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The Effects of Expressing Religious Support Online for Breast Cancer Patients

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ABSTRACT

The growth of online support groups has led to an expression effects paradigm within the health communication literature. Although religious support expression is characterized as a typical subdimension of emotional support, we argue that in the context of a life-threatening illness, the inclusion of a religious component creates a unique communication process. Using data from an online group for women with breast cancer, we test a theoretical expression effects model. Results demonstrate that for breast cancer patients, religious support expression has distinct effects from general emotional support messages, which highlights the need to further theorize expression effects along these lines.

Computer-mediated social support (CMSS) groups have frequently been lauded for their ability to provide important resources to individuals facing a health crisis, such as a breast cancer diagnosis (Gustafson et al., 2008; Shaw et al., 2000). Much of the scholarly examination of these CMSS groups has focused on their provision of informational and emotional support for individuals in need (Kim et al., 2012). This research falls under the reception-effects paradigm, as the emphasis is typically on the reception of social support. An emerging body of literature, however, has begun examining how the expression of a wide range of messages can affect an individual's psychosocial health outcomes (Han et al., 2011; Kim et al., 2012; Namkoong et al., 2010; Yoo et al., 2014). Notably, this research suggests that individuals may have as much, if not more, to gain from providing support for others as they do from receiving it (Namkoong et al., 2013). This study seeks to expand on this literature by examining how the type of emotional support expression employed by an individual may have substantial consequences for the psychosocial outcomes they experience.

The expression effects literature argues that the cognitive process required to write messages to others may have as much or more of an effect on an individual as the process of reading messages (Pingree, 2007). The process of writing emotionally supportive messages to others has been shown to lead to improved psychosocial outcomes (Han et al., 2011). It has also been argued that the health benefits of providing emotional support for others are mediated by perceived bonding (Namkoong et al., 2013). By writing supportive messages to others, individuals gain a greater sense of group ties, which, in turn, provides benefits for the message sender (Brown et al., 2003).

One frequent way cancer patients provide support for each other is through the expression of religious support (Shaw

et al., 2007). Providing emotional support through religious language (e.g., saying “trust in God’s plan”) has typically been characterized as a subdimension of emotional support (e.g., Braithwaite, Waldron, & Finn, 1999). From this perspective, the cognitive processes for writing emotional support and religious support messages are quite similar. We argue that although religious support messages share many similarities with emotional support messages, in the context of a life-threatening illness, they also contain a distinct component that changes the structure of the communicative process. Specifically, we hypothesize that when emotional support messages include reference to God or religious faith, the perception of shared bonding decreases, which in turn leads to less positive health outcomes. Meaning, for breast cancer patients, the potential benefits of expressing emotional support messages should be attenuated by the inclusion of a religious component. We examine this possibility by combining computer-aided content analysis of discussion board messages for women with breast cancer with longitudinal survey data to assess how providing religious support expression to others impacts health outcomes.

The emergence of an expression effects paradigm

Health communication research has traditionally been dominated by a reception-effects paradigm. This perspective typically focuses on whether a particular message informs or persuades individuals. The bidirectional nature of online communication technologies, however, has led to an increased emphasis on the effects of expression. There is growing evidence that the messages individuals construct and deliver to others may have just as important implications as the messages they receive (Nekmat, 2012; Shah, Cho, Eveland, &

Kwak, 2005). This appears especially true in the context of an individual facing a health crisis or a chronic illness (Han et al., 2011).

Message expression can have important effects because it relies on a self-reflective process and purposeful cognitive activity (Eveland, 2004; Eveland, Shah, & Kwak, 2003). Although messages can sometimes be received passively, message construction requires cognitive elaboration (Eveland, 2004; Nekmat, 2012) as one considers not only what one wishes to express, but also how others will receive that message. The very process of writing out one's thoughts can change the significance and impact of those thoughts (Pennebaker, 1997; Pingree, 2007). After a message has been posted, an individual's perception of its meaning may change after that person is aware that others have read it, a type of commitment and consistency. By mentally elaborating on what they expect that message will mean to others, how those people will react to it, how they expect readers to respond, and preemptively preparing their own responses, message senders can then be affected by their own message in a myriad of ways.

There is promising evidence that message construction within CMSS groups can lead to beneficial health outcomes (Frisina, Borod, & Lepore, 2004). For example, Han and colleagues (2008) found that expression of positive emotion reduced negative emotions for women with breast cancer. Other studies have found positive effects of insightful disclosure (Lieberman, 2007; Shaw, Hawkins, McTavish, Pingree, & Gustafson, 2006) and prayer and religious expression (Shaw et al., 2007) on breast cancer patients' physical and psychosocial health outcomes. More recent work has distinguished between message reception and message expression, consistently finding greater influence of message production than consumption on psychosocial health outcomes (Han et al., 2011; Namkoong et al., 2013).

Being there for others: emotional support expression

Along these lines, providing emotional support for others can lead to beneficial health outcomes (Han et al., 2011). Although emotional support has traditionally been conceived as something an individual receives, scholars have found that providing emotional support for others produces positive effects on psychosocial outcomes (Namkoong et al., 2013). Individuals appear to benefit from taking a prosocial "provider" role (Brown et al., 2003). Providing social support can lead to benefits such as improved mental health (Schwartz, Meisenhelder, Ma, & Reed, 2003). It may be that providing support for others helps cancer patients because it takes the focus away from their own illness (Shaw, McTavish, Hawkins, Gustafson, & Pingree, 2000). Indeed, recent CMSS studies have found that providing emotional support is associated with fewer breast cancer-related concerns (Han et al., 2011), improved emotional well-being (Namkoong et al., 2010), increased positive reframing (Kim et al., 2012), enhanced coping strategies (Namkoong et al., 2013), and better quality of life.

Perhaps as important as the actual content of emotional support messages are the social bonds that are formed through

the act of providing support for others. Bonding is the perception of a close relationship being formed through interpersonal communication (Gottlieb & Bergen, 2010). CMSS groups are particularly well situated to enhance bonding among group members (Shaw et al., 2000) because group members can take comfort in knowing that other members share similar experiences—experiences that other friends and family members often do not understand (Rains & Young, 2009).

