not warranted. Future research applying the mediating model proposed in this study to explore patient participation in various health contexts could achieve greater generalizability of the findings. Second,

the measures used in the current study were confined to the items collected as a part of a larger project. Other important factors that might influence patient participation in health care were not measured. Future research should take different types of interpersonal context factors into consideration and explore how they collaboratively and interdependently contribute to patient participation. Third, patient participation was assessed with a self-report measure rather than observational data with coded discourse (see e.g., Cegala et al., 2001). In comparison to a self-report measure, employing a coding system to analyze transcripts of patient-physician interaction can provide a more complete picture of the communicative dynamics in health care settings. Despite this limitation, the use of self-report measure is exempt from the potential misinterpretation of patient communication by observers (Street, 2017). Furthermore, patients' self-reported perception of whether communication goals are achieved in medical encounters has been shown as a legitimate aspect of patient-centeredness or patient participation (Mazor et al., 2016). Given this, the self-report measure adopted in the present study provided a different perspective capturing patients' subjective judgment of achieving communicative goals in health care settings. Fourth, the measure of social support did not specify the identities of the providers. Whether the sources of social support are family members, significant others, other women with breast cancer, or health care professionals are unknown. This is important because who is providing the support and to whom the support is provided can make a difference in terms of the effectiveness of supportive communication (Cohen & Syme, 1985). Future research should build upon the findings from this research by specifying the providers of social support and compare the potential differences in terms of their functions in enhancing patients' competence.

### Conclusion

The present study represents an initial effort to examine a broader scope of interpersonal factors promoting patient participation in health care from a social support perspective. Particularly among women with breast cancer, evidence generated from this study showed that health information competence mediated the relationship between social support and patient participation. The findings have important implications for research on patient participation and health intervention designs.

### Acknowledgments

The authors would like to thank the two anonymous reviewers for their insightful comments.

### Funding

This work was supported by the National Cancer Institute under Grant P50 CA095817-05.

