NATURALISTICALLY OBSERVED SOCIAL SUPPORT AND OPTIMISM
IN COUPLES COPING WITH BREAST CANCER

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Abstract

**Objective:** The goal of this study was to explore the relationship among self-reported optimism, naturalistic language use, daily receipt of social support, and self-reported depressive symptoms. Specifically, it investigated what implications the use of positive emotion words has for coping with breast cancer. **Methods:** The present project employed the Electronically Activated Recorder (EAR), an unobtrusive observation sampling method that periodically records snippets of ambient sounds, to track language use and social support in the daily interactions of breast cancer patients and their partners. Participants also completed self-reported measures of dispositional optimism and depressive symptoms. **Results:** Self-reported optimism correlated significantly with the use of positive emotion words among breast cancer patients. Naturalistically observed positive emotion words were also related to increased observed social support. **Conclusion:** These results offer preliminary support for the notion that positive emotion words are a linguistic indicator of optimism in breast cancer patients. There was also some evidence that optimistic individuals may be able to elicit social support via the use of positive emotion words. This is one of the first studies to examine the role of naturally observed language and social support in the context of optimism.
When a patient is diagnosed with breast cancer, she has much more to face than just the physical disease. Research has shown that breast cancer also has a profound psychological impact on the individual. Such psychological aspects may include depression, anxiety, uncertainty about the future, fear of recurrence or metastasis, and distress from surgery (Ferrell et al., 1998). According to Burgess and colleagues (2005), 50% of women with early stages of breast cancer experience depression, anxiety, or both in the year after diagnosis. Breast cancer, however, does not only impact patients; it is also a stressor for their partners and can impact their psychological well-being (Segrin et al., 2005). Furthermore, Segrin and colleagues (2005) found that patients and partners influence each other’s ability to cope with breast cancer.

Coping is generally defined as an individual’s cognitive and behavioral efforts to manage a stressful event that a person appraises as taxing (Folkman & Lazarus, 1986). One’s appraisal of a stressful event, like a diagnosis of breast cancer, determines how stressful she deems it and how that individual copes with an event.

An optimistic point of view may be one way to facilitate coping. Optimism, which Folkman & Lazarus (1984) define as the process by which individuals make positive appraisals of the future, may help individuals in appraising and coping with a traumatic event. Positive appraisals associated with optimism may facilitate the use of more effective coping strategies (Carver et al., 1993). For example, Carver et al. (1993) point out that optimistic individuals are more likely to accept the reality of the situation, are less likely to refuse to deal with their breast cancer, and are less likely to give up than less optimistic patients are. Such coping strategies allow individuals to better cope with their diagnosis (Scheier, Carver, & Bridges, 2001), resulting in positive mental and physical health outcomes (Taylor et al., 2000). For instance,
optimistic individuals are at a decreased risk for depression (Burgess et al., 2005), and one study indicates that optimism can even increase the survival rate of breast cancer patients (Maunsell, Brisson, & Deschenes, 1995).

How does optimism facilitate these important positive outcomes? Optimism may act as both a personal and a social resource. Helgeson, Snyder, and Seltman (2004) define personal resources as individual attributes that help one cope with a stressor such as cancer. As a personal resource, optimism may help individuals experience better psychological adjustment (Wrosch & Scheier, 2003) by facilitating the use of more effective coping strategies (Scheier, Carver, & Bridges, 2001). In breast cancer patients, optimism is associated with coping strategies that involve accepting the reality of the situation, viewing the situation in a positive light, using humor to diminish the severity of the situation, and taking active steps to improve their health (Carver et al., 1993). These strategies are linked to greater subjective well-being and better health. Given these findings, dispositional optimism appears to act as a personal resource to help individuals cope with breast cancer and experience better health outcomes as a result.

In addition to its benefits as a personal resource, optimism may help individuals increase their social resources. Social resources include the different types of support provided by family and friends that facilitate the coping process (Helgeson, Snyder, & Seltman, 2004). As a social resource, optimism has been found to predict increased levels of social support (Carver, Kus, & Scheier, 1994). Srivastava (2006) found that optimists and their partners reported greater relationship satisfaction and that the relationship was mediated by greater perceived support. This is crucial because optimistic individuals may be better able to maintain their relationships and are thus able to maintain a stronger social network in times of turmoil. It may also be easier for individuals to provide support to optimists because of their positive outlook and openness.
Individuals are more willing to interact with optimistic people and are more likely to like them, rather than being overwhelmed by the negative perspective of those who are less optimistic. Optimism may thus increase breast cancer patients' chances of receiving support from their social network, which is a crucial resource for women coping with breast cancer.