Expressive writing tends to lead breast cancer patients to perceive a greater level of social support (Gellaitry, Peters, Bloomfield, & Horne, 2010). Providing emotional support is likely to lead to increased bonding because it is a more cognitively demanding activity than reading group messages (Pingree, 2007; Shaw et al., 2007). Although lurkers can passively read emotional support messages, the production of emotional support inherently requires the writer to invest more in their relationships. Cancer patients who have a greater perception of group bonding typically cope better with their disease (Gottlieb & Bergen, 2010). Bonding has been shown to be associated with improved coping behaviors (Kim, Han, Shaw, McTavish, & Gustafson, 2010).

In a recent study, Namkoong and colleagues (2013) demonstrated that for women with breast cancer, writing emotional support messages was positively related with bonding, which mediated the positive effects of message support expression on active coping, positive reframing, planning, and humor. Interestingly, emotional support reception was not significantly related to bonding. Because the psychological process of helping others typically leads to an increased sense of belonging, providing emotional support can result in improved psychosocial outcomes (Lepore, Buzaglo, Lieberman, Golant, & Davey, 2011).

God is there for you: religious support expression

One of the most common ways cancer patients attempt to cope with their illness and/or provide support for others is by turning to religion (Zaza, Sellick & Hillier, 2005). When individuals suffer from a traumatic experience, such as a breast cancer diagnosis, they often search for a sense of meaning that can help them understand their situation (Shaw et al., 2000). The greater the distress, the more likely individuals are to rely on religion (Hood, Hill, & Spilka, 2009). Thus, for many breast cancer patients, religion becomes a more important factor in their lives after their diagnosis. It is therefore no surprise that individual often use religious language as a means of providing support for others facing a life-threatening illness.

In the health and social support literature, religious support and prayer have often been conceptualized as subcomponents of emotional support (Braithwaite et al., 1999). This literature typically operationalizes "religion" as Judeo-Christian religion. This is due to the fact that a sizeable majority of Americans are Christians. Even those who do not self-identify as Christian are saturated with messages about America's "civil religion," which are largely constructed around Judeo-Christian tenets and themes. In this study, we adopt this operationalization because a thorough reading of

all of the message board posts made it clear that our sample is predominately Christian.

Religious support expression is designed to offer comfort and emotional support for others, but it relies on the belief that God can help provide that support. For example, breast cancer members reassure each other that “God is there for you” and “God loves you.” These messages convey the belief that God and religious faith can help individuals deal with their health crisis. Although it is certainly true that religious messages such as these are often meant to provide emotional support, it is also likely that religious support expression triggers a somewhat different communicative process that reduces the sense of bonding between the sender and receiver elicited by other sorts of emotional support.

Communicative action rests on the assumption that the receiver of the message shares an understanding of the message similar to that of the sender. When an individual provides emotional support in a CMSS group, there is a shared sense that the message sender is directly providing support for the receiver. In the traditional model of emotional support expression, one individual provides support to a receiver (see Figure 1).

This sender–receiver model is obviously a crude simplification of what can in fact be a very complex process. Nevertheless, the point is that in the mind of the sender, there is no intermediary between the person providing support and the one receiving it. When providing religious support for someone dealing with a life-threatening illness, however, the message sender likely presumes there is a shared understanding that a higher power (i.e., God) is in part responsible for carrying out the promise of the message. In the Comprehensive Health Enhancement Support System (CHES) discussion group, members often stress the important role God plays in determining members’ health outcomes. For example, group members tell each other, “You know that you are in God’s hands,” and “He will guide your surgeon during surgery. What a comfort!” Messages proclaiming that God is in control of individuals’ health outcomes have been found in previous studies on CHES discussion boards (Shaw et al., 2007), as well as for other cancer support groups (Cole, 2005). These messages serve to provide emotional support by expressing the significant role God plays in determining outcomes, but also appear to suggest reduced control over the situation.

The belief that God is in control of one’s fate reflects an external locus of control (Gabbard, Howard, & Tageson, 1986). The conviction that God is responsible for health outcomes often leads individuals to defer the responsibility of problem solving (Koenig, Pargament, & Nielsen, 1998; McLaughlin et al., 2013; Pargament et al., 1988). When individuals face a circumstance that is difficult to modify, they are less likely to engage in problem-focused coping,

instead focusing on emotional coping (Pargament, 1997). It stands to reason that by implying that God and religious faith will provide support for an individual dealing with a health crisis, a message sender may in turn feel less capable of producing a change in their friend or loved one’s situation. Therefore, because religious support messages introduce God into the equation, they potentially require less personal commitment or agency on the part of the message sender. As a result, in the context of a serious illness, religious support expression may imply less personal responsibility and commitment than alternative forms of emotional support expression (see Figure 2).

We therefore expect that when a religious component is added to emotional support messages the perception of bonding will decrease. Thus, we hypothesize, that when controlling for the effect of exchanging emotional support messages online:

H1: Expressing religious support will lead to lower level of perceived bonding among breast cancer patients in CMSS groups.

As already discussed, perception of group bonds should be positively related to coping outcomes such as active coping, planning, and positive reframing. However, religious support expression should work through perceived bonding to lower levels of these three coping outcomes through indirect paths. Thus:

H2: Perceived bonding will mediate the effect of expressing religious support on (a) positive reframing, (b) active coping, and (c) planning.

Religious beliefs and health outcomes

Outside of the effects on bonding, we also expect that providing religious support to others should have direct effects on psychosocial health outcomes for cancer patients in terms of their coping strategies. As noted earlier, the act of writing a message requires cognitive elaboration (Eveland, 2004). Individuals often look to their own behavior for evidence of their underlying beliefs and attitudes. Thus, expressing a religious belief to others is likely to codify the strength of that conviction for a message sender. The effects of writing religious support messages should, therefore, be consistent with previous research on the relationship between religious beliefs and health outcomes. An abundance of research has demonstrated that turning to religion can



Figure 1. Traditional emotional support expression model.