### ORCID

Mengfei Guan  <http://orcid.org/0000-0002-4062-1069>



## References

- Albrecht, T. L., & Goldsmith, D. J. (2003). Social support, social networks, and health. In T. L. Thompson, A. Dorsey, K. I. Miller, & R. Parrott (Eds.), *Handbook of health communication* (pp. 263–284). Lawrence Erlbaum Associates.
- American Cancer Society. (2019a). *How common is breast cancer?* <https://www.cancer.org/cancer/breast-cancer/about/how-common-is-breast-cancer.html>
- American Cancer Society. (2019b). *Questions to ask your doctor about breast cancer.* <https://www.cancer.org/cancer/breast-cancer/understanding-a-breast-cancer-diagnosis/questions-to-ask-your-doctor-about-breast-cancer.html>
- Antoni, M. H., Lechner, S. C., Kazi, A., Wimberly, S. R., Sifre, T., Urcuyo, K. R., Phillips, K., Glück, S., & Carver, C. S. (2006). How stress management improves quality of life after treatment for breast cancer. *Journal of Consulting and Clinical Psychology, 74*(6), 1143–1152. <https://doi.org/10.1037/0022-006X.74.6.1143>
- Arora, N. K. (2003). Interacting with cancer patients: The significance of physicians' communication behavior. *Social Science & Medicine, 57*(5), 791–806. [https://doi.org/10.1016/S0277-9536\(02\)00449-5](https://doi.org/10.1016/S0277-9536(02)00449-5)
- Arora, N. K., Finney Rutten, L. J., Gustafson, D. H., Moser, R., & Hawkins, R. P. (2007). Perceived helpfulness and impact of social support provided by family, friends, and health care providers to women newly diagnosed with breast cancer. *Psycho-Oncology, 16*(5), 474–486. <https://doi.org/10.1002/pon.1084>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Basu, A., & Dutta, M. J. (2008). The relationship between health information seeking and community participation: The roles of health information orientation and efficacy. *Health Communication, 23*(1), 70–79. <https://doi.org/10.1080/10410230701807121>
- Burleson, B. R. (1994). Comforting messages: Features, functions, and outcomes. In J. A. Daly & J. M. Wiemann (Eds.), *Strategic interpersonal communication* (pp. 135–161). Lawrence Erlbaum Associates.
- Cegala, D. J. (2011). An exploration of factors promoting patient participation in primary care medical interviews. *Health Communication, 26*(5), 427–436. <https://doi.org/10.1080/10410236.2011.552482>
- Cegala, D. J., & Lenzmeier Broz, S. (2003). Provider and patient communication skills training. In T. L. Thompson, A. Dorsey, K. I. Miller, & R. Parrott (Eds.), *Handbook of health communication* (pp. 95–119). Lawrence Erlbaum Associates.
- Cegala, D. J., & Post, D. M. (2009). The impact of patients' participation on physicians' patient-centered communication. *Patient Education and Counseling, 77*(2), 202–208. <https://doi.org/10.1016/j.pec.2009.03.025>
- Cegala, D. J., Post, D. M., & McClure, L. (2001). The effects of patient communication skills training on the discourse of older patients during a primary care interview. *Journal of the American Geriatrics Society, 49*(11), 1505–1511. <https://doi.org/10.1046/j.1532-5415.2001.4911244.x>
- Cegala, D. J., Street, R. L., & Clinch, C. R. (2007). The impact of patient participation on physicians' information provision during a primary care medical interview. *Health Communication, 21*(2), 177–185. <https://doi.org/10.1080/10410230701307824>
- Cheng, T. Y. L., & Boey, K. W. (2000). Coping, social support, and depressive symptoms of older adults with Type II diabetes mellitus. *Clinical Gerontologist, 22*(1), 15–30. [https://doi.org/10.1300/J018v22n01\\_03](https://doi.org/10.1300/J018v22n01_03)
- Ciarrochi, J. V., & Deane, F. P. (2001). Emotional competence and willingness to seek help from professional and nonprofessional sources. *British Journal of Guidance & Counselling, 29*(2), 233–246. <https://doi.org/10.1080/03069880124843>
- Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine, 38*(5), 300–314. <https://doi.org/10.1097/00006842-197609000-00003>
- Cohen, S., & Syme, S. L. (1985). Issues in the study and application of social support. In S. Cohen & S. L. Syme (Eds.), *Social support and health* (pp. 3–22). Academic Press.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310–357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Collie, K., Wong, P., Tilston, J., Butler, L. D., Turner-Cobb, J., Kreshka, M. A., Parsons, R., Graddy, K., Cheasty, J. D., & Koopman, C. (2005). Self-efficacy, coping, and difficulties interacting with health care professionals among women living with breast cancer in rural communities. *Psycho-Oncology, 14*(10), 901–912. <https://doi.org/10.1002/pon.944>
