

# Communicating about Self and Others within an Online Support Group for Women with Breast Cancer and Subsequent Outcomes

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## Abstract

Research suggests communicating too much about one's self within an online support group may amplify breast cancer patients' focus on their own problems and exacerbate negative emotions while focusing on others may have the opposite effects. This study explored how pronoun usage within an online support group was associated with subsequent mental health outcomes. There were 286 patients recruited into the study who filled out the pre-test and 231 completed post-tests four months later with survey measures including breast cancer-related concerns and negative emotions. Messages were analyzed using a program counting first person and relational pronouns. A positive relationship was found between use of first person pronouns and negative emotions.

## Keywords

- *breast cancer*
- *online support groups*
- *pronouns*
- *self-focus*
- *social support*

## Introduction

BREAST cancer is the most commonly diagnosed cancer in the United States, and the second leading cause of cancer death in women according to 2007 estimates by the American Cancer Society. Not surprisingly, research has found that a breast cancer diagnosis and subsequent treatments are a traumatic set of events. Breast cancer patients face a variety of psychosocial concerns such as isolation and loneliness (Anderson, 1992) as well as psychological difficulties such as distress, depression, and anxiety (Spiegel, 1997). Research also indicates that distress associated with breast cancer can persist in survivors for five years and longer following the initial breast cancer diagnosis (Saleeba, Weitzner, & Meyers, 1996).

Given the high prevalence of breast cancer and suffering associated with the diagnosis, it is important to identify and understand what coping mechanisms may help or hinder quality of life for this population. One increasingly common method that women with breast cancer use to cope with their health crisis is participation in online support groups. The number of people participating in online health support groups currently counts in the millions (Fox & Fallows, 2003), and breast cancer patients are among the most active seekers of online social support relative to other patient populations (Davison, Pennebaker, & Dickerson, 2000).

A few studies have provided quantitative evidence for how different types of communication within online support groups can influence mental health outcomes for breast cancer patients. For example, recent research indicated that the expression of anger was associated with higher quality of life and lower depression, while the expression of fear and anxiety was associated with lower quality of life and higher depression (Lieberman & Goldstein, 2006). Other current research found that women who use online support groups as a venue to talk constructively about their cancer experience in a way that helps them make sense of their illness appear to benefit from improved mental health outcomes (Shaw, Hawkins, McTavish, Pingree, & Gustafson, 2006b)—a finding that has been replicated and extended in another study examining online support groups for breast cancer patients as well (Lieberman, 2007). An additional study (Shaw et al., 2007) reports that writing a higher percentage of words suggestive of religious belief and practice within an online support group for breast cancer

patients was associated with lower levels of negative emotions and higher levels of self-efficacy and functional well-being, even after controlling for patients' pre-test levels of religious beliefs. One potentially meaningful phenomenon that has yet to be explored is the effects of writing about oneself compared to writing about others within an online support group. Below we describe some theoretical reasons why we may expect these forms of communicative behaviors to be associated with mental health outcomes among women with breast cancer.

### *Focus on self*

Past research provides insights about why writing too much about one's self within an online support group may contribute toward worsened mental health outcomes. Specifically, self-focus may contribute to worse outcomes in coping with cancer because it may increase thoughts about one's problems. Previous research found that breast cancer patients with a history of cancer-related intrusive thoughts were more likely to suffer from 'anxious preoccupation' with their illness—repetitive thoughts and feelings about how cancer has negatively affected their lives (Matsuoka et al., 2002). Ruminative responses in turn have also been theorized to prolong depressive states (Nolen-Hoeksema, 1987, 1991) because they enhance the effects of negative mood on cognitive processes and inhibit those experiencing such thoughts from coping with their mood in a problem-solving manner.

### *Focus on others*

In contrast, there are a number of reasons why focusing on others within an online support group might contribute to improved mental health outcomes. Yalom (1970) described the general therapeutic benefits received by support group members. One key factor Yalom (1970) described is *altruism*, which is the showing of caring and concern for other members. Altruism is important because it forces cancer patients to change their focus from preoccupation with their own sickness to thinking of others, and research has found that altruism is among the reasons women with breast cancer turn to online support groups (Shaw, McTavish, Hawkins, Gustafson, & Pingree, 2000).