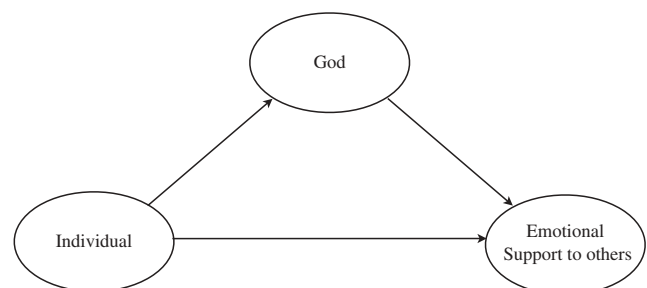


Figure 2. Religious support expression model.

lead to both positive and negative health outcomes for individuals facing a serious illness (McLaughlin et al., 2013; Pargament et al., 1988). For this reason, we anticipate that religious support expression will produce a combination of positive and negative effects on coping strategies.

First, we should expect a positive effect of religious beliefs for cancer patients, which is an improved outlook about their illness. Religion has been shown to provide cancer patients with a greater sense of relief, reduce emotional distress, and buffer the negative effects of stress caused by a health crisis (Jenkins & Pargament, 1995; Kevern, 2012). Individuals who turn to religion often have “a greater willingness to accept the outcome of their illness based on God’s will for their life” (Shaw et al., 2007, p. 677). We therefore expect that providing religious support to others will help reinforce a more hopeful and positive mind set. This includes positive reframing, or interpreting an illness through a more positive lens (Carver, 1997) Thus, we predict:

H3: Expressing religious support will lead to increased positive reframing.

Although religious beliefs can promote a more positive outlook, they can often be detrimental to other coping behaviors. When individuals turn to religion during a health crisis, they often believe that God plays an active role in determining the course of their illness (Pargament et al., 1988). Relying on a higher power to determine health outcomes, however, can lead individual to adopt a passive coping style (Pargament, 1997). When individuals believe God is largely responsible for determining their fate, they may feel less need to actively engage in symptom control and treatment management (Gabbard, Howard, Tageson, 1986; McLaughlin et al., 2013; Pargament et al., 1988). For this reason, we expect that when individuals provide religious support for others, they in turn believe that God is more responsible for determining the course of a serious illness, and are thus less likely to use proactive coping approaches such as active coping and planning (see Figure 3). We therefore hypothesize:

H4a: Expressing religious support will lead to decreased active coping.

H4b: Expressing religious support will lead to decreased planning.

Method

Participants

The data analyzed in this study were collected as a part of a larger randomized clinical trial assessing the effectiveness of the Comprehensive Health Enhancement Support System (CHESS), which provides information, interactive coaching, and communication services for women with breast cancer. Six hundred and sixty-one breast cancer patients were recruited between April 2004 and April 2006 from three cancer institutions: Hartford Hospital (Connecticut), MD Anderson (Texas), and University of Wisconsin Hospital and Clinics (Wisconsin) (for more details on participants, including demographics, see Yoo et al., 2014).

To examine the effect of message expression, we looked at the messages posted in the CMSS group, which is a text-based, asynchronous bulletin board that allows users to exchange information and share support. On average, each participant posted 21.5 messages ($SD = 54.5$) on the discussion board of the CMSS group. In this study, we focus on the 192 participants out of 325 who wrote at least one message in CMSS groups during the six-month study period.

The CMSS group consisted of three discussion boards, “Women Helping Women,” “My Discussion Group,” and “Prayer and Meditation.” The first author read every individual message board post considered in this study. There are several notable assessments that arose in this process. First, in almost all cases, those who participated in the discussion boards participated in all three. Second, all religious discussion was firmly rooted in a Christian framework. Third, it was not clear how much denominational diversity there was in the group. That is, the religious discussion occurred in relatively broad terms. Fourth, there was a strong, unspoken assumption that all group members shared in this Christian worldview.

Data

This study used three unique data components collected as a part of the Center for Excellence in Cancer Communication Research: Mentor-Component study: (a) computer-aided content analysis, (b) action log system usage, and (c) longitudinal survey data.

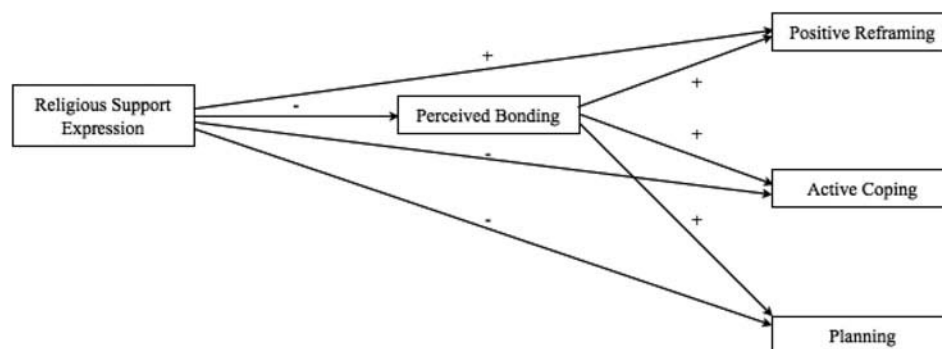


Figure 3. Theorized path model of influences of emotional and religious support expression.

First, we analyzed the contents of individual messages posted in the CMSS group using the computer-aided content analysis program InfoTrend. InfoTrend allows us to quantify key ideas in the text and to capture syntactical complexities of language through the implementation of a dynamic rule structure. In total, 18,604 messages posted by the participants of the study were analyzed using the program. Coding rules were created by establishing a relationship between multiple terms, phrases, or concepts (including the number of spaces between the terms and the order in which they appear). For example, the statement “God is there for you,” would be counted as religious support expression, while “you are there for me, thank God,” would not.

