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Success Bias and Inflation Bias After Planning and Communicating Emotional Support

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Abstract

This study investigates the potential for cancer patients' supporters to experience cognitive biases after communicating emotional support messages. A success bias was predicted, such that those who planned their messages would rate those messages as more effective in comparison with those who did not plan their messages (H1a-H1c). An inflation bias was also predicted, such that supporters would rate their messages as more effective than cancer patients who also rated the messages (H2a-H2c). One hundred laboratory participants were randomly assigned to a planning or distraction task before recording an emotional support message for a friend who had hypothetically been diagnosed with cancer. Laboratory participants rated their own messages in terms of relational assurances, problem-solving utility, and emotional awareness. Subsequently, cancer patients viewed and rated the laboratory participants' messages on the same characteristics. Participants who planned their messages rated their messages significantly higher than those who did not plan their messages in terms of relational assurance and problem-solving utility but not emotional awareness. Irrespective of planning or distraction condition, participants also rated their messages significantly higher on all three dependent variables than did cancer patients. Supporters should be aware of the propensity to overrate their supportive abilities and guard against the assumption that planning messages results in more effective support messages.

Keywords Cancer · Oncology · Inflation bias · Success bias · Emotional support · Message planning · Cognitive bias

Most adults possess the cognitive abilities to plan messages before communicating and often engage in message planning to achieve a variety of social goals [1, 2]. One important social goal following a cancer diagnosis is effectively communicating emotional support messages to the diagnosed individual. Indeed, receiving emotional support is an important part of the coping process for cancer patients [3–5]; however, not all emotional support messages are equally effective [6, 7]. Although some emotional support messages may be perceived negatively for a variety of reasons [6], and although supporters

recognize the potential for supportive interactions to go poorly [8], people rarely assess the effectiveness of their planned messages [1, 9]. Furthermore, those who do reflect on their own communication may succumb to cognitive biases and fail to assess their performance and abilities accurately [10–13]. Therefore, this study investigates two cognitive biases—the success bias and the inflation bias—to determine if cancer patients' supporters are inaccurately perceiving the effectiveness of their emotional support messages for loved ones with cancer.

The success bias is the propensity for those who have engaged in planning to overestimate the likelihood that they will achieve their goal once their plan is implemented [1, 9]. That is, the mere act of planning leads to the overestimation of success once the plan is implemented. In the context of communicating emotional support to someone with cancer, this would be the assumption that planning one's emotional support messages will inherently produce more effective messages. The inflation bias, on the other hand, is the tendency for people (whether they plan their actions or not) to overrate their own abilities compared with how others rate them [10–13]. The inflation bias has been tested in the contexts of breaking bad news [12] and conveying empathy in a

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healthcare setting [11], but not in the specific context of communicating emotional support to those with cancer.

Accordingly, this study tests two sets of hypotheses regarding how the success and inflation biases influence perceptions of support messages with respect to three message characteristics: relational assurance (i.e., supportiveness), problem-solving utility (i.e., usefulness), and emotional awareness (i.e., sensitivity). The first hypothesis tests the success bias and predicts that supporters who plan their emotional support messages evaluate their messages as having more (H1a) relational assurance, (H1b) problem-solving utility, and (H1c) emotional awareness than supporters who do not plan their messages. The second hypothesis tests the inflation bias and predicts that, irrespective of planning, supporters view their messages as having more (H2a) relational assurance, (H2b) problem-solving utility, and (H2c) emotional awareness than cancer patients who rate the same messages.

Methods

Recruitment occurred in undergraduate courses at a public university in the southwestern United States. Upon arrival to the laboratory, prospective participants read and signed an informed consent form before participating in the laboratory protocol. Emotional support messages were video recorded by 100 laboratory participants. The participants were 50 women and 50 men ranging in age from 18 to 44 years ($M = 19.95$ years, $SD = 3.17$). Although this sample consisted primarily of young adults, 43% reported having known someone close to them who had been diagnosed with cancer, which suggests that the cancer support context is relevant to many in this age group. The majority (68%) self-identified as Caucasian, whereas others self-identified as Hispanic/Latino(a) (11%), Asian (7%), Black/African-American (4%), or as representing more than one ethnicity (10%). Laboratory participants had to be at least 18 years of age and fluent in English. Additionally, the laboratory protocol for this study was part of a broader research protocol that included saliva collections for cortisol analyses. Therefore, prospective participants were also excluded if they reported a variety of health conditions or life events (e.g., autoimmune diseases, pregnancy, and/or recent use of corticosteroids) [14].

