

Mixed Messages: I. The Consequences of Communicating Negative Statements Within Emotional Support Messages to Cancer Patients

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Abstract

Background: Not all emotional support messages consist purely of positive statements. Some emotional support messages received by cancer patients simultaneously communicate statements of caring but also negative statements, such as criticisms of patients' actions. **Objective:** This study tests if a negative statement occurring within an emotional support message affects cancer patients' perceptions of the effectiveness of the *entire* emotional support message as well as the perceived competence of the supporter communicating the emotional support message. **Methods:** Cancer patients watched video recordings of emotional support messages and subsequently provided ratings on message effectiveness and supporter competence. Some emotional support messages included negative statements, whereas other messages did not. **Results:** Messages that included a negative statement were rated lower on message effectiveness than messages without negative statements. Cancer patients rated supporters communicating messages with a negative statement as having significantly less competence than those who did not communicate a negative statement. **Conclusion:** A single negative statement occurring within an emotional support message may result in cancer patients viewing the emotional support as less effective and the supporter as less competent.

Keywords

social support, emotional support, cancer, negativity bias, competence, message effectiveness, communication, mixed messages

Introduction

Communicating emotional support often occurs after someone is diagnosed with cancer. Unlike some forms of support that focus on resolving specific problems faced by cancer patients, emotional support messages focus on reducing feelings of distress associated with a cancer diagnosis (1). When cancer patients receive effective emotional support messages, they typically experience an improvement in their emotional state (2,3). On the other hand, ineffective emotional support messages typically fail to improve the patient's emotional state (3,4). In some cases, supporters communicate emotional support messages that are so ineffective that the cancer patient views the supporter as incompetent (5). Thus, supporters communicating emotional support to cancer patients should be aware that cancer patients are evaluating both the effectiveness of the message

and also how well the supporter can competently communicate emotional support.

Notably, researchers conducting emotional support studies often ask participants to evaluate contrived support messages that are created systematically to reflect different levels of message quality. That is, the emotional support messages used in some studies are purposefully created to

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be consistent in quality throughout the entire message (3,6,7). Whereas high-quality support message conditions typically consist of exclusively positive statements of caring and concern, low-quality message conditions typically contain only negative statements. This approach is problematic because naturally occurring social support messages (ie, moments of support that occur outside of research studies) can simultaneously include both positive statements of support and negative statements, such as criticisms of the patient's decisions or actions.

Consequently, how cancer patients view the effectiveness of these mixed messages—support messages composed of both positive and negative statements—is underexplored. Additionally, researchers have not determined if cancer patients evaluate supporters communicating mixed messages as less competent than supporters whose messages are purely positive. Therefore, the aim of this study is to test whether a brief negative statement communicated within an emotional support message decreases patients' evaluations of message effectiveness and supporter competence. Our predictions are based on the negativity bias, which is discussed next.

The negativity bias is the tendency for people to give greater attention to negative information than positive information when evaluating information and making sense of the world (8,9). Regarding cancer patients' evaluations of support behaviors, researchers have found that spouses' negative support behaviors had a stronger influence than positive behaviors on cancer patients' psychological distress (10). Likewise, research on impression formation has routinely demonstrated that negative information receives greater attention than positive information in creating final impressions (8,11).

Thus, in the context of the present study, the negativity bias would suggest that a brief negative statement occurring within an otherwise positive support message would significantly influence the perceived effectiveness of the *entire* support message. Therefore, the following hypothesis is advanced.

H1: Emotional support messages that include a negative statement are perceived as less effective than emotional support messages that do not include a negative statement.

Additionally, because the negativity bias also occurs during impression formation, it is feasible that brief negative statements within support messages would also lead to lower perceptions of supporter competence in comparison to supporters who did not communicate a negative statement. Thus, we hypothesize the following.

H2: Supporters who communicate emotional support messages that include a negative statement are perceived as less competent than supporters who do not communicate a negative statement within their emotional support message.