Being able to elicit support can result in a number of benefits. Trunzo & Pinto (2003) point out that social support can have a number of positive effects such as buffering the stress of disease and treatment, improving adjustment and emotional well-being, and reducing the fear of recurrence. Social support may also be associated with increased survival among women with breast cancer (Weihs, Fisher, & Baird, 2002). Weihs, Enright and Simmons (2008) investigated whether having a non-household confidant, someone on whom participants could call on for support or help in a stressful situation, impacted patients' well-being. Women who reported having more confidants had lower recurrence rates (with a risk ratio of 0.68) and higher survival rates (with a risk ratio of 0.41) than those who had fewer confidants. This indicates that social support may help individuals cope with breast cancer, as well as increase chances of survival.

Although optimism has been found to predict increases in the likelihood of receiving support from others, the mechanism by which this occurs is unclear (Carver, Kus, & Scheier, 1994). Optimism may manifest itself in the words that optimistic individuals use. Because Folkman & Lazarus (1984) define optimism as the process by which individuals make positive appraisals of the future, it is logical that optimistic individuals would use more positive emotion words. Pennebaker, Mehl, & Niederhoffer (2003) point out that positive emotion words may be linguistic indicators of optimism. Use of positive emotion thus may be a key indicator of an individual's optimism and may be the mechanism by which optimistic individuals are able to
elicit social support. After all, individuals have been found to report liking optimists more (Carver, Kus, & Sceier, 1994), so those who convey their optimism through their language use may be able to garner increased social support.

Since the underlying mechanism of how optimism may facilitate social support is still unclear, Carver et al. (1994) underline the importance of investigating how an “[optimistic] outlook will influence interactions that take place in more natural contexts, and over more extended periods of time” (p. 150). It is therefore necessary to determine what optimism looks like in breast cancer patients throughout the course of their daily lives.

How optimism may manifest itself in individuals’ naturalistic language use has not yet been thoroughly investigated. So far, only one daily diary study investigated how optimism impacts individuals’ behaviors on a daily basis. Baker (2007) measured college students’ self-reported dispositional optimism and found that individuals higher in optimism reported fewer daily hassles, lower negative mood levels, better health status, and fewer upper respiratory infection symptoms. Participants were also less likely to drink or smoke and were more likely to exercise when compared with less optimistic individuals.

Although the above study made use of daily measures, individuals may be prone to acquiescence response styles and extreme response styles when completing self-reports (Weijters, Geuens, & Schillewaert, 2010). Acquiescence response style refers to an unbalanced use of positive response options, and extreme response style refers to an unbalanced use of extreme response options. Due to these response styles, individuals who report higher optimism may report more positive outcomes and less negative outcomes as a result of their response style. Therefore, self-reports may not be as reflective of daily life as one might hope.
Schwarz (2007) also argues that self-reports may be asking individuals to provide information that they cannot provide, and that participants often rely on estimation and inference strategies to arrive at an answer. For instance, instead of objectively retrieving and counting all instances of daily hassles, participants in Baker’s study may have taken a mental ‘short-cut’ and only considered the most prevalent examples of daily hassles, instead of systematically considering all instances of disturbances.

Given the limitations of self-reports, it is necessary to utilize alternative methodology to determine how optimism manifests itself in the lives of breast cancer patients. This can be done by directly sampling behaviors using an Electronically Activated Recorder (EAR; Mehl et al., 2001). The EAR is a digital audio recorder that periodically samples brief snippets of ambient sounds as participants go about their daily lives. Participants wear the EAR, providing an ‘acoustic log’ of their days as they naturally unfold. These ‘acoustic logs’ are then transcribed by research assistants and analyzed with Linguistic Inquiry and Word Count (LIWC) to estimate the frequency of words used. The words that individuals use can “reveal important aspects of [participants’] social and psychological worlds” (Pennebaker, Mehl, & Niederhoffer, 2003, p. 547). This supports the notion that linguistic analysis can be used to determine the mechanism by which optimism elicits social support among women coping with breast cancer and to identify how optimism is related to psychological adjustment.

