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The Effects of Expression: How Providing Emotional Support Online Improves Cancer Patients' Coping Strategies

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Background Emotional support has traditionally been conceived as something a breast cancer patient receives. However, this framework may obscure a more complex process, facilitated by the emerging social media environment, which includes the effects of composing and sending messages to others. Accordingly, this study explores the effects of expression and reception of emotional support messages in online groups and the importance of bonding as a mediator influencing the coping strategies of breast cancer patients.

Methods Data were collected as part of two National Cancer Institute–funded randomized clinical trials. Eligible subjects were within 2 months of diagnosis of primary breast cancer or recurrence. Expression and reception of emotionally supportive messages were tracked and coded for 237 breast cancer patients. Analysis resulted from merging 1) computer-aided content analysis of discussion posts, 2) action log analysis of system use, and 3) longitudinal survey data.

Results As expected, perceived bonding was positively related to all four coping strategies (active coping: $\beta = 0.251$, $P = .000$; positive reframing: $\beta = 0.288$, $P = .000$; planning: $\beta = 0.213$, $P = .006$; humor: $\beta = 0.159$, $P = .009$). More importantly, expression ($\gamma = 0.138$, $P = .027$), but not reception ($\gamma = -0.018$, $P = .741$), of emotional support increases perceived bonding, which in turn mediates the effects on patients' positive coping strategies.

Conclusions There is increasing importance for scholars to distinguish the effects of expression from reception to understand the processes involved in producing psychosocial benefits. This study shows that emotional support is more than something cancer patients receive; it is part of an active, complex process that can be facilitated by social media.

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Cancer patients face traumatic challenges that may lead to feelings of isolation and loneliness (1,2). Some patients have sought to mitigate this through social support. One source of support is computer-mediated social support (CMSS) groups, which can provide cancer patients a means of overcoming the physical and social barriers that often foster isolation. CMSS groups facilitate interaction with others facing similar health issues without time and geographic barriers (3–5).

Numerous studies have demonstrated the psychosocial benefits of participating in CMSS groups (6–8). However, more research is needed to examine the underlying mechanisms between CMSS group participation and health outcomes. Recent research has investigated CMSS effects on health outcomes, including the mediating roles of basic human motivations, such as autonomy, competence, relatedness, and bonding (9,10). These studies provide some evidence that the social bonds formed through supportive exchanges are perhaps as important as the content of the messages exchanged in the group. Social interaction in CMSS groups promotes bonding with other patients, which plays a critical positive and active role in coping.

This study evaluates the effect of message expression on this set of relationships. We expand on previous studies (11–15) by examining whether it is the reception of emotional support messages, as conventional models of communication influence would suggest, or the expression of emotional support that leads to a sense of bonding with others in CMSS groups, and then whether this bonding leads to improved psychosocial outcomes. Countering the dominant message-reception paradigm, an expression-effects perspective recognizes that "the act of expression might change the message sender, that expressed ideas often do not exist intact, if at all, in the speaker's mind prior to expression (13, p. 439)."

Although the benefits derived from receiving emotional support messages are known (16), the traditional conception of emotional support as something merely received may obscure a more important and complex process through which improved psychosocial outcomes are achieved. Expressing emotional support may also play a central role in bonding. Although it is relatively easy to read messages without developing a sense of group ties (ie, lurking), providing emotional support suggests a greater sense of group commitment and connectedness.

Providing support for others in a CMSS group may promote the perception of bonding, ultimately resulting in cognitive and behavioral adjustments to better manage disease demands. We

examine the mediating role of perceived bonding between CMSS group participation and its psychosocial health benefits, investigating the degree to which CMSS group participants engage in emotional support exchanges online—distinguishing message reception from message expression—and then linking this participation to its impact on cancer patients' sense of bonding and their coping strategies for managing breast cancer.

CMSS and Coping Strategies

CMSS groups have received much attention from scholars and health-care practitioners due to their potential to provide informational and emotional support for breast cancer patients (17). Social support exchanged in CMSS groups can play a crucial role in helping cancer patients develop positive coping strategies. Patients with a strong perception of being supported tend to cope better with their disease (18), including *approach coping* (17,19), *active coping* (20), and *adaptive coping*, such as positive reframing, planning, and humor (21,22). Contributing resources to one's social network, such as informational and emotional support, may also contribute to proactive coping strategies through more complex self-regulation processes (23).