Method

Participants

Participants ($N = 100$) were cancer patients ranging in age from 18 to 79 years (mean [M] = 51.19 years; standard deviation [SD] = 13.28). The most frequent types of cancer were breast cancer ($n = 49$), skin cancer ($n = 5$), lymphoma ($n = 4$), and colon cancer ($n = 4$). Prostate cancer, Ewing's sarcoma, and lung cancer were each reported by 2 participants, and gastric, pancreatic, endometrial, hematological, and thyroid cancer were each reported by 1 participant. Twenty-six participants chose not to disclose their cancer site. Number of months since receiving their initial diagnosis ranged from 2 to 468 ($M = 72.11$ months; $SD = 80.67$). The majority ($n = 81$) were women, 18 were men, and one person reported "other" as their biological sex. Most participants were either white/Caucasian ($n = 61$) or Hispanic/Latino(a) ($n = 12$), with 2 participants reporting being Asian/Pacific Islander and 25 choosing not to provide an answer. Prospective participants had to be 18 years of age or older, fluent in English, and diagnosed with cancer at some point in their life. Cancer patient participants were recruited using a snowball sample technique that began with the research team recruiting cancer patients from their personal networks. These participants, in turn, recommended other cancer patients for participation in the study.

Procedure

Prior to seeking cancer patient participants, a team of researchers conducted 100 laboratory sessions in which undergraduate students recorded an emotional support message for a friend who had hypothetically been diagnosed with a serious form of cancer. The scenario also stated that the supporter learned about the diagnosis indirectly through someone else other than the friend with cancer. The average emotional support message was just over half a minute long ($M_{\text{Seconds}} = 38.03$; $SD = 24.34$) and consisted of approximately 100 words ($M_{\text{Words}} = 101.59$; $SD = 60.94$). The resulting 100 video recorded emotional support messages were then transcribed and used for coding the independent variable as described in the following section.

In the weeks after the 100 laboratory sessions occurred, each of the 100 cancer patient participants were randomly assigned to watch and evaluate one of the 100 emotional support messages recorded during the laboratory sessions. These videos were accessed via unique links e-mailed to the cancer patients. Each link also included a questionnaire in which the cancer patients evaluated the recorded message and provided demographic information. On average, cancer patient raters took 18 minutes to watch the video and answer the questionnaire ($SD = 32.15$ minutes). Participants were compensated with a \$5.00 Amazon eGift card.

Coding for Negative Statements

The study's independent variable (ie, whether the emotional support message included a negative statement) was developed by coding each message as either including a negative statement or not including a negative statement. To accomplish this, 2 of the researchers each coded the same 33 messages to determine whether each message contained a negative statement directed *at the cancer patient* instead of the diagnosis (ie, expressions of sadness, anger, resentment, disappointment, or other negative emotions directed at the patient). In all instances when the coders agreed that a negative statement had occurred, both coders identified the same portion of the message as the negative statement. The coders demonstrated excellent agreement (Cohen's $k = .89$), which allowed for the remaining 67 messages to be divided between the 2 researchers for coding.

A total of 15 of the 100 recorded emotional support messages included a negative statement. In all 15 instances, the negative statement was specifically about learning of the person's diagnosis indirectly through someone other than the patient. These negative statements also varied in explicitness. As an example of a participant who was more explicit in his or her negative statement, the participant began the emotional support messages saying "I just wanna start off by saying that I'm kinda really really hurt that I found out about this situation through someone else, rather than you telling me right off the bat." Others were less direct, such as one participant who ended one sentence saying "... you can get through it and I'll be there, even though, um, you haven't told me, and you've been telling other people."

Measuring Outcomes

Cancer patients' ratings of emotional support were assessed using Goldsmith and colleagues' Support Message Effectiveness Scale (12). The scale uses twelve 7-point semantic differential items to measure support message effectiveness across 3 dimensions: emotional awareness (eg, sensitive vs insensitive; compassionate vs heartless), relational assurances (eg, reassuring vs upsetting; encouraging vs discouraging), and problem-solving utility (ie, helpful vs hurtful; useful vs useless). In the present study, the researchers decided to collapse these 3 factors into a single factor based on the 3 factors being highly intercorrelated (average $r = .873$), suggesting that raters rated the support messages as uniformly effective or ineffective across the 3 dimensions. This was confirmed by an exploratory factor analysis that resulted in all 12 items loading onto a single factor. The scale demonstrated excellent internal reliability ($\alpha = .97$).