Another therapeutic factor specified by Yalom (1970) that may arise from participating in support groups is *universality*, which is the realization that others have similar problems. Universality is beneficial to cancer patients because it helps them feel

less isolated (Weinberg, Uken, Schmale, & Adamek, 1995). The online support group can connect participants to a network of other people where they can communicate with women who inherently share their concerns and understand how breast cancer affects a person. Despite the fact that so many women are diagnosed with and treated for breast cancer each year, many find that they do not have anyone with breast cancer within their *personal* social networks at the particular time of their health crises. Online support groups provide a place where they can connect with others and find camaraderie among people going through similar situations (Shaw et al., 2000). Relating with other patients facing similar problems may distract them from their own self-focused preoccupations—reducing the worry and distress that is often part of living with a cancer diagnosis.

### *Pronouns as indicators of focus on self as compared to others*

One efficient way that researchers may examine how focusing on oneself or others within an online support group may influence outcomes as the above theoretical rationales suggest is by examining patients' use of pronouns. Previous researchers suggest that pronouns may be an overlooked linguistic dimension that could have important meaning for researchers (Pennebaker, Mehl, & Niederhoffer, 2003) as pronouns are markers of self versus group identity (e.g. I versus we) as well as of the degree to which people focus on or relate to others. Consistent with the idea that self focus is associated with negative affect, previous research indicates that more frequent use of first person singular pronouns (e.g. I, me, mine) is associated with higher degrees of self-involvement and depression (e.g. Stirman & Pennebaker, 2001; Weintraub, 1989). Possible explanations for this phenomenon are that a disproportionate volume of first person pronouns reflects a weakness in connecting with others (Bucci & Freedman, 1981) and that affective disorders are characterized by a high degree of self-preoccupation (Pennebaker et al., 2003). In addition, more frequent use of first person pronouns has been found to be associated with greater neuroticism (Pennebaker & King, 1999). Whereas first person singular pronouns suggest attention on the self, most other pronouns implicitly or explicitly imply that the person is attending to other individuals (Chung & Pennebaker, in press). Indeed, second and third person pronouns are, by definition, markers to

suggest that the speaker is socially engaged or aware and indicators that the communicator is in some way focusing on or relating with others (Pennebaker et al., 2003). Consistent with this line of thinking, those who are more connected in their relationships have been found to use more relational pronouns (e.g. we, us, our), and use of first person plural pronouns has been found to be a marker of group identity (Pennebaker & Lay, 2002).

One important domain to determine whether use of first person and relational pronouns are associated with worse or better mental health outcomes is within online support groups. Since joining online support groups has become common for women coping with breast cancer, it is important to understand how they are affected as a result of participation in these groups. This research proposes to be the first we are aware of to explore how pronoun usage indicating focus on one's self in contrast to others may be associated with mental health outcomes among participants in an online support group for women with breast cancer.

### *Summary and hypotheses*

In summary, communicating too much about one's self within an online support group may amplify breast cancer patients' focus on their own problems and exacerbate the worry and negative emotions associated with a cancer diagnosis. The first hypothesis to be tested is that a higher percentage of first person singular pronouns will be associated with higher levels of breast cancer concerns and negative emotions.

H1: Writing a higher percentage of first person singular pronouns will be associated with more breast cancer-related concerns.

Similarly, having more worries is expected to be associated with greater subjective perceptions of distress, leading to the second hypothesis.

H2: Writing a higher percentage of first person singular pronouns will be associated with higher levels of negative emotions.

The general notion that communicating about other people may reflect a greater focus on others thereby reducing worry and distress about their own situation leads to the second set of hypotheses.

H3: Writing a higher percentage of relational pronouns will be associated with fewer breast cancer-related concerns.

Finally, it is assumed that communicating about others within an online support group will also

Table 1. Demographic characteristics

	Study participants (n = 231)	Active participants (n = 95)	Inactive participants (n = 134)
<i>Age</i>			
Mean (SD)	51.58 (11.81)	48.48 (11.12)	54.01 (11.64)
<i>Ethnicity</i>			
Caucasian	144 (62.3%)	74 (77.9%)	68 (50.7%)
African American	83 (35.9)	21 (22.1%)	62 (46.3%)
Other minorities	4 (1.7%)	0 (0%)	4 (2.9%)
<i>Live alone</i>			
Yes	63 (27.3%)	32 (33.7%)	31 (23.1%)
<i>Education</i>			
Some junior high	2 (0.9%)	0 (0%)	2 (1.5%)
Some high school	24 (10.4%)	9 (9.5%)	15 (11.2%)
High school degree	72 (31.2%)	28 (29.5%)	43 (32.1%)
Some college	69 (29.9%)	30 (31.6%)	38 (28.4%)
Associate or technical degree	28 (12.1%)	15 (15.8%)	13 (9.7%)
Bachelor's degree	28 (12.1%)	10 (10.5%)	18 (13.4%)
Graduate degree	8 (3.5%)	3 (3.2%)	5 (3.7%)
<i>Stage of cancer</i>			
Early stage (stage 0,1,2)	162 (70.1%)	62 (65.3%)	98 (73.1%)