The current project will employ the EAR to study the relationship among self-reported optimism, naturalistic language use, daily receipt of social support, and self-reported depressive symptoms among couples coping with breast cancer.
Research Questions and Hypotheses

**Optimism and Language Use**

*Hypothesis 1.* Are higher levels of self-reported optimism among patients and their partners associated with a more frequent use of positive emotion words?

We predict that individuals with higher levels of self-reported optimism will use more positive emotion words, which would be consistent with Folkman & Lazarus's (1984) definition of optimism as the process by which individuals make positive appraisals of the future.

Pennebaker, Mehl, & Niederhoffer (2003) point out that positive emotion words may be linguistic indicators of optimism, indicating that optimistic individuals might use more positive emotion words.

*Hypothesis 1b.* Are lower levels of self-reported optimism among patients and their partners associated with a more frequent use of negative emotion words?

This question is being posed on a purely exploratory basis, but since Pennebaker, Mehl, & Niederhoffer (2003) point out that positive emotion words may be linguistic indicators of optimism, it is also plausible that the use of negative emotion words indicates the opposite.

**Optimism and Social Support**

*Hypothesis 2a.* Does self-reported optimism correlate with naturalistically observed social support?

We predict that self-reported optimism will correlate with increased levels of social support. This hypothesis is based on Carver and colleagues' (1994) results, which indicate that optimism serves as a social resource. Optimistic patients and partners may be more approachable, since research indicates that individuals are more willing to interact with people
with higher levels of optimism. Based on this conclusion, it is therefore expected that self-reported optimism will be related to increased levels of social support.

_Hypothesis 2b._ Does the use of positive emotion words correlate with naturally observed social support?

Based on Carver and colleagues' (1995) assertion that optimism serves as a social resource, it is hypothesized that, if the use of positive emotion words is a linguistic indicator of optimism, the use of such language will help patients to elicit social support.

_Hypothesis 2c._ Does the use of negative emotion words correlate with coded social support?

Following Hypothesis 2b, it is also expected that the use of negative emotion words may have the opposite effect.

_Hypothesis 3._ Does optimistic language use account for the relationship between optimism and social support (Hypothesis 2)?

This study will also explore whether optimism’s linguistic correlates account for the effect of optimism on social support. It is predicted that individuals’ optimistic language use (a manifestation of their self-reported optimism) will act as a cue for partners to offer their support, which is consistent with Carver et al.’s (1993) conclusion that optimism acts as a social resource. Optimistic language use is therefore expected to make it easier for a breast cancer patient to provide support to her partner as well as vice versa.

**Optimism and Psychological Adjustment**

_Hypothesis 4._ Is self-reported optimism related to better psychological adjustment?

We predict that higher levels of self-reported optimism will relate to decreased levels of depression, which is consistent with Burgess et al.’s (2005) results.
Hypothesis 5. Are increased levels of naturally observed social support related to decreases in depression?

It has been shown that individuals with strong social support networks are less likely to report clinically significant levels of depression (Burgess et al., 2005). It is therefore expected that individuals who are observed receiving social support will experience decreased levels of depression.

Hypothesis 6. Does social support mediate the relationship between optimistic language use and depression?

It is hypothesized that social support will mediate the relationship between optimistic language use and depression in breast cancer patients. If a patient's optimistic language use does indeed act as a cue for partners to offer their support (Hypothesis 3), it is expected that this will account for the relationship between optimistic language use and depression. Since it has been shown that individuals with strong social support networks are less likely to report clinically significant levels of depression (Burgess et al., 2005), it is expected that individuals who employ an optimistic language style—and are thus more likely to receive social support—will report lower levels of depression.
Method

Participants

Fifty-six female breast cancer patients (mean age: 56.3 years, $SD = 13.84$) and their partners (mean age: 59.1 years, $SD = 14.61$) were recruited at the Arizona Cancer Center during their regular visits to their oncologist. Of the 56 couples who agreed to participate in the present study, 52 patients and 51 partners had usable data. Two couples withdrew from the study; one withdrew immediately after consenting to participate because the external microphone wire on the EAR was bothersome, and one withdrew before the follow-up session for an unknown reason. Two patients and three partners did not have a sufficient number of sound files for analyses (<30).