In the laboratory, participants were instructed to identify an opposite-sex friend to think about for an upcoming scenario. Next, the researcher provided the participant with a hypothetical scenario in which the identified friend had been diagnosed with a serious form of cancer. The scenario specifically stated that the participant was aware of the diagnosis but had not yet talked to the friend about it. After reading the scenario, the researcher gave the participant an envelope that contained instructions for either a planning or a distraction task. The planning condition instructions asked participants to spend

4 min planning an emotional support message for their friend. The distraction condition instructions were adapted from the control group instructions of a study on expressive writing [15] and prevented the participants from planning their messages. After working on the task for 4 min, the researcher asked the participants to begin video recording an emotional support message for their friend using a camera atop a computer.

After recording the message, the participants provided self-ratings of their messages' effectiveness on a three-factor scale of social support message effectiveness [16]. The scale's three factors measure a support message's relational assurance (i.e., supportiveness), problem-solving utility (i.e., usefulness), and emotional awareness (i.e., sensitivity). Each factor is composed of four semantic-differential-type items (e.g., helpful/hurtful, comforting/distressing, and sensitive/insensitive). Reliability scores for supporters and recipients on all three scale factors were adequate with Cronbach's α ranging from .87 to .96.

The laboratory participants' messages were then viewed and rated by 100 cancer patients. Eighty-one of the cancer patients were women, 18 were men, and 1 identified biological sex as "other." Breast cancer was the most frequently reported diagnosis ($n = 49$), followed by skin cancer ($n = 5$), colon cancer ($n = 4$), and lymphoma ($n = 4$). Ewing's sarcoma, lung cancer, and prostate cancer were each reported by two participants, and hematological, thyroid, gastric, endometrial, and pancreatic cancer were each reported by one participant. Additionally, 26 cancer patient participants chose not to disclose the site of their cancer. Cancer patients were primarily middle-aged ($M = 51.19$ years, $SD = 13.28$). Most self-reported their ethnicity as Caucasian (61%), whereas 12% reported being Hispanic/Latino(a), 2% reported being Asian/Pacific Islander, and 25% choose not to answer the question. These participants were recruited via the research team's social networks and through recommendations from previous participants. Prior to participating in the study, prospective cancer patient raters read an informed consent form and electronically consented to participate in the study. Participants must have been 18 years of age or older, fluent in English, and diagnosed with cancer at some point in their life. Each cancer patient was emailed a unique link to a questionnaire that included one of the 100 emotional support messages video recorded by the laboratory participants. The cancer patient participants watched the video and evaluated the emotional support message using the same message effectiveness measures completed by the supporters during the laboratory sessions.

Results

The first hypothesis predicted that supporters who planned their messages would perceive their messages as having more

(H1a) relational assurance, (H1b) problem-solving utility, and (H1c) emotional awareness than those who did not plan their messages. The first hypothesis was tested via three Welch's *t* tests, which are more robust to violations of the homogeneity of variance assumption and better protect against type I error in comparison with the more frequently used Student's *t* test [17]. Results showed that supporters who planned their messages rated their messages significantly higher than supporters who did not plan their messages in terms of relational assurance and problem-solving utility. Planners also rated their messages higher than those who did not plan in terms of emotional awareness, but this difference was nonsignificant. H1a and H1b are supported and H1c is not supported (see Table 1 for detailed results).

The second hypothesis predicted that, irrespective of planning condition, supporters view their messages as having more (H2a) relational assurance, (H2b) problem-solving utility, and (H2c) emotional awareness than cancer patients view them. Results of paired sample *t* tests showed that supporters' message ratings were significantly higher than cancer patients' message ratings on all three variables (relational assurances, problem-solving utility, and emotional awareness). H2a, H2b, and H2c are supported (see Table 2 for detailed results).

Discussion

This study investigated the potential for cancer patients' supporters to succumb to two cognitive biases when communicating emotional support. Results showed that supporters who planned their messages rated their support messages as significantly more effective than supporters who did not plan their messages in terms of relational assurance and problem-solving utility, but not emotional awareness. Additionally, regardless of whether supporters planned their messages, supporters rated their messages as significantly more effective than cancer patients who also viewed and rated the messages on relational assurance, problem-solving utility, and emotional awareness. These results are interpreted below, beginning with the success bias.

One explanation for the success bias findings can be derived from prior research on message planning. Specifically, people typically formulate plans as a way to achieve a variety of goals simultaneously during an interaction [2]; however, typically, one specific goal from these many simultaneous goals serves as the focal point of an interaction [18]. In the context of supporting cancer patients, this focal goal could be communicating relational assurances or communicating support messages with problem-solving utility. Emotional awareness (i.e., sensitivity) would less likely be the *focal* goal of a supportive interaction, but instead act as a secondary goal (e.g., to communicate relational assurances in a sensitive way). Furthermore, planners often focus on first achieving concrete sub-goals that in turn contribute to reaching a more abstract higher-order goal. We surmise that it would be more likely that supporters would use the planning process to plan what would be said (e.g., relational assurances or problem-solving utility) and less planning energy to consider the most emotionally aware way to deliver the message. That is, considering the most sensitive way to communicate a supportive message may be what is left out of the planning process. If this is indeed the case, then it would not be surprising that the success bias occurred for relational assurances and problem-solving utility, but not emotional awareness, as less focus of the planning efforts were on being emotionally aware while communicating support.