- Cramer, D. (2000). Social desirability, adequacy of social support and mental health. *Journal of Community & Applied Social Psychology, 10*(6), 465–474. [https://doi.org/10.1002/10991298\(200011/12\)106465](https://doi.org/10.1002/10991298(200011/12)106465)
- Cutrona, C. E., & Russell, D. W. (1990). *Type of social support and specific stress: Toward a theory of optimal matching* (B. R. Sarason, I. G. Sarason, & G. R. Pierce, Eds.). Social support: An interactional view (pp. 319–366). Wiley.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum Press.
- Dillon, P. J. (2012). Assessing the influence of patient participation in primary care medical interviews on recall of treatment recommendations. *Health Communication, 27*(1), 58–65. <https://doi.org/10.1080/10410236.2011.569000>
- DiMatteo, M. R. (2004). Social support and patient adherence to medical treatment: A meta-analysis. *Health Psychology, 23*(2), 207–218. <https://doi.org/10.1037/0278-6133.23.2.207>
- Frosch, D. L., Singer, K. J., & Timmermans, S. (2011). Conducting implementation research in community-based primary care: A qualitative study on integrating patient decision support interventions for cancer screening into routine practice. *Health Expectations, 14*(Suppl. 1), 73–84. <https://doi.org/10.1111/j.1369-7625.2009.00579.x>
- George, S., Garth, B., Wohl, A. R., Galvan, F. H., Garland, W., & Myers, H. F. (2009). Sources and types of social support that influence engagement in HIV care among Latinos and African Americans. *Journal of Health Care for the Poor and Underserved, 20*(4), 1012–1035. <https://doi.org/10.1353/hpu.0.0210>
- Goldsmith, D. J., & MacGeorge, E. L. (2000). The impact of politeness and relationship on perceived quality of advice about a problem. *Human Communication Research, 26*(2), 234–263. <https://doi.org/10.1111/j.1468-2958.2000.tb00757.x>
- Griffin, S. J., Kinmonth, A.-L., Veltman, M. W. M., Gillard, S., Grant, J., & Stewart, M. (2004). Effect on health-related outcomes of interventions to alter the interaction between patients and practitioners: A systematic review of trials. *Annals of Family Medicine, 2*(6), 595–608. <https://doi.org/10.1370/afm.142>
- Guan, M., & So, J. (2016). Influence of social identity on self-efficacy beliefs through perceived social support: A social identity theory perspective. *Communication Studies, 67*(5), 588–604. <https://doi.org/10.1080/10510974.2016.1239645>
- Gustafson, D. H., Hawkins, R., Pingree, S., McTavish, F., Arora, N. K., Mendenhall, J., Cella, D. F., Serlin, R. C., Apantaku, F. M., Stewart, J., & Salner, A. (2001). Effect of computer support on younger women with breast cancer. *Journal of General Internal Medicine, 16*(7), 435–445. <https://doi.org/10.1046/j.1525-1497.2001.016007435.x>
- Gustafson, D. H., McTavish, F. M., Stengle, W., Ballard, D., Hawkins, R., Shaw, B. R., Jones, E., Julèsberg, K., McDowell, H., Chen, W. C., Volrathongchai, K., & Landucci, G. (2005). Use and impact of eHealth system by low-income women with breast cancer. *Journal of Health Communication, 10*(sup1), 195–218. <https://doi.org/10.1080/10810730500263257>
- Han, J. Y., Shah, D. V., Kim, E., Namkoong, K., Lee, S.-Y., Moon, T. J., Cleland, R., Bu, Q. L., McTavish, F. M., & Gustafson, D. H. (2011). Empathic exchanges in online cancer support groups: Distinguishing message expression and reception effects. *Health Communication, 26*(2), 185–197. <https://doi.org/10.1080/10410236.2010.544283>
- Han, W. T., Collie, K., Koopman, C., Azarow, J., Classen, C., Morrow, G. R., Michel, B., Brennan-O'Neill, E., & Spiegel, D. (2005). Breast cancer and problems with medical interactions: Relationships with traumatic stress, emotional self-efficacy, and social support. *Psycho-Oncology, 14*(4), 318–330. <https://doi.org/10.1002/pon.852>
- Harrison, J. D., Young, J. M., Price, M. A., Butow, P. N., & Solomon, M. J. (2009). What are the unmet supportive care needs of people with cancer? A systematic review. *Supportive Care in Cancer, 17*(8), 1117–1128. <https://doi.org/10.1007/s00520-009-0615-5>