Note: Two outliers were excluded from 'active' group

reduce perceptions of subjective distress as a result of having fewer-breast cancer-related worries, leading to the fourth and final hypothesis of this study.

H4: Writing a higher percentage of relational pronouns will be associated with lower levels of negative emotions.

## Methods

### Participants

The data analyzed in the current study were collected as a part of the Digital Divide Pilot Project (DDPP) where underserved breast cancer patients in rural Wisconsin and Detroit, Michigan were given access to an online health education and support system for four months (Gustafson et al., 2005a, 2005b; Shaw et al., 2006a). Both pretest and a four-month posttest surveys were conducted with a sample of 231 patients (81% return rate from 286 subjects) and subjects were paid \$15 for each completed survey. Participants were identified through a variety of sources, including the National Cancer Institute's Cancer Information Service (CIS), hospitals and clinics, the Medicaid program, and public health departments. They were eligible if they were at or below 250 percent of the federal poverty level,

within one year of diagnosis or had metastatic breast cancer, not homeless, and able to read and understand an informed consent letter. Study protocols were approved by the Institutional Review Boards (IRB) at the University of Wisconsin-Madison. Every study participant was loaned a computer and given Internet access for four months and received personal training to learn how to use the computer and the Internet, with the majority of time being spent on learning how to use the Comprehensive Health Enhancement Support System (CHESS) 'Living with Breast Cancer' program, which is a comprehensive Interactive Cancer Communication System (ICCS) that has been found to be efficacious in numerous previous studies (e.g. Gustafson et al., 1999, 2001). They also received ongoing technical support if they needed it. Detroit recruitment began in June 2001 and ended in April 2003, and Wisconsin recruitment began in May 2001 and ended in April 2003.

Table 1 presents patient characteristics including age, education, ethnicity, stage of cancer (early or late), and whether they lived alone. Study participants had a mean age of 51 years and had a diverse educational background, with 42.5 percent having a high school education or less, 29.9 percent having attended some college, 24.2 percent were college

graduates, and 3.5 percent attended graduate school. A total of 27.3 percent lived alone and 70.1 percent were classified as early stage of cancer (0–2) and 29.9 percent classified as late stage of cancer (3–4). In addition, 62.3 percent were Caucasian women, 35.9 percent African American, and 1.7 percent other minorities.

### *Criterion for inclusion in analysis*

A woman was considered to be an active participant in the discussion groups if she wrote at least three messages over the course of the study. We selected this criterion based on several observations that emerged from both a qualitative and quantitative analysis of the messages that occurred following data collection. As part of the training process, women were encouraged to write a message introducing themselves to the rest of the group, which provided the participant the opportunity to show during the in-house training that she could use the communication function that allowed her to participate in the computer support group. The first two messages tended to be short, containing simple background information about diagnosis, marriage, children or where they lived. Thus, limiting this analysis to women who wrote three or more messages assured that all training and introductory messages were excluded from the analysis. Additionally, since the study addressed the use of first person singular and relational pronouns in the computer support groups, writing fewer than three messages was deemed insufficient to achieve effects from these forms of expression. Based on the criterion, 97 active participants were initially selected out of 231 participants.

Prior to analysis, we identified two abnormal outliers using both univariate and multivariate methods (Tabachnick & Fidell, 2001). One case was a univariate outlier because of its extremely low  $z$  scores on the negative emotion scale in excess of 3.29 ( $p < .001$ ). By using Mahalanobis distance with  $p < .001$ , another case was identified as a multivariate outlier. Mahalanobis distance considers an unusual combination of scores of two or more variables and is 'the distance of a case from the centroid of the remaining cases where the centroid is the point created at the intersection of the means of all the variables' (Tabachnick & Fidell, 2001, p. 68). Since there were only a few outliers ( $n = 2$ ), we examined them individually to see if there was any possibility that they would distort our analyses, in which case those outliers were deleted. This step was necessary

since regression analysis is sensitive to influential outliers, often leading to 'both Type I and Type II errors, frequently with no clue as to which effect they have in a particular analysis' (Tabachnick & Fidell, 2001, p. 67). With two outliers deleted, 95 active participants were finally included in the subsequent analyses.