Although the success bias only occurred on two of the three outcomes, it is still important to consider the implications of the success bias when supporters experience it. The success bias is problematic in situations when a person pursues the same goal multiple times, such as supporting a cancer patient over many months, because it provides a false sense of confidence in a plan that may not be effective [1]. Indeed, research shows that people typically reuse previously implemented plans and rarely evaluate a plan's effectiveness post-implementation [19]. Furthermore, reused plans, in general, tend to become less effective due to changes in the social environment in which plans are implemented [1]. For example, cancer patients' support desires typically change throughout their cancer experience [20], and supporters experiencing the success bias will typically reuse their prior plans to

Table 1 Success bias in planners' self-ratings of their emotional support messages ($N = 100$)

Dependent variable	Planning condition M (SD)	Distraction condition M (SD)	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Relational assurances (H1a)	5.87 (.77)	5.38 (1.05)	2.65	90.17	.01	.53
Problem-solving utility (H1b)	5.37 (.87)	5.03 (1.04)	1.78	94.24	.04	.35
Emotional awareness (H1c)	5.56 (1.08)	5.36 (.97)	.99	97.03	.16	.19

t values are a measure of difference between two group means relative to the variance in the two groups. Specifically, Welch's *t* values (used in this study) are calculated by dividing the difference between the two groups' means by an unpooled error term. Doing so allows for better control of Type I error when comparing two groups with unequal sample sizes and/or variances [17]. When using Welch's *t* tests, it is common for *df* values to occur at non-integer values. *d* refers to the effect size statistic Cohen's *d*

Table 2 Inflation bias within supporters' and cancer patients' ratings of emotional support messages ($N = 100$)

Dependent variable	Supporters' self-ratings M (SD)	Cancer patient ratings M (SD)	<i>t</i>	<i>d</i>
Relational assurances (H2a)	5.62 (.95)	4.76 (1.66)	5.16	.52
Problem-solving utility (H2b)	5.20 (.97)	4.54 (1.44)	4.06	.41
Emotional awareness (H2c)	5.46 (1.03)	4.63 (1.65)	4.42	.44

All analyses were significant with p values $< .001$. $df = 99$ in each analysis. d refers to the effect size statistic Cohen's d

communicate support because they believe their efforts are effective. In actuality, these reused plans may no longer meet the patients' changing support desires. This is particularly consequential given that depriving patients of the support they desire can negatively influence patients' psychological adjustment to cancer [5, 21].

The results regarding the inflation bias align with research showing the propensity for people to overestimate their abilities in a variety of contexts [10–13]. From a practical standpoint, these findings suggest that people would benefit from engaging in self-reflections and honest self-assessments of how well they are supporting cancer patients; however, research on the inflation bias has found that those who are least skilled are also the least likely to realize their incompetence [13]. The same research also found that skills training led to increased metacognition which, in turn, led to better accuracy in self-assessments (i.e., recognizing the limits of one's abilities). That is, tackling the inflation bias directly by asking people to engage in self-assessments or self-reflections may be a relatively futile endeavor. Instead, these findings should be used as a rationale for increased training for cancer patients' supporters on the basis that increased training also brings about greater metacognition about one's shortcomings and better estimation of one's abilities. These trainings, however, should also emphasize that merely taking the time to plan messages does not guarantee a successful or effective supportive interaction.

Conclusion

Many people will at some point in their life be expected to communicate emotional support to a loved one with cancer. Research has demonstrated the propensity for people to overestimate their abilities when communicating (i.e., the inflation bias) [10–13], and this study extends those findings to include overestimates of one's ability to effectively communicate emotional support messages to those with cancer. Furthermore, those who plan their emotional support messages may also succumb to the success bias by perceiving the act of planning as inherently resulting in more effective messages. Thus, even though message planning can lead to more efficient and effective pursuit of social goals [1, 22], it

may also hinder a supporter's ability to accurately assess how well he or she is communicating emotional support to a loved one with cancer over the course of that patient's cancer experience.

Finally, it is important to note that the laboratory participants in this study were recording emotional support messages in response to a hypothetical scenario, thus, detracting from the ecological validity of the findings. This study design, however, allowed researchers to investigate the success and inflation biases while controlling for the possible confounding effects of relational history between supporter and recipient. Of note, some participants did exhibit signs of emotional distress while recording their support messages, suggesting the scenario had face validity in terms of anxiety provocation. Finally, future research should test these findings in a natural setting. The medium effect sizes obtained in the results for H1a, H1b, and H2a–H2c suggest there is promise that these findings would replicate if tested in non-laboratory settings such as natural occurring conversations between supporters and those with cancer.

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