Role of Perceived Bonding in CMSS Group Effects

Human bonding refers to the perception of a close relationship formed through supportive communications among people who face similar health crises (10). People facing a similar health crisis are uniquely positioned to understand one another in ways that others, including friends or family, may not (4,24). In addition, group members' intentions to help one another cope with cancer are related to group cohesiveness, which is closely related to the basic components of bonding, a crucial determinant of the positive psychosocial health outcomes associated with support group participation (25).

Research suggests that participation in CMSS groups can positively influence perceptions of bonding, which can facilitate the development of coping strategies (10). Communication with people in a similar situation increases perceived bonding, which reciprocally allows them to feel less isolated and more comfortable discussing their concerns. This may lead to a greater likelihood that group members will share specific coping strategies with one another (8) and encourage one another to stand up to their disease (26), which can lead to adopting positive coping strategies (10). Our hypothesis 1 (H1) predicts that perceived bonding mediates the effects of the CMSS group participation on positive coping strategies (active coping, positive reframing, planning, and humor).

Supportive Communication in CMSS Groups: Emotional Support

Social support refers to various ways individuals can provide help and care for one another (27,28) and includes important distinctions between several subcategories, including informational, religious, and emotional support (29,30). Emotional support has been regarded as particularly important for cancer patients because it facilitates coping with stressors and contributes to sustained well-being (27).

At the most basic level, emotional support is defined as support that "contributes to the feeling that one is cared for and loved (31, p. 50)." Scholars have identified distinct constructs within this broader category, including, empathy, sympathy, concern, encouragement, affection, relationality, universality, confidentiality, and prayer (5,30,32–34). Together, these constructs help identify the presence of emotional support.

Emotional support can produce positive health and mental health outcomes in situations best understood through direct experience. Women with breast cancer have attributed their positive improvements to the emotional support they have received in CMSS groups (5). Other scholars have demonstrated that it may not be just receiving emotional support that matters, but also expressing it. Among breast cancer patients, increased expressive writing led to greater perceptions of social support (35) and expressing emotional support produced positive effects on psychosocial outcomes (36). It appears that the more cancer patients express themselves, the more they stand to benefit from the interactions within their social support network.

One limitation of previous studies is their focus only on message reception or message expression. It is important to consider the role of both expression and reception because neither occurs in isolation (11,12). Han et al. (11) examined the effects of producing and receiving empathetic messages in CMSS groups and found that expression produced stronger effects than reception. This highlights the need to break from a reception-effects paradigm and attend to the potential influence of both expression and reception. Our hypothesis 2 (H2), then, predicts that emotional support expression (H2a) and reception (H2b) will influence positive coping strategies through their relationship with perceived bonding.

Methods

Participants

The study data were collected as a part of a larger randomized clinical trial, the Center for Excellence in Cancer Communication Research: Mentor-Component study. Between April 2004 and April 2006, women diagnosed with breast cancer within the last 2 months were recruited from three cancer institutions (37).

After consent, 661 participants were randomly assigned to one of six experimental conditions for a 6-month study period. Three of these conditions—1) Comprehensive Health Enhancement Support System (CHESS) information and communication (n = 109), 2) CHESS information, communication, and interactive services (Full CHESS; n = 111), and 3) Mentor and Full CHESS (n = 105) (37)—were used for this study because participants could access the CMSS group in these conditions (Supplementary Figure 1, available online). Of the 325 participants, we limited our analysis to the 236 women who either wrote or read messages in the CMSS group during the study period. On average, a participant posted 21.4 (SD = 54.5) and read 466.2 (SD = 934.7) messages. Each CMSS group is an asynchronous bulletin board where patients can share experiences (37).

Data and Analysis

The data used in the analysis resulted from combining three datasets: 1) computer-aided content analysis, 2) action log system usage data, and 3) survey data. First, a computer-aided content analysis program, *InfoTrend*, was used to analyze emotional support expressions within individual discussion posts (11,12). Using this program,

we analyzed 18 064 messages posted by participants. Each discrete message post was the unit of analysis. Based on definitions established from previous literature, we conceptualized emotional support in four subcategories: 1) empathy and/or sympathy, 2) encouragement and/or reassurance, 3) care and/or affection, and 4) universality and/or relationships. Next, we developed a dictionary of key words that reflected these subcategories. For instance, empathy and/or sympathy included terms such as "sorry," "understand," and "worry." We created coding rules by establishing a relationship between two terms, phrases, or concepts (including the number of spaces between the terms and the order in which they appear). These rules could be used as a construct for a new rule, allowing us to create rules that captured complex language that cannot be identified by most coding software. For example, we coded "I am here for you," by making the coding rule, "Presence A 20 You = Encouragement," which means the InfoTrend would count an expression as *Encouragement* only if the idea of *presence* ("here for") would appear less than 20 characters ahead of a *you* word.