Table 1 also shows demographic characteristics of active ( $n = 95$ ) and inactive ( $n = 134$ ) discussion group participants. When comparing women classified as active participants in the discussion groups with the inactive group, statistical tests indicated that the active group was more likely to be younger ( $t = 3.68, p < .001$ ) and Caucasian ( $\chi^2 = 17.78, p < .001$ ).

### *Measures*

**Criterion variables** In both pre- and posttest surveys, participants reported two primary dependent measures: breast cancer-related concerns and negative emotions.

- **Breast cancer-related concerns:** Breast cancer-related concerns (pretest  $M = 7.49$ ,  $SD = 4.92$ ; posttest  $M = 8.13$ ,  $SD = 4.71$ ), used in other CHESS studies (e.g. Gustafson et al., 2005a; Shaw et al., 2006b) and validated in previous research (Cella et al., 1993), assessed a breast cancer patient's emotional, physical, and body image concerns related to treatments and side-effects. Breast cancer-related concerns was created using an additive index of six items that asked, on a five-point scale ranging from 0 = *not at all* to 4 = *extremely*, if: (1) they were short of breath; (2) they were self-conscious about the way they dress; (3) they were bothered by swollen or tender arms; (4) their change in weight bothered them; (5) their hair loss bothered them; and (6) they were fatigued (Cronbach's  $\alpha = .62$ ). The relatively lower internal consistency for this scale may be explained because this scale taps into a range of physical, emotional, and body image issues that may not occur all at the same time.
- **Negative emotions:** A five-item negative emotions scale (pretest  $M = 13.71$ ,  $SD = 4.80$ ; posttest  $M = 11.48$ ,  $SD = 4.14$ ) used in previous CHESS studies (Gustafson et al., 2001, 2005; Shaw et al., 2006b, 2007) asked, on a five-point scale ranging from 1 = *never* to 5 = *always*, how often patients had felt each of the following during the past month: (1) helpless; (2) tense; (3) angry; (4) hopeless; and (5) frustrated. Those

Table 2. Descriptive statistics for word usage of the active participants ( $n = 95$ )

	<i>M</i>	<i>Mdn</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Word count	11800.57	1815.00	30994.85	76.00	212584.00
Percentage of first person pronoun words	7.93	7.82	2.12	2.60	13.33
Percentage of relational pronoun words	4.99	4.89	1.98	.78	10.50
Number of messages	88.63	16.00	219.51	3.00	1123.00

Note: The statistics shown in the table represent values per participant over the entire four months

scores were combined to construct an index for negative emotions (Cronbach's  $\alpha = .89$ ).

**Pronoun use** Two types of pronoun use serve as our independent variables: first person singular pronoun words (e.g. 'I, me') and relational non-I pronoun words including first person plural (e.g. 'we'), second person (e.g. 'you') and third person pronouns (e.g. 'he, she, they'). In order to assess the degree to which each breast cancer patient expressed those categories of pronoun words within online support groups, this study analyzed the entire body of each subject's text messages within the CHES online support groups using the LIWC (Linguistic Inquiry and Word Count) computerized text analysis program developed by Pennebaker and Francis (1996), validated in other studies (e.g. Pennebaker & King, 1999) and utilized in the context of analyzing communications within online support groups for women with breast cancer (e.g. Alpers et al., 2005; Lieberman, 2007; Lieberman & Goldstein, 2006; Shaw et al., 2006b, 2007). With the LIWC, percentage of pronoun words are used rather than frequency because people vary in how much they write but the important thing is how much of their writing is related to a particular linguistic dimension.

In the four-month intervention, 58 percent ( $n = 134$ ) of the sample wrote two or fewer messages and therefore did not meet the selection criterion for active participants. The mean percentage of pronoun words written for the 95 active group members was 7.93 for the first person singular pronoun words (translating to an average of 936 words per person) and 4.99 for the relational pronoun words (translating to an average of 589 words per person). Table 2 presents the descriptive statistics for word usage with the categories of pronoun words tested in this study.