Forty-two of the patients were Caucasian, six were Hispanic, two were African American, one was Asian, and one was an American Native. The mean time since diagnosis was 10.84 years ($SD = 14.34$). Eighteen patients had completed some college or vocational school, eighteen had completed a Bachelor’s degree, and sixteen had a post-graduate degree. Nineteen patients were employed full-time, five were employed part time, twenty-three were retired, and five were unemployed.

Forty-three of the partners were male and eight were female. To avoid confusion, however, the partners (both male and female) will be referred to as spouses from here on out. Forty-two of the spouses were Caucasian, eight were Hispanic, and one was Asian. Most spouses had completed at least some college ($n = 34$). Twenty-one spouses were employed full-time, three were employed part time, nineteen were retired, two were self-employed, and six were unemployed.
Procedure

Participants took part in three sessions over a period of twelve weeks. Depending on the couples’ preferences, the study was conducted at their homes or at the clinic during their scheduled visits.

During Session 1, which was scheduled on a Friday, participating couples were informed about the study, provided their consent, and completed a questionnaire packet. Participants completed a number of questionnaires the CES-D (Hann, Winter, & Jacobsen, 1999; α = .92) to assess depressive symptomatology.

After completing the questionnaires, participants received the EAR (Mehl et al., 2001; Mehl et al., 2007) devices that they were to wear over the course of the weekend (Friday afternoon to Sunday night). The EAR is a naturalistic assessment tool that periodically samples ambient sound from participants’ social environments on a weekend during their waking hours. The device consists of a small handheld computer with recording software and a lapel microphone. The EAR recorded 50 seconds every 9 minutes and yielded on average 172 waking sound files per patient over the course of one weekend (SD = 59). The EAR yielded 180 waking sound files per spouse (SD = 53).

During Session 2, which was scheduled a day or two after the weekend, the couple returned their devices, completed a second, short questionnaire package which included a demographics and medical information questionnaire and the LOT-R (Scheier, Carver, & Bridges, 1994; α = .26) to assess dispositional optimism. Participants were then scheduled for a follow-up appointment for eight weeks later.

During Session 3, the couples again completed the baseline questionnaires to assess any change, and were debriefed. Changes in reported depressive symptoms (CES-D: “I felt
depressed.”) were computed by residualizing follow-up for baseline scores. After debriefing, participants received CDs with their recordings and were given the opportunity to review them and erase parts they preferred to remain private. Couples were also paid $150 for their participation.

After the recording were reviewed, participants' utterances were transcribed by undergraduate research assistants, and were analyzed with a text analysis program, Linguistic Inquiry and Word Count (LIWC; Pennebaker et al., 2009) to estimate frequency of positive emotion words (e.g. “enjoy,” “luck,” “thank”) and negative emotion words (e.g., “afraid,” “mad,” “wrong”) used in couples’ daily lives (Pennebaker, Francis, & Booth, 2001).

For each captured interaction, research assistants also coded for social support by indicating instances in which participants demonstrated supportive behaviors. Positive social support was defined as the participant receiving a response that is supportive, interested, and/or comforting. The support could be informational, practical, or emotional. Some examples of coded support included: (1) receiving personal compliments, (2) being offered to help replace a bandage, and (3) being actively listened to. Negative social support was defined as receiving negative behavior from a spouse such as avoidance (non-responsiveness), withdrawal, criticism, disinterest, changing the topic, or hostility. A variable was created to determine ratio of positive support to total support given (Positive Support / (Negative Support + Positive Support)).

Data Analysis

Pearson correlations and regressions were used to determine whether the use of positive emotion words is related to adjustment and whether self-reported optimism is related to adjustment to explain this relationship.
Results

Optimism and Language Use

Hypothesis 1a. Are higher levels of self-reported optimism among patients and spouses associated with a more frequent use of positive emotion words?