The second data set we used was action log data, which tracked CHES usage data on an individual keystroke level. This enabled us to track how many and what kind of messages a participant wrote on the CMSS group. Third, we conducted a longitudinal survey among participants before and six months after using CHES. All the three data sets were then merged together and analyzed.

Measures

Expression of religious support. Religious support expression is conceived of as social support expressed through religious language (primarily Christian, as noted earlier). Specifically, we operationalized religious support expression as messages that contained the following three elements: (a) a direct reference to God, Jesus Christ, religious faith, or prayer, (b) support, encouragement, love/caring, comfort, or empathy/sympathy, and (c) a clear indication that the message was directed toward the reader of the message.

We captured religious support expression using computer-aided content analysis. We developed dictionaries of key words that could capture various expressions of religious support, such as sending prayers to another person and statements assuring others that God is there to provide them support (see Table 1).

After the coding, we conducted a reliability test between human and computer coding on a random subset of 200 discussion posts. Results produced an estimate of 97.0% agreement; Krippendorff's alpha was calculated and was determined to be 93.6% greater than by chance. The religious support expression measure ($M = .07$, $SD = .15$) was operationalized as the total counts of religious support expressed in the messages ($M = 5.86$, $SD = 19.75$) divided

by the total number of messages ($M = 26.38$, $SD = 59.41$) posted in the online breast cancer support group for a 6-month study period. The proportion measure not only reflects the significant variance in the volume of messages that participants posted but also rules out the potential confounding effect of expressing other types of content in the messages (Namkoong et al., 2010).

Perceived bonding. We used a five-item bonding scale to capture the concept of universality, group cohesiveness, and informational and emotional support exchanged in the CMSS group. This scale had been used and validated in previous CHES studies (Gustafson et al., 2008). Participants were asked to indicate on a 5-point scale ranging from 0 (*never*) to 4 (*nearly always*) their level of frequency in feeling each of the following five statements: (a) “I can get information from other women with breast cancer”; (b) “I am building a bond with other women with breast cancer”; (c) “I feel stronger knowing that there are others in my situation”; (d) “I’ve been getting emotional support from other women with breast cancer”; and (e) “It helps me to be able to share my feelings and fears with other women with breast cancer.” The combined score of the five items was used to construct perceived bonding measure (pretest: $M = 2.46$, $SD = .99$, Cronbach's $\alpha = .92$; posttest: $M = 2.64$, $SD = .94$, Cronbach's $\alpha = .93$).

Positive reframing. Positive reframing is one dimension of the Brief Coping scale (Carver, 1997). We asked participants to indicate their level of agreement with the following two statements about their experience since being diagnosed with cancer: (a) “I’ve been trying to see it in a different light, to make it seem more positive” and (b) “I’ve been looking for something good in what is happening.” Both items were measured using two 4-point Likert-type scales ranging from 0 (*not at all*) to 3 (*a lot*). We used the mean value of the two items as positive reframing measure (pretest: $M = 1.98$, $SD = .88$, Spearman-Brown = .75; posttest: $M = 1.89$, $SD = .86$, Spearman-Brown = .80).

Active behavioral coping. Active behavioral coping is another dimension of the Brief Coping scale (Carver, 1997). Participants were asked to indicate their level of agreement with the two following statements: (a) “I have been concentrating my effort on doing something about the situation I’m in” and (b) “I have been taking action to try to make the situation better.” Both items were measured using two 4-point Likert-type scales ranging from 0 (*not at all*) to 3 (*a lot*), and the combined score of the two items was used to construct an active behavioral coping measure (pretest: $M = 2.16$, $SD = .79$, Spearman-Brown = .70; posttest: $M = 1.94$, $SD = .86$, Spearman-Brown = .78).

Planning. Planning was measured using two items also from the Brief Coping scale (Carver, 1997). We asked participants their levels of agreement with the following statements: (a) “I’ve been trying to come up with a strategy about what to do” and “I’ve been thinking hard about what steps to take.” All items were measured using a 4-point Likert-type scale from 0

Table 1. Coding procedure of religious support expression.

Step 1: Identify presence of key words	
Example (a):	God: God, holy spirit, lord, heavenly father
Example (b):	Pray: pray, prayers, amen
Example (c):	Love: love, loves
Step 2: Construct syntactical relationship between multiple words	
Example (a):	I [twenty characters] ahead of Pray = IPray
Example (b):	God [twenty characters] ahead of Love = GodLoves
Example (c):	With [ten characters] ahead of You = WithYou
Step 3: Combine multiple constructs to form religious support expression	
Example (a):	IPray [twenty characters] ahead of You = RelSupport
Example (b):	GodLoves [twenty characters] ahead of You = RelSupport
Example (c):	God [twenty characters] ahead of WithYou = RelSupport

(not at all) to 3 (a lot). Averaged score was used to construct planning score (pretest: $M = 2.10$, $SD = .82$, Spearman-Brown = .69; posttest: $M = 1.55$, $SD = .95$, Spearman-Brown = .82).

Control variables. We include a series of exogenous variables in order to control their potential effects in the model. The demographic variables age ($M = 51.42$, $SD = 9.08$) and race ($M = .08$, $SD = .28$; coded as 0 when a participant is Caucasian and as 1 when not) were included, as well as the pretest scores for positive reframing, active coping, planning, and perceived bonding. Two experimental conditions were coded as each dummy variable: 1 = Full CHES ($n = 67$) or Human cancer mentor + Full CHES ($n = 64$), and 0 = CHES information and communication services only ($n = 61$) as a reference group. We also controlled total CHES use time outside of CMSS group service ($M = 220.39$, $SD = 197.77$, in minutes) and interval between diagnosis and intervention ($M = 2.07$, $SD = 3.31$, in months).

Most important, emotional support expression was included as an exogenous variable to control the overall effect of emotional support on the endogenous variables under consideration. In our sample, religious support expression and emotional support expression were significantly correlated ($r = .51$), although analytically distinct (see later discussion). This is likely due to the fact that those who provide religious support also tend to be the type of individuals who frequently provide general emotional support. By controlling for general emotional support expression we are able to analyze the effect of adding a religious component to emotional support messages.