### Control variables

To decide which control variables to use and which to exclude, we employed multiple approaches to identify an appropriate control model to use in the regression analyses. Following guidelines suggested by Agresti and Finlay (1999), a group of potential control variables including five demographic variables (i.e. age, ethnicity, education, insurance status, and living situation) and two disease-related variables (i.e. stage of cancer and time since cancer diagnosis) were selected from the survey along with the pretest level of each dependent variable. Then, forward, backward, and stepwise methods were performed repeatedly to identify any significant controls for each of two dependent variables (standard entry criteria: probability of  $F$ -to-enter  $\leq 0.05$  and probability of  $F$ -to-remove  $\geq 0.10$ ). These tests revealed that potential control variables excluding the pretest level of each dependent measure were not significant predictors for our dependent variables. Additionally, zero-order correlations between seven potential control variables and two independent variables revealed that age was significantly related to use of both first person pronoun words ( $r = -.248, p < .01$ ) and relational pronoun words ( $r = .270, p < .01$ ), and the direction of these relationships was opposite. Additionally, time since cancer diagnosis was positively associated with relational pronoun use ( $r = .273, p < .01$ ). Taken together, we included these two variables as controls along with the pretest score of each dependent measure to reduce their confounding effects.

### Results

To examine how the two theoretically distinct patterns of pronoun usage within the computer support groups was associated with psychosocial health

Table 3. Hierarchical regression analyses predicting influence of pronoun use on hypothesized outcome variables

Criterion variables	Breast cancer-related concerns			Negative emotions		
	Unstandardized coefficient		Standardized coefficient	Unstandardized coefficient		Standardized coefficient
	B	SEB	Beta	B	SEB	Beta
<i>Block 1: Control &amp; pretest measures</i>						
<i>Control variables</i>						
Age	-.024	.037	-.058	.018	.035	.048
Time since cancer diagnosis (days)	-.010	.004	-.199*	.006	.004	.139#
<i>Pretest measures</i>						
Breast cancer-related concerns	.576	.083	.602***	—	—	—
Negative emotions	—	—	—	.422	.081	.489***
Incremental R <sup>2</sup>	.392***			.285***		
<i>Block 2: Main effect</i>						
Percentage of first person pronoun words	.290	.198	.131#	.355	.197	.182*
Percentage of relational pronoun words	-.248	.219	-.104	.226	.209	.109
Incremental R <sup>2</sup>			.033*			.027#
Total R <sup>2</sup>			.425			.313

#*p* < .10; \**p* < .05; \*\*\**p* < .001; one-tailed test; *n* = 95

outcomes, hierarchical regression analyses were employed to test the effects of pronoun words on the dependent variables of interest. The first step regressed the pretest score along with the age and time since diagnosis variables and then the percentage of first person and relational pronoun words written were entered together. Table 3 summarizes how percentage of pronoun words was associated with psychosocial health outcomes (i.e. breast cancer concerns and negative emotions), which were obtained from two separate regression analyses. Additionally, we used one-tailed significance tests since we specified directional relationships between our independent and dependent variables (Agresti & Finlay, 1999).

As shown in Table 3, the first and third hypotheses for a breast cancer-related concerns outcome did not receive support. But the second hypothesis that a higher percentage of first pronoun words would predict higher levels of negative emotions received support ( $\beta = .182, p < .05$ ). The fourth hypothesis was not supported as the percentage of relational pronoun words written was not significantly associated with a reduction in negative emotions.

## Discussion

This study supported the theoretical notion that communicating about oneself within an online support group is associated with higher levels of negative emotions among women with breast cancer, which is consistent with findings from previous research examining non-clinical samples.

It is also worth discussing the significant relationships between age and time since diagnosis with the use of first person singular and relational pronoun words. Specifically, being younger was associated with greater use of first person pronoun words—a finding that is consistent with previous research (Pennebaker & Stone, 2003)—and being younger was also associated with lower use of relational pronoun words. Additionally, more time since cancer diagnosis was positively associated with greater use of relational pronoun words. Both of these findings are interesting because while we largely conceived of communication using first person and relational pronouns as being representative of underlying psychological processes, it also appears that distinctive patterns of pronoun usage

may also serve as situational markers of where a woman is in her life cycle or disease trajectory.