Consistent with Pennebaker, Mehl, & Niederhoffer’s (2003) prediction that positive emotion words are linguistic indicators of optimism, self-reported optimism was positively related to EAR-observed use of positive emotion words among breast cancer patients \( r = .28, p = .04 \). This correlation, however, was in the same direction, but not significant when looking at spouses \( r = .19, p = .19 \). Analyses were also conducted to determine whether the use of positive emotion words in conversations between spouses correlated with optimism, however, these findings were not significant \( \text{Spouses } r = -.06, p = .70, \text{ Patients } r = .08, p = .60 \).

Hypothesis 1b. Are lower levels of self-reported optimism among patients and spouses associated with a more frequent use of negative emotion words?

The use of negative emotion words was negatively related to self-reported optimism. The correlation between patients’ optimism and the use of negative emotion words in general was not found to be significant \( r = -.09, p = .51 \), however, patients’ use of negative emotion words in conversations with their spouses was negatively related to patients’ self-reported optimism \( r = -.38, p = .01 \). Spouses’ use of negative emotion words in general \( r = -.45, p = .001 \) and the use of negative emotion words with their spouse \( r = -.39, p = .004 \) were negatively related to spouses’ self-reported optimism.
Optimism and Social Support

Hypothesis 2a. Does self-reported optimism correlate with coded social support?

Carver and colleagues' (1994) results that optimism predicts increased levels of social support were tested. No significant correlations were found between patients' or spouses' self-reported optimism and naturally observed positive support (all p's > .13). However, when looking at the ratio of positive support to negative support, it was found that patients' self-reported optimism was related to increases in general EAR-observed social support ($r = .36, p = .01$). When looking at the correlation between patients' self-reported optimism and the ratio of positive support received only from the spouse, however, the correlation was only marginally significant ($r = .26, p = .09$).

Hypothesis 2b. Does the use of positive emotion words correlate with naturally observed social support?

Coded positive social support did not correlate with the use of positive emotion words in patients ($r = .08, p = .55$) or in spouses ($r = .16, p = .26$). However, the correlation between support and the use of positive emotion words was marginally significant when looking at the ratio of positive support to overall support (both positive and negative) ($r = .24, p = .10$). There was also a significant correlation between the ratio of positive emotion words to positive and negative emotion words combined and the ratio of positive received support to positive and negative received support combined ($r = .32, p = .03$).

Hypothesis 2c. Does the use of negative emotion words correlate with coded social support?

Patients' use of negative emotion words with their spouses did correlate significantly with coded negative social support ($r = .39, p = .004$), but not with positive social support ($r = -.03, p = .82$). When looking at the ratio of positive received support to positive and negative
support combined, there was a significant correlation between negative emotion words used with spouses \( (r = -0.42, p = 0.03) \), but not with negative emotion words used in general \( (r = -0.23, p = 0.11) \).

Patient's use of negative emotion words in general did not correlate with positive \( (r = -0.09, p = 0.53) \) or negative \( (r = 0.19, p = 0.20) \) received support. There were no significant correlations between spouses' use of negative emotion words and changes in received support, positive or negative.

**Hypothesis 3.** Does the use of positive emotion words account for the effect of optimism on coded social support?

On an exploratory basis, Carver et al.'s (1993) idea that optimism acts as a social resource was tested using a mediation model. Preacher & Hayes (2004) consider bootstrapping mediation analysis appropriate for small samples like ours. It was found that EAR-observed use of positive emotion words did not account for the relationship between self-reported optimism and EAR-observed social support, because the a- and b-paths were not significant.

**Optimism and Psychological Adjustment**

**Hypothesis 4.** Is optimism related to better psychological adjustment?

Consistent with Burgess et al.'s (2005) results, it was found that patients' self-reported optimism related to better psychological adjustment \( (r = -0.35, p = 0.01) \). Although the correlation was in the same direction for spouses, it was not significant \( (r = -0.15, p = 0.29) \).
**Hypothesis 5.** Are increased levels of naturally observed social support related to decreases in depression?

Increased levels of naturally observed social support did not significantly correlate with patient depression \((r = -0.15, p = .27)\). The correlation was marginally significant, however, when looking at the proportion of positive support to overall support (positive and negative) \((r = -0.26, p = .08)\).