- Janevic, M. R., Janz, N. K., Dodge, J. A., Wang, Y., Lin, X., & Clark, N. M. (2004). Longitudinal effects of social support on the health and functioning of older women with heart disease. *The International Journal of Aging and Human Development*, 59(2), 153–175. <https://doi.org/10.2190/BY6D-LMK8-P8HT-DMP9>
- Jiang, S., & Street, R. L. (2017). Factors influencing communication with doctors via the Internet: A cross-sectional analysis of 2014 HINTS survey. *Health Communication*, 32(2), 180–188. <https://doi.org/10.1080/10410236.2015.1110867>
- Kelly, S. M., O'Grady, K. E., Schwartz, R. P., Peterson, J. A., Wilson, M. E., & Brown, B. S. (2010). The relationship of social support to treatment entry and engagement: The community assessment inventory. *Substance Abuse*, 31(1), 43–52. <https://doi.org/10.1080/08897070903442640>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Loh, A., Leonhart, R., Wills, C. E., Simon, D., & Härter, M. (2007). The impact of patient participation on adherence and clinical outcome in primary care of depression. *Patient Education and Counseling*, 65(1), 69–78. <https://doi.org/10.1016/j.pec.2006.05.007>
- MacGeorge, E. L., Feng, B., & Burlinson, B. R. (2011). Supportive communication. In M. L. Knapp & J. A. Daly (Eds.), *Handbook of interpersonal communication* (pp. 317–354). Sage.
- Mazor, K. M., Street Jr., R. L., Jr, Sue, V. M., Williams, A. E., Rabin, B. A., & Arora, N. K. (2016). Assessing patients' experiences with communication across the cancer care continuum. *Patient Education and Counseling*, 99(8), 1343–1348. <https://doi.org/10.1016/j.pec.2016.03.004>
- McNicholas, S. L. (2002). Social support and positive health practices. *Western Journal of Nursing Research*, 24(7), 772–787. <https://doi.org/10.1177/019394502762476979>
- Miller, L. E. (2015). Young breast cancer survivors' experiences of uncertainty. *Journal of Applied Communication Research*, 43(4), 429–449. <https://doi.org/10.1080/00909882.2015.1083600>
- Muthén, L. K., & Muthén, B. O. (1998). *Mplus user's guide* (7th ed.). Muthén & Muthén.
- Nagelkerk, J., Reick, K., & Meengs, L. (2006). Perceived barriers and effective strategies to diabetes self-management. *Journal of Advanced Nursing*, 54(2), 151–158. <https://doi.org/10.1111/j.1365-2648.2006.03799.x>
- Robinson, J. D. (2003). An interactional structure of medical activities during acute visits and its implications for patients' participation. *Health Communication*, 15(1), 27–59. [https://doi.org/10.1207/S15327027HC1501\\_2](https://doi.org/10.1207/S15327027HC1501_2)
- Robinson, J. D., Venetis, M., Street, R. L., & Kearney, T. (2016). Breast cancer patients' information seeking during surgical consultations: A qualitative, video tape-based analysis of patients' questions. *Journal of Surgical Oncology*, 114(8), 922–929. <https://doi.org/10.1002/jso.24470>
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Saba, G. W., Wong, S. T., Schillinger, D., Fernandez, A., Somkin, C. P., Wilson, C. C., & Grumbach, K. (2006). Shared decision making and the experience of partnership in primary care. *Annals of Family Medicine*, 4(1), 54–62. <https://doi.org/10.1370/afm.393>
- Scrignaro, M., Barni, S., & Magrin, M. E. (2011). The combined contribution of social support and coping strategies in predicting post-traumatic growth: A longitudinal study on cancer patients. *Psycho-Oncology*, 20(8), 823–831. <https://doi.org/10.1002/pon.1782>
- Shaw, B. R., Hawkins, R., Arora, N., McTavish, F., Pingree, S., & Gustafson, D. H. (2006). An exploratory study of predictors of participation in a computer support group for women with breast cancer. *CIN: Computers, Informatics, Nursing*, 24(1), 18–27. <https://doi.org/10.1097/00024665-200601000-00007>