Emotional support expression. Emotional support expression ($M = .40$, $SD = .54$) was conceptualized and operationalized as an umbrella category that included any direct references to providing support, understanding, affection, or social connection for another individual. Emotional support was captured using the same coding process that was employed for religious support. Like religious support expression, emotional support expression was operationalized as the total counts of emotional support expressed in the messages ($M = 29.61$,

$SD = 77.67$) divided by the total number of messages posted in an online breast cancer support group for a 6-month study period ($M = .49$, $SD = .56$). Next, we conducted a reliability test between human and computer coding. Scott's pi was calculated and determined to be 86.2% greater than by chance (for more details on the emotional support coding, see Namkoong et al., 2013; Yoo et al., 2014)

Results

In order to examine the hypothesized relationships of this study, we conducted statistical tests using structural equation modeling (SEM) with observed variables in Mplus 6.1. Since our hypothesized model includes variables with nonnormal distribution, we used the maximum likelihood estimation with robust standard errors (MLR) to address this problem. When assessing the overall model, the estimation of a chi-squared goodness-of-fit test yielded a chi-squared value of 32.09 with 19 degrees of freedom ($p = .03$). Although the chi-squared test suggests the fit of the data to the hypothesized model is not entirely adequate, the sensitivity of the χ^2 likelihood ratio test to small sample size is well known. Thus, we also considered other goodness-of-fit indices: Values related to Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) were .98, .91, .06, and .03, respectively. Based on the cutoff criteria recommended by Hu and Bentler (1999), our model has a good model fit. The final model we tested is shown in Figure 4.¹

We first tested the direct effects of religious support expression on perceived bonding. As hypothesized in H1, religious support expression shows statistically significant negative association with perceived bonding, suggesting that as people become more likely to express religious support to others their perceived bonding gets weaker ($\beta = -.21$, $p < .05$). On the contrary, emotional support expression has positive effect on perceived bonding ($\gamma = .37$, $p < .001$) (see Table 2).

In order to test the mediation effect of perceived bonding between religious support expression and the three coping

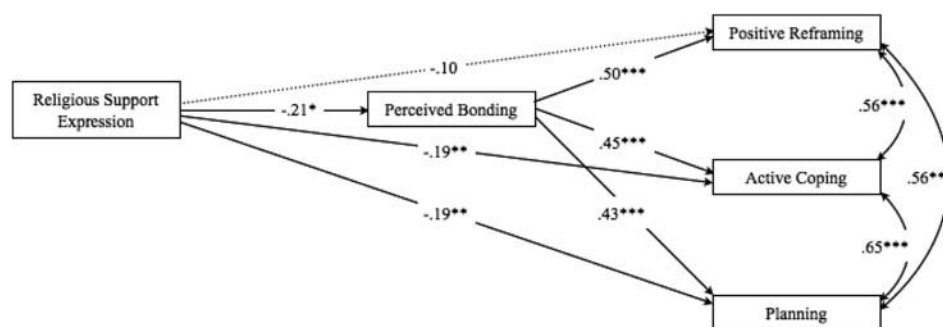


Figure 4. Path model of influences of emotional and religious support expression. Estimates are standardized coefficients. Significance indicated as *** $p < .001$, ** $p < .01$, * $p < .05$. $\chi^2(19) = 32.09$, $p < .05$, CFI = .98, TLI = .91, RMSEA = .06, and SRMR = .03.

¹We included several exogenous variables in the model and controlled the effects of those variables. However, for the sake of clearer presentation, the paths from exogenous variables were not presented.

Table 2. Structural equation model of religious support expression, bonding, and coping strategies (Model 1).

	Perceived bonding		Positive reframing		Active coping		Planning	
	γ *	ρ	γ/β *	ρ	γ/β *	ρ	γ/β *	ρ
Age	-.075	.206	-.125	.028	-.106	.053	-.093	.121
Minority	.032	.643	-.184	.001	-.124	.046	-.148	.011
Interval between diagnosis and intervention (months)	.072	.123	.094	.074	.119	.050	-.061	.305
Full CHESS (=1)	.072	.319	.081	.258	.030	.668	-.062	.404
CHESS and Mentor (=1)	.029	.714	.191	.004	.183	.009	.102	.174
CHESS use † (minutes)	.145	.012	–	–	–	–	–	–
Pretest value ‡	.414	.000	.170	.000	.127	.003	.208	.000
Emotional support expression	.370	.000	-.016	.807	.115	.071	.102	.141
Religious support expression	-.207	.016	-.097	.180	-.191	.002	-.186	.001
Perceived bonding	–	–	.497	.000	.453	0.000	.425	.000
R ²	0.303	0.000	0.369	0.000	0.358	0.000	0.325	0.000

Note. CHESS, Comprehensive Health Enhancement Support System; CMSS, computer-mediated support systems. $N = 192$.

*Coefficients are standardized gamma (γ) and beta (β ; for the last row of the table).

†CHESS Use in minutes except CMSS group service use.

‡Pretest value for each endogenous variable.

variables, we first examined whether perceived bonding has effects on the three measures of coping strategies; then, we examined the specific indirect effect on those variables. Figure 4 suggests that perceived bonding has a statistically significant positive effect on positive reframing ($\beta = .50, p < .001$), active coping ($\beta = .45, p < .001$), and planning ($\beta = .43, p < .001$). In addition, we also found that the indirect effects of religious support expression on the three brief coping variables are all statistically significant (see Table 3); H2 was therefore supported.