**Hypothesis 6.** Does social support mediate the relationship between optimistic language use and depression?

The overall mediation model discussed in Hypothesis 6 was tested. Based on 5,000 bootstrapping re-samplings, the indirect effect of self-reported optimism on depressive symptoms via the use of positive emotion words and received social support in breast cancer patients was not supported. The a- and b-paths were not statistically significant.
Discussion

This study investigated what implications the use of optimistic language has for couples coping with breast cancer. The present study found preliminary support for the idea that the use of positive emotion words is a linguistic indicator of optimism, which in turn may elicit social support. This link was explored using the EAR, an unobtrusive observation sampling method that periodically records snippets of ambient sounds, to track language use and social support in the daily interactions of breast cancer patients and their spouses.

The Overall Model

Past research suggests that optimism acts as a social resource in that it increases the likelihood of receiving support from others (Helgeson, Snyder, & Seltman, 2004). However, the literature does not offer a clear explanation of the mechanism by which this occurs (Carver, Kus, & Scheier, 1994). The results of the present study indicate that optimism may act as a social resource in that it manifests itself in patients’ language. After all, optimistic patients were found to use more positive emotion words. The use of positive emotion words—a linguistic indicator of optimism—is then proposed to help individuals to elicit social support. Carver, Kus, and Scheier (1994) propose that it may be easier for individuals to provide support to optimists because of their positive outlook and openness. The results of the present study offer support for Carver, Kus, and Scheier’s (1994) proposition; the ratio of positive to negative emotion words correlated significantly with a higher ratio of positive to negative social support. This ratio of support then negatively correlates with self-reported depression (CES-D), indicating that social support may help patients cope with breast cancer and experience better psychological outcomes.

This proposed mediation model was not found to be statistically significant, however, the results show a promising trend. There are a few inconsistencies that should be addressed. First,
self-reported optimism correlated significantly with positive emotion words \((r = .28, p = .04)\), but not with the ratio of positive to negative emotion words \((r = .02, p = .11)\). The opposite was true for the correlation between positive emotion words and received support; positive emotions words alone did not correlate significantly with the ratio of positive to negative received support \((r = .24, p = .10)\), while the ratio of positive to negative emotion words did correlate significantly with the ratio of positive to negative support \((r = .32, p = .03)\). The insignificant correlations, however, were close to reaching significance. It is possible that, with the addition of a few more participants, the correlations would have reached significance, thus allowing the overall mediation model to reach significance as well.

A second reason why the model might not have been successful is that naturalistically observed social support does not correlate significantly with psychological adjustment \((r = -.26, p = .08)\). This result is inconsistent with Burgess et al.'s (2005) findings that individuals who report increased levels of received social support are less likely to report clinically significant levels of depression. However, the correlation was marginally significant, and the addition of a few more subjects might resolve this issue as well.

Although the overall mediation model was not statistically significant, the results of this study offer additional interesting information about gender differences, contextual factors, the saliency of positive and negative emotion words, and the importance of considering the ratio of emotion words as well as received support.

**Role Differences**

Consistent with Pennebaker, Mehl, & Niederhoffer's (2003) speculation, the results of the present study suggest that the use of positive emotion words in daily life is a linguistic indicator of optimism in breast cancer patients. However, this correlation was not found among
spouses of breast cancer patients. Although there were no significant differences in the use of positive emotion words between partners and spouses \((p > .15)\), it is possible that differences in role can explain the lack of correlation between optimism and positive emotion words among spouses. Supportive spouses may "put on a front" and use positive emotion words, regardless of whether they are dispositionally optimistic or not, in attempt to be supportive toward the patient. The fact that patients receive significantly more positive support than spouses \((t = 2.64, p = .01)\) offers support for this notion. Past research has been largely inconclusive and contradictory (Hagedoorn et al., 2008); some studies say that role does matter in terms of distress and coping strategies, while others say that role does not. However, previous studies have relied on self-report. Naturalistic observation may give a unique perspective on this process; more studies using this method should be conducted to parse out this effect.