Ratings of supporter competence were made by cancer patients using the supportiveness factor that Jones (13) extracted from Cupach and Spitzberg's Ratings of Alter Competence (RAC) scale (14). The RAC is composed of 27 items designed to capture perceptions of a person's communication competence in a specific interaction. The

supportiveness factor is composed of 11 items from the RAC; however, 3 of these 11 items were not included in the current study because they inherently depend on the supporter and recipient sharing a conversational exchange (eg, "She or he was sensitive to my needs and feelings in the conversation," "She or he was a good listener," and "She or he was cooperative"). The 8 items used for the present study were presented as 7-point Likert scales (1 = strongly disagree and 7 = strongly agree). Example statements include "The person was supportive" and "The person was sympathetic." Internal reliability scores for this scale in the present study were excellent ($\alpha = .95$).

Data Analysis

All hypotheses were analyzed using Welch's t tests in lieu of the more frequently used Student t test. This decision was based on recent research that shows Welch's t tests have a more stable type 1 error rate than Student's t tests (15). Additionally, because our data consist of unequally sized groups (15 messages with a negative statement; 85 messages without a negative statement), the Welch's t tests is a better option than the Student's t test. Whereas the Student's t test performs poorly when comparing groups of composed of small, unequal sample sizes, Welch's t test was developed to specifically address these limitations (16).

Results

Preliminary Analyses

Preliminary analyses were conducted to determine if covariates should be included when testing the study's hypotheses. Correlations were used to test if the age of the supporter, the age of the cancer patient, the number of months since the initial cancer diagnosis, or the duration of the support message significantly correlated with either of the dependent variables. All correlations were nonsignificant. The correlations, M , and SD s of the study's variables appear in Table 1.

Additional preliminary analyses were done to determine if there were significant differences on the 2 dependent variables based on the sex of the supporter or the cancer patient, the ethnicity of the supporter or the cancer patient, whether or not the supporter had prior experience communicating emotional support to someone with cancer, the education level of the cancer patient, and the cancer patient's education level. These analyses were conducted using Student's t tests and analyses of variance (ANOVAs) and produced nonsignificant results. Therefore, no covariates were included when testing the hypotheses. Results of the Student's t tests and ANOVAs from the preliminary analyses are in Table 2.

Hypothesis Tests

The first hypothesis stated that emotional support messages containing a negative statement would be rated as less effective than emotional support messages without a negative

Table 1. Intercorrelations, Means, and Standard Deviations of Dependent Variables and Potential Covariates.^a

Variable	1	2	3	4	5	6
1. Message effectiveness (DV)	–	.86 ^a	–.03	–.08	.02	–.15
2. Supporter competence (DV)	–	–	.03	.02	–.01	–.04
3. Supporter age	–	–	–	–.11	.07	.02
4. Cancer patient rater age	–	–	–	–	.28 ^b	.03
5. Months since diagnosis	–	–	–	–	–	.15
6. Message duration (in seconds)	–	–	–	–	–	–
Mean	4.65	4.57	19.95	51.19	72.11	1080.20
SD	1.51	1.47	3.17	13.28	80.67	1928.88

^aNeither of the dependent variables (message effectiveness and supporter competence) significantly correlated with any of the potential covariates (supporter age, cancer patient rater age, months since diagnosis, and message duration). Therefore, none of the potential covariates were included when testing the hypotheses.

^a $P < .001$.

^b $P < .05$.

statement. A Welch's *t* test showed significant differences in the hypothesized direction. The 15 messages that included a brief negative statement were rated significantly less effective than the 85 messages without a negative statement. Hypothesis 1 was supported.

The second hypothesis stated that supporters whose messages contained a negative statement would be rated as less competent than supporters whose messages did not include a negative statement. A Welch's *t* test yielded significant results in the hypothesized direction. The 85 supporters who did not communicate a negative statement within their emotional support messages were rated by cancer patients as significantly more competent than the 15 supporters whose emotional support messages included a negative statement. Hypothesis 2 was supported. Results of both Welch's *t* tests appear in Table 3.