When assessing the direct effect of religious support expression on improved outlook, we failed to find any significant relationship between religious support expression and positive reframing ($\beta = -.10, n.s.$). On the other hand, we found a significant negative relationship between religious support expression and active coping ($\beta = -.19, p < .01$) and between religious support expression and planning ($\beta = -.19, p < .01$). This suggests that when individuals provide religious support, they are less likely to use proactive strategies such as active coping and planning, supporting H4a and H4b.²

Discussion

In the expression effects literature, providing support through religious language (e.g., saying “trust in God’s plan”) has often been characterized as a typical subdimension of emotional support (Coursaris & Liu, 2009). From this perspective, the

effects of writing emotional support and religious support messages would be quite similar. We argue that religious support expression, however, employs a unique communicative process. For this reason we expected that emotional support expression and religious support expression would produce divergent effects for individuals facing a serious illness. Specifically, we predicted that when controlling for the expression of emotional support, religious support expression would require less cognitive commitment to the group and thus decrease message senders’ perceptions of group bonding, which in turn would lead to a decrease in adaptive coping strategies (i.e., positive reframing, active behavioral coping, and planning). Additionally, we expected the religious support expression would have a positive direct effect on outlook coping variables, but a negative effect on proactive coping variables.

Results of our analysis largely support our theorized model. First, as predicted, religious support expression was negatively associated with perceived bonding. Second, bonding was positively related to positive reframing, active behavioral coping, and planning. As a result, we found significant indirect effects where religious support expression is associated with lower levels of positive reframing, active behavioral coping, and planning via lowered perceived coping. Finally, we found a significant negative effect of religious support expression on the proactive coping variables (active behavioral coping and planning). We did not, however, find that religious support expression had a significant relationship to positive reframing. We therefore did not find any evidence that participants benefited from religious support expression.

These results illustrate potential liabilities of relying on religion during a health crisis. Although religion can often help individuals come to terms with their illness (e.g., Kevern, 2012), in some cases turning to religion can lead to more passive coping styles, which may be detrimental to psychosocial health outcomes (Gabbard et al., 1986). Specifically, when

Table 3. Indirect effects of religious support expression on brief coping variables via perceived bonding.

	Estimate	SE	z-Statistic
Religious support → Bonding → Positive reframing	-.103*	.046	-2.224
Religious support → Bonding → Active coping	-.094*	.042	-2.243
Religious support → Bonding → Planning	-.088*	.040	-2.208

Note. Estimates are standardized coefficients.

*** $p < .001$, * $p < .05$.

²Given that the relatively small number of sample in our data ($N = 192$), although comprehensive, might result in biased standard errors, we used the MLR estimator. In order to be more confident in our findings, we also bootstrapped the data to find the empirical standard errors and asymmetric confidence intervals for the indirect effect using the maximum likelihood parameter estimation. We generated a total of 500 bootstrapped samples with the 192 cases. As a result, not only did the overall model fit statistics remain consistent ($\chi^2(19) = 33.26, p < .02, CFI = .97, TLI = .91, RMSEA = .06$, and SRMR = .03), but all of the direct and indirect effects of the MLR model and the bootstrapped model are also consistent regarding the direction of effect as well as statistical significance.

individuals believe that God is largely responsible for the course of a serious illness, they may be less likely to feel they are capable of or responsible for making a difference in their situation (McLaughlin et al., 2013; Pargament et al., 1988). Similarly, this study shows that when it comes to providing support for others facing a life-threatening illness, when God is introduced into the equation, message senders may feel less commitment to the individuals for whom they are ostensibly providing support.

It is important to note that our results controlled for emotional support expression. This means that there are likely positive benefits that can be gained from religious support expression because these messages often include emotional support. Further, it is possible that some participants provided nonreligious emotional support as a result of their religious convictions. There is no way we could measure this effect in our study, but this possibility is something that should be considered in future research. We are not making the claim that individuals facing a health crisis have nothing to gain from using religion as a means of providing emotional support. The overall benefits of providing emotional support messages likely outweigh the potential risks of adding a religious connotation. Our study does, however, provide evidence that in the context of a life-threatening illness, when emotional support messages include reference to God or religious faith the positive relationship between expressing emotional support and bonding is attenuated.

It is important to note that this discussion is based entirely within the context of an online breast cancer support group. It is often the case that individuals turn to religion after a cancer diagnosis (Zaza et al., 2005). It may be that in other contexts, religious support expression affects the message sender in a different manner. In particular, we would expect different results if we had considered the effects of religious support expression among those in a religious community. Participants in this study were initially brought together by their shared context of having cancer. In religious communities, on the other hand, social ties are initially formed around shared religious beliefs. It is likely that we would see a different communication pattern when considering the effects of expressing religious support among members of a religious community. Indeed, a large body of literature has demonstrated the positive health benefits conferred by being a member of a religious community (e.g., Krause, Ellison, Shaw, Marcum, & Boardman, 2001). This study, therefore, is not intended to be a definitive statement on how all religious expression works, but to highlight one specific process in an online support group among a wide range of other possibilities.

Additionally, we were limited in our ability to directly test the cognitive processes involved in religious support expression. We also provide relatively simple communication models. More work is needed to explore how expression effects occur, for both emotional and religious support, and the pathways through which they can lead to divergent psychosocial health outcomes.

It is also important to note that our study examined women with breast cancer. It is unclear whether similar

results would be found in other CMSS groups. For one thing, women tend to have higher levels of religiosity than men (Larsen, Vicker, Sampson, Netzel, & Hayes, 2006). Because religion is typically more important to women than men, it may be that gender plays an important role in how religious support expression influences health outcomes. This highlights the possibility that there are important population differences that would lead to divergent results in other contexts.

It is likely that the meaning of religious support messages can vary, to some degree, across religious denominations. This reflects an important limitation of our study—we did not have survey items that measured participants' religious affiliation or denomination. There are, of course, important differences both between and within Christian denominations. For example, Christian denominations have different beliefs about how to interpret religious doctrine and the role of church authority.

Although these distinctions are no doubt significant, many scholars argue that the religious divisions in America today are no longer between denominations, but between those who are religious and those who are not (Putnam & Campbell, 2010). Americans often care more about the intensity of another's religious convictions than about the other person's specific affiliation. This seems particularly relevant for our study, as God and religious themes were generally discussed in more general, abstract terms.