Based on dozens of such rules, layered with one another to code more complex ideas, we finalized the computer-assisted coding. Next, we conducted a reliability test between human and computer coding on a random subset of 200 posts and produced an estimate of 91.0% agreement. Scott's pi was calculated and determined to be 86.2% greater than by chance.

We combined these results with action log system usage data (11,12). The action log data collection system automatically tracked which participant wrote and/or read each message. Finally, we combined this action-level, content-coded data with survey data, which were collected before CHESS use and at 6 months into use. To test the mediating role of perceived bonding, we used structural equation modeling (SEM) with observed variables in *Mplus 6*. Mediation was determined using a test of joint significance (38).

Measures

Seven variables were included as antecedent exogenous variables: age (M = 51.18, SD = 9.05), the interval between diagnosis and intervention (M = 2, SD = 3.02, in months), CHESS use outside of CMSS group service (M = 207.6, SD = 190.35, in minutes), and pretest score of each endogenous variable. Education was measured using seven categories (M = 4.81, SD = 1.45). Two dummy codings for experimental conditions were included.

The first structural equation model includes CHESS discussion group use as a primary exogenous variable, and the second structural equation model uses expressing and receiving emotional support as the primary exogenous variables (Supplementary Table 1, available online). Receiving and expressing emotional support are operationalized as proportions, rather than raw numbers, to rule out the potential confounding effect of writing/reading other types of supportive content in the message (11). We constructed these by dividing the total counts of emotional support categories received or expressed by the total number of messages read or written, respectively.

Perceived bonding items were developed through focus groups with previous CHESS users (39). Patients were asked to indicate on a 5-point scale (0 = never, 4 = nearly always) the frequency of feeling a close relationship and exchanging social support among other cancer patients in the CHESS discussion group (α = 0.92). Four positive coping strategies were selected from the Brief Cope (40): active coping (r = 0.54), positive reframing (r = 0.60), planning (r = 0.54), and humor (r = 0.76). They were measured using two 5-point scale items ranging from 0 equaling "I haven't been doing this at all" to 4 equaling "I've been doing this a lot."

Results

Figure 1 displays the direct effects of CMSS group use on perceived bonding and coping strategies after controlling for the effects of covariates (Supplementary Table 2, available online, presents all structural parameters). CMSS group participation had a significant and positive effect on patients' perceived bonding (γ = 0.302, P = .000), whereas using other CHESS services did not. As expected, perceived bonding was positively related to all four coping strategies (active: β = 0.202, P = .007; positive reframing: β = 0.262, P = .000; planning: β = 0.197, P = .015; humor: β = 0.140, P = .021). There were no significant effects for CMSS group participation on coping strategies, except for active coping. These results show that perceived bonding mediates the effects of CMSS group participation on coping strategies (H1).

Figure 2 displays the relationship of expressing (H2a) and receiving (H2b) emotional support on the five endogenous variables (Supplementary Table 3, available online). Only social support expression had an effect on perceived bonding (γ = 0.138, P = .027), accounting for the effects on breast cancer patients' coping strategies (active: β = 0.251, P = .000; positive reframing: β = 0.288, P = .000; planning: β = 0.213, P = .006; humor: β = 0.159, P = .009). H2a received support, whereas H2b did not.

Discussion

This study sought to explain how CMSS group participation enhances breast cancer patients' positive coping strategies. Results show that CMSS group participation is positively associated with perceived bonding. In turn, the enhanced bonding is positively associated with the patients' coping strategies. More importantly, expressing (but not receiving) emotional support increases participants' perceptions of bonding. Perceived bonding mediated the effects of CMSS group participation, in general, and emotional support expression, in particular, on a range of cancer patients' coping strategies.

These findings support the notion that emotional support is critical to social support, facilitates coping with stressors, and improves overall well-being (27). This work clarifies two crucial components of how the emotional support in CMSS groups can promote the adoption of positive coping strategies: 1) the key mediating role of perceived bonding and 2) the power of providing emotional support. Thus, the traditional conception of emotional support as something received by cancer patients may obscure a more complex process shaping psychosocial outcomes. The mechanism that appears to matter most for emotional support is a sense of shared group bonds, which is achieved best by providing support for others in a group context.