Discussion

This study investigated how cancer patients evaluate emotional support messages and the supporters communicating these messages when some messages included a negative statement and other messages did not. Cancer patients rated emotional support messages that included a negative statement as significantly less effective than messages that did not include a negative statement. Likewise, cancer patients rated supporters whose messages included a negative statement as significantly less competent than supporters whose messages did not include a negative statement. The statistical analyses used to test these hypotheses produced medium-to-large effect sizes, suggesting that a negative statement communicated within an emotional support message has

Table 2. Preliminary Analyses to Test for Potential Covariates.^a

Independent Variable	Message Effectiveness (H1)		Supporter Competence (H2)	
	<i>t</i> or <i>F</i> ^b	<i>p</i>	<i>t</i> or <i>F</i> ^b	<i>p</i>
Supporter sex (male vs female)	.31	.76	–.29	.77
Cancer patient rater sex (male vs female)	–.39	.70	–.97	.34
Supporter ethnicity ^c	1.47	.22	1.25	.30
Cancer patient rater ethnicity ^d	1.36	.26	.67	.57
Cancer type (breast or other) ^e	.35	.73	1.10	.28
Cancer patient rater education ^f	.41	.84	1.05	.40
Prior experience communicating emotional support to someone with cancer (yes vs no)	–.96	.34	–.53	.60

^aAll preliminary analyses were nonsignificant. Therefore, no covariates were included when testing the hypotheses.

^bStudent's *t* tests were used to test for differences comparing 2 conditions. *P* values for *t* tests are 2 tailed. Analyses of variance (*F* tests) were used to test for differences based on ethnicity or education level.

^cSupporter ethnicity tested for differences among participants identifying as Asian, Black/African American, Hispanic/Latino(a), white/Caucasian, and participants reporting multiple ethnicities.

^dCancer patient rater ethnicity tested for differences among participants who identified as Asian, Hispanic/Latino(a), white/Caucasian, and participants reporting multiple ethnicities.

^eBecause 49% of the cancer patients reported having breast cancer and many other cancer types reported were only reported once, a *t* test was conducted to see if differences occurred on the dependent variables between cancer patients raters with breast cancer and cancer patient raters with other types of cancer besides breast cancer.

^fCancer patient rater education tested for differences between those with a high school diploma or less, some college but no degree, an associate's degree, a bachelor's degree, a master's degree, and a PhD or professional degree (eg, MD, JD, DDS).

an influential, albeit negative, effect on patients' perceptions of the message and the supporter.

The negativity bias provides an explanation for these findings. People typically give greater attention to negative information than positive information and also tend to use negative information to a greater degree during message processing and impression formation (9,11). This study's findings are in line with prior research on the negativity bias and also extend our understanding of how cancer patients evaluate supportive messages and their supporters.

Theoretical Implications

This study suggests that the presence of a single negative statement within a support message has significant effects on the perceived effectiveness of the *entire* message and the supporter's competence. These findings reinforce the idea that communicating social support—which is typically

Table 3. Welch's *t* tests, Means (M), and Standard Deviations (SDs) of Message Conditions.^a

Dependent Variable	<i>t</i>	<i>df</i>	<i>P</i>	<i>d</i>	Messages With Negative Statement (n = 15)		Messages Without Negative Statement (n = 85)	
					M	SD	M	SD
Message Effectiveness (H1)	2.41	20.57	.013	.67	3.86	1.36	4.79	1.50
Supporter Competence (H2)	2.26	21.60	.009	.65	3.80	1.24	4.71	1.47

^aDegrees of freedom can occur at values other than whole numbers when using Welch's *t* test. The statistic *d* refers to the effect size Cohen's *d*. Because the 2 groups were not identical in sample size, Cohen's *d* was calculated by adjusting the pooled standard deviation with weights based on each group's sample size.

conceived of as a positive, pro-social behavior—can go awry and lead to negative outcomes for cancer patients (4,11), their supporters (5), and the patient-supporter relationship (3).

As noted earlier, social support researchers often present participants with support messages that are created to represent a uniform level of quality throughout the message (3,6,7). Although this approach allows researchers to isolate the effects of low-, moderate-, or high-quality support messages, naturally occurring support messages received by cancer patients may simultaneously convey positive and negative statements. The results of this study demonstrate how mixed messages are perceived differently from uniformly positive messages and suggests that the presence of a single negative statement may override any benefits that could have been experienced from receiving positive statements of love, concern, or empathy.

An important implication of these findings relates to determining the proper "level of analysis" when studying the effects of supportive messages and supportive interactions. Recent research has investigated support messages at microscopic levels by looking at the number of negative emotion words in a message (17) and also at macroscopic levels by coding support at the level of an entire support interaction (18). Based on the results of our study, we contend that researchers should consider a meso-level approach and pay close attention to the powerful effect that a single negative statement can have on an otherwise positive support message.