One potential use of insights generated in this study is that support groups may be linguistically analyzed including indirect markers of mental distress such as self-focus to deliver tailored information that may help them focus on external stimulus or cope more effectively with negative affect. Even without specifically negative language about a support group participant's state of mind, a computer program may analyze her levels of first person singular pronouns to make inferences about whether she may benefit from information and support designed to encourage screening or treatment for affective disorders. Such analyses may be very useful, particularly because past research has found that first person pronouns are a better marker of depression than use of negative emotion words (Mehl, 2004; Rude, Gortner, & Pennebaker, 2004).

Similarly, as the use of relational pronouns was associated with greater time since diagnosis, future research may examine whether women employing this style of language may be part of a subset of participants who serve a facilitative role within the groups, welcoming new members and providing a sustaining function for the group by assuring that everybody is always responded to (Winefield, 2006). If so, information tailoring systems may linguistically analyze support group transcripts so that women who appear drawn toward connecting with newer patients are delivered tips and advice on how to optimally support others with breast cancer, potentially increasing the effectiveness of these groups to help other patients.

That higher levels of self-focus while coping with an obviously stressful event like a breast cancer diagnosis is associated with more negative emotional outcomes is not to suggest that cancer patients should not communicate about their own problems at all. Indeed, as referred to in the introduction, previous research on computer support groups for women with breast cancer have found improved mental health outcomes for those who use online support groups as a place to write about and make sense of their illness experience (Lieberman, 2007; Shaw et al., 2006b). However, our findings suggest that—all other things being equal—dwelling on one's problems in a non-constructive way within online support groups may contribute to higher levels of negative emotions by keeping the focus on oneself while facing a traumatic experience. Similarly, it is important to note that the results of

this study only provide insights about focusing on oneself from an outwardly communicative standpoint within an online support group. Focusing on oneself while living with a cancer diagnosis in other ways—such as mindfulness meditation in which a person becomes intentionally aware of his or her thoughts and actions in the present moment—might still be expected to offer benefits, which has received some encouraging preliminary support in prior research (Carlson, Speca, Patel, & Goodey, 2004; Carlson, Ursuliak, Goodey, Angen, & Speca, 2001).

The entirely female composition of this sample should be noted as previous studies indicate that women tend to engage in more maladaptive self-focus, such as rumination (Nolen-Hoeksema, 1987, 1991). Future research should examine whether writing more about one's self also contributes to worse mental health outcomes among males participating in online health support groups to see if similar results are found.

A limitation of this study was that breast cancer related concerns—one of two primary dependent variables in this study—only had a consistency alpha of .62. Future research should focus on building a more reliable scale for this dimension. It is also possible that this study was under-powered with only 95 active participants. Although it is expensive and resource-intensive to conduct longitudinal research with cancer patient populations, future studies should employ larger samples to increase statistical power and efficacy in detecting significant effects from focusing on oneself or others in online support groups.

Another limitation of this article is that the LIWC only counts and classifies words, which may be legitimately criticized as over simplifying the full richness of the psychological phenomena that may occur when people communicate (Shaw et al., 2007; VandeCreek, Janus, Pennebaker, & Binau, 2002). Additionally, it should also be noted that simply counting words is an admittedly crude way to understand what people are saying as most computer programs do a poor job of acknowledging context (Chung & Pennebaker, in press).

For example, in considering the association between self-focus in affective states, it is important to note the role of context such that it is likely that self-focus will relate positively to negative affect when it follows negative events but not when it follows positive events. Therefore, in the context of coping with breast cancer, we might expect that



ruminating excessively about one's self as it relates to negative events such as side-effects from treatment or following some unsettling test results might contribute to worsened mental health outcomes. However, based on the logic being used in this study, self-focus would not necessarily contribute to negative affect following a positive event such as an encouraging follow-up visit or other life events—whether cancer-related or not—that conjure feelings of joy rather than sorrow, anger or sadness. Future research should differentiate between negative versus positive self-focus, as it seems quite likely that different mental health outcomes may result from these divergent cognitive processes.

Even with the above caveats in mind, the finding that a higher percentage of words related to communicating about one's self was associated with worsened mental health outcomes suggests that this is a phenomenon worth further study. Our current study provides intriguing insights about how focusing on oneself within online support groups may possibly contribute toward unintended mental health outcomes among some patients living with breast cancer.

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