Although the dominant communication paradigm focuses almost exclusively on reception effects, new media have created more opportunities to express thoughts and feelings, which for breast

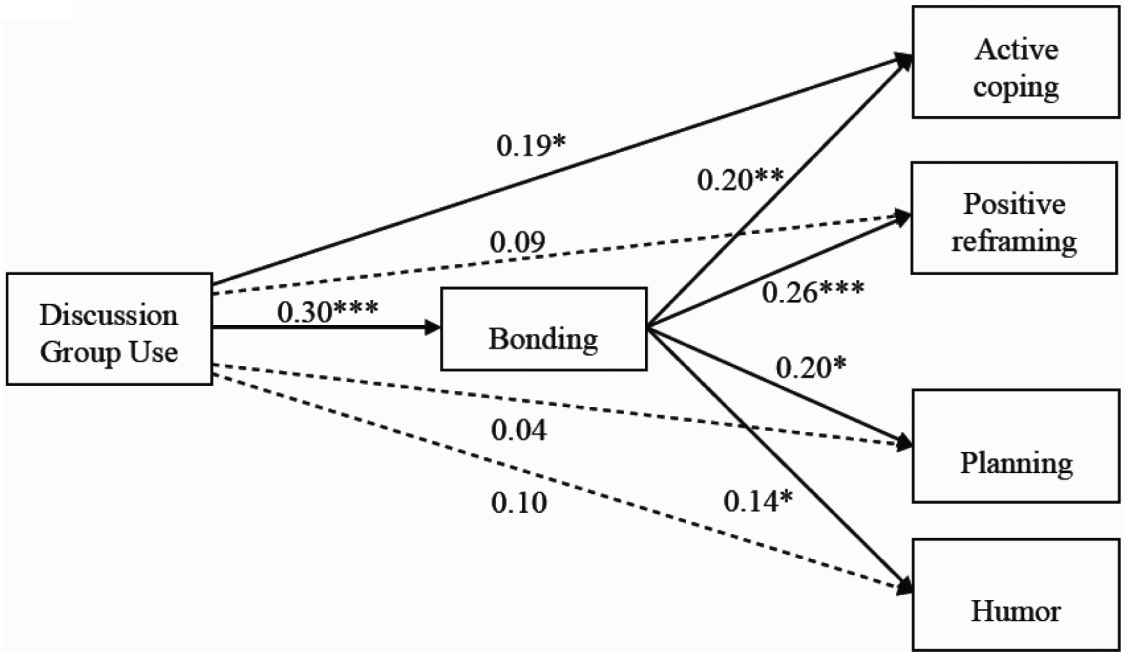

Figure 1. Structural equation model of computer-mediated social support group use, bonding, and coping strategies (Model 1). Model fit information: $\chi^2 = 35.94$ ($df = 20$), $P = .02$, root mean square error of approximation = 0.07, standardized root mean square residual = 0.02, and comparative fit index = 0.97. $^*P < .05$, $^{**}P < .01$, and $^{***}P < .001$.