Practical Implications

From a practical standpoint, these findings illuminate the potential pitfall of criticizing or otherwise communicating negatively about a cancer patient's actions while also simultaneously trying to communicate love, caring, or concern. Although supporters may have expectations for how they

would like to find out about a loved one's diagnosis, the results of this study suggest that supporters are better off not mentioning any issues they may have about how the patient decided to disclose his or her diagnosis. This recommendation may apply to other instances of support throughout a cancer patient's journey, such as criticizing patients' decisions regarding treatment. Importantly, these recommendations are made regarding the provision of support between close friends and may or may not generalize to similar instances occurring between family members, spouses, or other loved ones.

Limitations

As with most research endeavors, this study endured limitations. One limitation was that the cancer patients rating the messages did not personally know the supporters communicating the messages. Although it is possible that the raters could be affected by the supporters' attributes (eg, the supporters' sex, ethnicity, age) or by the length of message, statistical tests showed no significant differences or associations between these variables and the study's dependent variables.

We must also acknowledge that approximately one quarter of the cancer patient raters did not report demographic variables such as cancer type or ethnicity, and due to the nature of these variables, the missing data could not be estimated. Future researchers should find ways to encourage participants to provide demographic data, as the absence of this data from many of the cancer patient raters in the present study may have affected the results of the preliminary analyses conducted to determine potential covariates or confounding variables.

Additionally, all of the negative statements coded in these emotional support messages were about the supporter learning of the diagnosis indirectly (ie, from someone other than the patient). Prior research notes other negative statements besides issues with indirect disclosures occur within supportive messages to cancer patients, including minimizing the cancer patient's experiences (19), criticizing the patient's response to the diagnosis (4), or being overly imposing in suggesting how the cancer patient ought to act or feel (3). Although it is easy to speculate that these other negative topics would yield similar results if they occurred within longer supportive messages, empirical evidence is needed to test this claim. On a final note, both of these limitations are related to the generalizability of the study's findings. The notable effect sizes of the significant findings, however, suggest that these findings would potentially replicate in future studies. In addition to conducting such replications of these findings, the researchers also offer additional future research directions.

Future Directions

Future research should consider the placement of negative statements that occur within emotional support messages (ie,

whether the negative statement occurs at the beginning, middle, or end of the message), as well as the proportion of the emotional support message that is composed of negative statements. Although the present study showed the presence of a single negative statement at some point in the support message had negative consequences, it is possible that such effects are weakened or strengthened depending on when the negative statement occurs during an otherwise supportive message. Such research designs would depend on messages crafted by researchers to systematically differ in these attributes but would also allow for statistical analyses between equal sized groups, which was not possible in the present study.

Future research should also consider how cancer patients recall and reflect on the mixed messages they receive over time. Longitudinal studies regarding how people remember certain portions of supportive messages could be particularly important given that chronic stressors such as a cancer diagnosis may last for months or years, and cancer patients may recall or dwell upon (for better or worse) particularly helpful or hurtful portions of mixed messages. Thus, the use of a longitudinal research design could allow researchers to determine the potency of negative statements in the days and weeks following the communication of mixed messages.

Finally, future research on mixed messages should be conducted using interactions between cancer patients and actual supporters, as opposed to supporters who do not know the patient. For example, collecting data from naturally occurring interactions between cancer patients and supporters they know would allow researchers to consider how relational history affects supportive interactions. Such studies could also investigate whether nonverbal communication (eg, the use of touch) affects perceptions of message effectiveness and supporter competence.

Conclusion

This study investigated instances when supporters communicated mixed messages of both positive statements of support and negative statements of criticism to cancer patients. Both hypotheses were supported, suggesting that a negative statement occurring within an emotional support message has negative consequences for how cancer patients view the message's effectiveness and the supporter's competence. One explanation for these findings is that people often succumb to the negativity bias (ie, giving greater attention to negative events), even when evaluating emotional support messages received following a cancer diagnosis. Thus, although supporters may at times want to criticize the actions of a loved one with cancer, the supporter should be aware that voicing these concerns while communicating emotional support may override any benefits that could have occurred as a result of the positive portions of a supportive message.

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