It is not just denominational differences that need to be considered, but also the range of cultural factors that may impact how one's religious beliefs influence behavior. For example, African Americans are more likely to be Biblical literalist, but hold very different views about what the Bible means when compared to White Evangelical Christians. African Americans tend to take from the Bible themes of social responsibility, while White Evangelicals tend to connect with messages about personal salvation (Dawson, 2003). Thus, there may be important denominational and/or cultural differences that could affect how the process described in this study plays out. We are, unfortunately, unable to explore these differences with our data, but future work should seek to examine these potentially important distinctions.

Alternatively, religious support messages may not be interpreted the same way (either by sender or by receiver) when religion is not as normatively accepted. Our study is based on the assumption that we are examining a context in which participants expect that other group members will welcome religious messages. It is likely that this process would be different if message senders were unsure whether an intended recipient shared the same religious worldview. If a message sender has to consciously deliberate on how the message will be received, it could change the cognitive process. It is also possible that participants did not, in fact, assume others shared their same religious perspective. If this was the case, it is possible that this could in part account for our findings. While we have reason to believe participants did assume religious concordance, this is a potential factor that we are not fully able to examine.

These limitations acknowledge that we should not simply assume our findings generalize across all groups. These

limitations do, however, highlight how complex expression effects can be and how much work remains to be done. Our study illustrates that religious support expression contains unique characteristics compared to other types of emotional support expression. Unlike general emotional support expression, religious support expression relies on the assumption that God is in part responsible for the provision of support. We believe this study advances our understanding of the potential health effects of writing religious support messages online for women with breast cancer.

Understanding expression effects appears to be particularly important in the context of CMSS groups for individuals facing health crises, but there are many other domains in which expression effects need to be considered. Our study builds off of previous research that demonstrates the important implications of expression in online contexts (e.g., Han et al., 2011; Namkoong et al., 2013) by revealing the divergent ways support messages can impact the psychosocial health of message senders. Like most communication processes, expression effects can be much more complex than they may first appear. Our hope is that this study spurs a larger dialogue about the cognitive and coping processes that are involved in a range of message expression in online contexts.

References

- Braithwaite, D. O., Waldron, V. R., & Finn, J. (1999). Communication of social support in computer-mediated groups for people with disabilities. *Health Communication, 11*, 123–151. doi:10.1207/s15327027hc1102_2
- Brown, S. L., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science, 14*, 320–327. doi:10.1111/1467-9280.14461
- Carver, C. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine, 4*, 92–100. doi:10.1207/s15327558ijbm0401_6
- Cole, B. (2005). Spiritually-focused psychotherapy for people diagnosed with cancer: A pilot outcome study. *Mental Health, Religion & Culture, 8*, 217–226. doi:10.1080/13694670500138916
- Coursaris, C. K., & Liua, M. (2009). An analysis of social support exchange in online HIV/AIDS self-help groups. *Computers in Human Behavior, 25*, 911–918. doi:10.1016/j.chb.2009.03.006
- Dawson, M. (2003). *Black visions: The roots of contemporary African-American political ideologies*. Chicago, IL: University of Chicago Press.
- Eveland, W. P., Shah, D. V., & Kwak, N. (2003). Assessing causality in the cognitive mediation model: A panel study of motivations, information processing, and learning during campaign 2000. *Communication Research, 30*, 359–386. doi:10.1177/009365203253369
- Eveland, W. P., Jr. (2004). The effect of political discussion in producing informed citizens: The roles of information, motivation, and elaboration. *Political Communication, 21*, 177–193. doi:10.1080/10584600490443877
- Frisina, P. G., Borod, J. C., & Lepore, S. (2004). A meta-analysis of the effects of written emotional disclosure on the health outcomes of clinical populations. *The Journal of Nervous and Mental Disease, 192*, 629–634. doi:10.1097/01.nmd.0000138317.30764.63
- Gabbard, C., Howard, G., & Tageson, C. (1986). Assessing locus of control with religious populations. *Journal of Research in Personality, 20*, 292–308. doi:10.1016/0092-6566(86)90136-4
- Gellatry, G., Peters, K., Bloomfield, D., & Horne, R. (2010). Narrowing the gap: The effects of an expressive writing intervention on perceptions of actual and ideal emotional support in women who have completed treatment for early stage breast cancer. *Psycho Oncology, 19*, 77–84. doi:10.1002/pon.v19:1
- Gottlieb, B. H., & Bergen, A. E. (2010). Social support concepts and measures. *Journal of Psychosomatic Research, 69*, 511–520. doi:10.1016/j.jpsychores.2009.10.001
- Gustafson, D. H., Hawkins, R. P., McTavish, F. M., Pingree, S., Chen, W. C., Volrathongchai, K., et al. (2008). Internet based interactive support for cancer patients: Are integrated systems better? *Journal of Communication, 58*, 238–257. doi:10.1111/j.1460-2466.2008.00383.x
- Han, J. Y., Shah, D. V., Kim, E., Namkoong, K., Lee, S.-Y., Moon, T. J., ... Gustafson, D. H. (2011). Empathic exchanges in online cancer support groups: Distinguishing message expression and reception effects. *Health Communication, 26*, 185–197. doi:10.1080/10410236.2010.544283
- Han, J. Y., Shaw, B. R., Hawkins, R. P., Pingree, S., Mctavish, F. M., & Gustafson, D. H. (2008). Expressing positive emotions within online support groups by women with breast cancer. *Journal of Health Psychology, 13*, 1002–1007. doi:10.1177/1359105308097963
- Hood, R., Hill, P., & Spilka, B. (2009). *The psychology of religion* (4th ed.). New York, NY: Guilford Press.
- Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. doi:10.1080/10705519909540118
- Jenkins, R., & Pargament, K. (1995). Religion and spirituality as resources for coping with cancer. *Journal of Psychosocial Oncology, 13*, 51–74. doi:10.1300/J077V13N01_04
- Kevern, P. (2012). In search of a theoretical basis for understanding religious coping: Initial testing of an explanatory model. *Mental Health, Religion & Culture, 15*, 23–37. doi:10.1080/13674676.2010.550278
- Kim, J., Han, J. Y., Shaw, B. R., McTavish, F. M., & Gustafson, D. H. (2010). The roles of social support and coping strategies in predicting breast cancer patients' emotional well-being: Testing mediation and moderation models. *Journal of Health Psychology, 15*, 543–552. doi:10.1177/1359105309355338
- Kim, E., Han, J. Y., Moon, T. J., Shaw, B. R., Shah, D. V., McTavish, F. M., & Gustafson, D. H. (2012). The process and effect of supportive message expression and reception in online breast cancer support groups. *Psycho-Oncology, 21*, 531–540. doi:10.1002/pon.1942
- Koenig, H., Pargament, K., & Nielsen, J. (1998). Religious coping and health status in medically ill hospitalized older adults. *Journal of Nervous & Mental Disease, 186*, 513–521. doi:10.1097/00005053-199809000-00001
- Krause, N., Ellison, C., Shaw, B., Marcum, J., & Boardman, J. (2001). Church-based social support and religious coping. *Journal for the Scientific Study of Religion, 40*, 637–656. doi:10.1111/0021-8294.00082
- Larsen, K. E., Vicker, K. S., Sampson, S., Netzel, P., & Hayes, S. N. (2006). Depression in women with heart disease: The importance of social role performance and spirituality. *Journal of Clinical Psychology in Medical Settings, 13*, 36–45. doi:10.1007/s10880-005-9008-1
- Lepore, S., Buzaglo, J., Lieberman, M., Golant, M., & Davey, A. (2011). Standard versus prosocial online support groups for distressed breast cancer survivors: A randomized controlled trial. *BMC Cancer, 11*, 379. doi:10.1186/1471-2407-11-379
- Lieberman, M. A. (2007). The role of insightful disclosure in outcomes for women in peer directed breast cancer groups: A replication study. *Psycho-Oncology, 16*, 961–964. doi:10.1002/(ISSN)1099-1611
- McLaughlin, B., Yoo, W., D'Angelo, J., Tsang, S., Shaw, B., Shah, D., & Gustafson, D. (2013). It's out of my hands: How deferring control to God can decrease quality of life for breast cancer patients. *Psycho-Oncology, 22*, 2747–2754. doi:10.1002/pon.3356
- Namkoong, K., McLaughlin, B., Yoo, W., Hull, S. J., Shah, D. V., Kim, S. C., & Gustafson, D. H. (2013). The effects of expression: How providing emotional support online improves cancer patients' coping strategies. *Journal of National Cancer Institute Monographs, 47*, 169–174. doi:10.1093/jncimonographs/lgt033
- Namkoong, K., Shah, D. V., Han, J. Y., Kim, S. C., Yoo, W., Fan, D. ... Gustafson, D. H. (2010). Expression and reception of treatment information in breast cancer support groups: How health self-efficacy moderates effects on emotional well-being. *Patient Education and Counseling, 81*, S41–S47. doi:10.1016/j.pec.2010.09.009