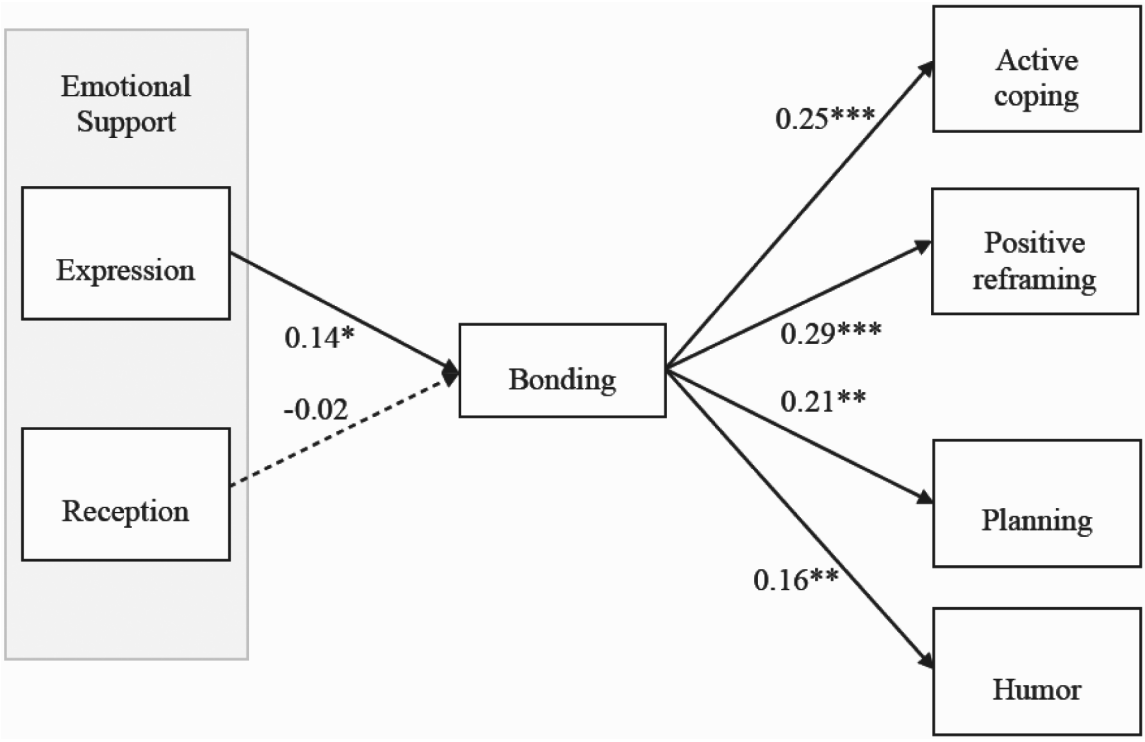

Figure 2. Structural equation model of emotional support exchange, bonding, and coping strategies (Model 2). Model fit information: $\chi^2 = 34.83$ ($df = 20$), $P = .02$, root mean square error of approximation = 0.06, standardized root mean square residual = 0.02, and comparative fit index = 0.97. $^*P < .05$, $^{**}P < .01$, and $^{***}P < .001$.

cancer patients may be as important or even more important in developing positive coping behaviors. Expressing emotional support seems to promote bonding because it fosters a sense of trust in and commitment to other group members. It conveys and builds a sense of connection, making expression more powerful than reception.

Although our results demonstrate the potential benefits of expressing emotional support, some study limitations may account for the null finding for reception. In an online discussion group, a member frequently reads messages not specifically directed to her. It is plausible that messages directed to an individual may promote

perceptions of bonding only when the recipient is aware of the *intent* of the author to provide emotional support to her specifically. Because our analysis was unable to identify whether messages specifically intended for individuals were received, our model may have missed some significant findings. Future research should seek to develop models that can examine the possibility that emotional support directed to an individual may promote bonding within a sender–receiver dyad.

This potential limitation highlights the benefits of expression effects. Patients may read numerous supportive messages in a CMSS group without feeling personally connected. However, expressing emotional support to others necessarily draws a participant into the group dynamic. Message expression and reception appear to require significantly different levels of intention. Writing supportive messages is a more purposeful and goal-directed behavior than reading messages because composing and reflecting on writing are cognitively demanding activities (13,15). Reading, however, is often more passive and happens with less intention because people do not know the full content of a message before they read it. For these reasons, emotional support expression likely requires a larger cognitive commitment from the participant. In addition, self-perception theory (41) posits that individuals look to their own behaviors for evidence of their underlying attitudes. From this perspective, when a person fulfills even a small request for another individual, they are likely to then interpret their action as indicating their favorable attitude toward that individual (42). Thus, when individuals provide emotional support, they accumulate evidence that they share close bonds with those they supported.

This process may be self-reinforcing. We demonstrate that a higher proportion of emotional support expression is linked with bonding and, in turn, beneficial health outcomes. It is likely that those who are predisposed to forming interpersonal relationships may be more prone to offer support and may provide emotional support at a higher rate. Experimental research formally manipulating message expression and reception is better suited to directly test and isolate the causal effects of emotional support exchanges. Although we aimed to distinguish emotional support expression and reception, our measures and methods are unlikely to fully capture the complex nature of support exchanges in CMSS groups. Future research should take complementary approaches to these questions, such as adopting a social network perspective and analyzing communication behaviors as an ongoing set of social relations.

Finally, the provision and receipt of emotional support are likely more demanding offline, as individuals must attend to and produce both verbal and nonverbal cues as well as manage time and space constraints. So, although we did not find evidence that emotional support reception worked through bonding to improve the outcomes that were the focus of this inquiry, there may be other relevant pathways that we have not considered here. Moreover, the potency of various routes of influence may differ across contexts. Much work remains to understand how online emotional support reception and expression operate through a range of possible channels, relate to and differ from one another, and function distinctly from exchanges in offline contexts.

Our findings have important implications for breast cancer patients looking for help coping with their illness and for healthcare practitioners who can help guide patients seeking support. Patients should be informed that participating in such groups is not just about self-centered information seeking or self-disclosure. Instead, important benefits occur from "being there" for others. Providing such support is likely to promote bonding and improve coping strategies. In addition, biobehavioral research demonstrates that poor social support and social isolation can increase cancer progression (43,44). Therefore, stressing the importance of helping others through online social support with its low barriers to entry and engagement may provide a range of cancer patients with improved biological as well as psychosocial outcomes.

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