- Shim, M., Cappella, J. N., & Han, J. Y. (2011). How does insightful and emotional disclosure bring potential health benefits? Study based on online support groups for women with breast cancer. *Journal of Communication*, 61(3), 432–454. <https://doi.org/10.1111/j.1460-2466.2011.01555.x>
- Stanton, A. L., Danoff-Burg, S., Cameron, C. L., Bishop, M., Collins, C. A., Kirk, S. B., Sworowski, L. A., & Twillman, R. (2000). Emotionally expressive coping predicts psychological and physical adjustment to breast cancer. *Journal of Consulting and Clinical Psychology*, 68(5), 875–882. <https://doi.org/10.1037/0022-006X.68.5.875>
- Street, R. L. (2003). Communication in medical encounters: An ecological perspective. In T. L. Thompson, A. Dorsey, K. I. Miller, & R. Parrott (Eds.), *Handbook of health communication* (pp. 63–89). Lawrence Erlbaum Associates.
- Street, R. L. (2017). The many “Disguises” of patient-centered communication: Problems of conceptualization and measurement. *Patient Education and Counseling*, 100(11), 2131–2134. <https://doi.org/10.1016/j.pec.2017.05.008>
- Street, R. L., Makoul, G., Arora, N. K., & Epstein, R. M. (2009). How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Education and Counseling*, 74(3), 295–301. <https://doi.org/10.1016/j.pec.2008.11.015>
- Street, R. L., & Millay, B. (2001). Analyzing patient participation in medical encounters. *Health Communication*, 13(1), 61–73. [https://doi.org/10.1207/S15327027HC1301\\_06](https://doi.org/10.1207/S15327027HC1301_06)
- Street, R. L., Tancredi, D. J., Slee, C., Kalauokalani, D. K., Dean, D. E., Franks, P., & Kravitz, R. L. (2014). A pathway linking patient participation in cancer consultations to pain control: Patient communication and pain control. *Psycho-Oncology*, 23(10), 1111–1117. <https://doi.org/10.1002/pon.3518>
- Ting, X., Yong, B., Yin, L., & Mi, T. (2016). Patient perception and the barriers to practicing patient-centered communication: A survey and in-depth interview of Chinese patients and physicians. *Patient Education and Counseling*, 99(3), 364–369. <https://doi.org/10.1016/j.pec.2015.07.019>
- Uchino, B. N. (2009). Understanding the links between social support and physical health: A life-span perspective with emphasis on the separability of perceived and received support. *Perspectives on Psychological Science*, 4(3), 236–255. <https://doi.org/10.1111/j.17456924.2009.01122.x>
- Uchino, B. N., Cacioppo, J. T., & Kiecolt-Glaser, J. K. (1996). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*, 119(3), 488–531. <https://doi.org/10.1037/0033-2909.119.3.488>
- Venetis, M. K., Robinson, J. D., & Kearney, T. (2015). Breast-cancer patients' participation behavior and coping during presurgical consultations: A pilot study. *Health Communication*, 30(1), 19–25. <https://doi.org/10.1080/10410236.2014.943633>
- Weber, K. M., & Solomon, D. H. (2008). Locating relationship and communication issues among stressors associated with breast cancer. *Health Communication*, 23(6), 548–559. <https://doi.org/10.1080/10410230802465233>
- Wise, M., Han, J. Y., Shaw, B., McTavish, F., & Gustafson, D. H. (2008). Effects of using online narrative and didactic information on healthcare participation for breast cancer patients. *Patient Education and Counseling*, 70(3), 348–356. <https://doi.org/10.1016/j.pec.2007.11.009>
- Zhou, E. S., Penedo, F. J., Bustillo, N. E., Benedict, C., Rasheed, M., Lechner, S., Soloway, M., Kava, B. R., Schneiderman, N., & Antoni, M. H. (2010). Longitudinal effects of social support and adaptive coping on the emotional well-being of survivors of localized prostate cancer. *The Journal of Supportive Oncology*, 8(5), 196–201. <https://doi.org/10.1016/j.suponc.2010.09.004>