- Nekmat, E. (2012). Message expression effects in online social communication. *Journal of Broadcasting & Electronic Media*, 56, 203–224. doi:10.1080/08838151.2012.678513
- Pargament, K. (1997). *The psychology of religion & coping*. New York, NY: Guilford Press.
- Pargament, K. I., Kennell, J., Hathaway, W., Grevengoed, N., Newman, J., & Jones, W. (1988). Religion and the problem-solving process. Three styles of coping. *Journal of Scientific Study of Religion*, 27, 90–104. doi:10.2307/1387404
- Pennebaker, J. W. (1997). *Opening up: The healing power of expressing emotions*. New York, NY: Guilford Press.
- Pingree, R. J. (2007). How messages affect their senders: A more general model of message effects and implications for deliberation. *Communication Theory*, 17, 439–461. doi:10.1111/comt.2007.17.issue-4
- Putnam, R., & Campbell, D. (2010). *American grace: How religion divides and unites us*. New York, NY: Simon & Schuster.
- Rains, S. A., & Young, V. (2009). A meta analysis of research on formal computer mediated support groups: Examining group characteristics and health outcomes. *Human Communication Research*, 35, 309–336. doi:10.1111/hcre.2009.35.issue-3
- Schwartz, C., Meisenhelder, J. B., Ma, Y., & Reed, G. (2003). Altruistic social interest behaviors are associated with better mental health. *Psychosomatic Medicine*, 65, 778–785. doi:10.1097/01.PSY.0000079378.39062.D4
- Shah, D. V., Cho, J., Eveland, W. P., & Kwak, N. (2005). Information and expression in a digital age: Modeling internet effects on civic participation. *Communication Research*, 32, 531–565. doi:10.1177/0093650205279209
- Shaw, B., Han, J. Y., Kim, E., Gustafson, D., Hawkins, R., Cleary, J., ... Lumpkins, C. (2007). Effects of prayer and religious expression within computer support groups on women with breast cancer. *Psycho-Oncology*, 16, 676–687. doi:10.1002/(ISSN)1099-1611
- Shaw, B. R., Hawkins, R. P., McTavish, F., Pingree, S., & Gustafson, D. H. (2006). Effects of insightful disclosure within computer mediated support groups on women with breast cancer. *Health Communication*, 19, 133–142. doi:10.1207/s15327027hc1902_5
- Shaw, B. R., McTavish, F. M., Hawkins, R. P., Gustafson, D. H., & Pingree, S. (2000). Experiences of women with breast cancer: Exchanging social support over the CHESS computer network. *Journal of Health Communication*, 5, 135–159. doi:10.1080/108107300406866
- Yoo, W., Namkoong, K., Choi, M., Shah, D. V., Tsang, S., Hong, Y., & Gustafson, D. H. (2014). Giving and receiving emotional support online: Communication competence as a moderator of psychosocial benefits for women with breast cancer. *Computers in Human Behavior*, 30, 13–22. doi:10.1016/j.chb.2013.07.024
- Zaza, C., Sellick, S. M., & Hillier, L. M. (2005). Coping with cancer: What do patients do? *Journal of Psychosocial Oncology*, 23, 55–73. doi:10.1300/J077v23n01_04