**Contextual Factors**

In addition to role differences in the effect of optimism on language use, contextual factors may explain the lack of a significant correlation between self-reported optimism and the use of positive emotion words among spouses. It is possible that the correlation between optimism and language use only holds up when speaking with people in general, and that conversations among spouses are inherently different in nature. Birchler, Weiss, & Vincent (1975) found that married dyads were more negative and less positive than stranger dyads, however, no research was found documenting the difference in other contexts (e.g., conversations between acquaintances, friends, or family members).

When looking at the use of negative emotion words, breast cancer patients who reported higher levels of optimism were found to use fewer negative emotion words with their spouses. This correlation was not statistically significant when looking the use of negative emotion words
in general. This may be because women are more likely to convey negative emotions to their spouse than to a stranger (Birchler, Weiss, & Vincent, 1975).

The Saliency of Positive and Negative Emotions Words

Another trend in the data was that the use of negative emotion words tended to correlate more strongly with optimism and received support than the use of positive emotion words did. This is likely due to the fact that “bad is stronger than good” (Baumeister et al., 2001). Baumeister et al. found that bad events have more impact than good ones and that these events are processed more thoroughly than good ones. Given these findings, it is logical that the use of negative emotions words correlated more strongly with optimism and received support than the use of positive emotion words did. The use of negative words may thus be more reflective of one’s lack of optimism, when compared to the use of positive emotion words as an indicator of an individual’s optimism. Negative emotions words may also be a stronger factor in driving away potential support from others; the use of positive emotion words may still help garner support, but positive words do not appear to be as salient as their negative counterparts.

Considering the Ratio

Although negative emotion words may be more salient, the strongest predictor of social support is the ratio of positive to negative emotion words. After all, the correlation between the use of positive or negative emotion words and positive received support was not statistically significant among patients or spouses. This discrepancy is likely due to the fact that looking at positive or negative emotion words alone does not capture the true nature of words used. Other research has also looked at the ratio of positive to negative interactions (Fredrickson & Losada, 2005). Expanding on Baumeister et al.’s (2001) research that “bad is stronger than good,” Fredrickson and Losada (2005) indicate that positivity can outweigh the “toxicity” of negativity.
In other words, a patient could use negative emotion words and still receive social support, as long as the patient uses enough positive emotion words to counteract the effect of negative emotion words.

Interestingly, in support of the idea that high ratios of positive to negative affect can distinguish individuals who flourish from those who do not (Fredrickson & Losada, 2005), we found that only the ratio of positive to negative received support correlated significantly with self-reported depression (CES-D). Positive or negative received support alone did not correlate with patients’ or spouses’ psychological well-being. Given these results, it is important to consider the ratio of positive to negative interactions when considering the outcomes of couples coping with cancer and when considering the outcomes of other populations of interest.

**Limitations and Future Directions**

This study had a few important limitations. First, the sample size was relatively small. It is possible the proposed mediation models would have been significant with a few more participants, especially since many of the p-values were very close to reaching significance. Future studies should replicate the present study to determine whether the proposed mediation models are plausible. The correlations were all in the right direction, however, the overall models fell just short of reaching significance.

Second, this sample consisted of primarily Caucasian couples in midlife. It is possible the positive interpersonal consequences may not extend to other populations. Future research should test the generalizability of these findings in larger samples of men and women of different age groups and cultural backgrounds.

Third, these analyses, particularly those of the potential interpersonal benefits of positive emotions words, were exploratory. Thus, the direction of this effect is not evident. It is possible
that individuals who use more positive emotion words simply receive more social support. It is equally plausible that individuals who receive more social support are happier and thus use more positive emotion words. Given this study's exploratory nature, experimental research could be conducted to determine the direction of causality, if any.

Fourth, if positive emotion words do help individuals elicit social support, it is important that future studies try to clarify exactly how this occurs. The literature does not currently offer a clear explanation as to how the linguistic correlates of optimism may help elicit offer social support, although Carver, Kus & Scheier (1994) speculate that it is easier for individuals to provide support to optimists because of their positive outlook and openness.

Fifth, as discussed above, the social context of interactions between patients and spouses dealing with breast cancer also seems to matter. The findings differed depending on whether patients were with their spouse or with other individuals in their social circle, and the same was true for spouses. Future studies should replicate these social situations to determine whether they occur under necessary conditions.

Finally, future studies of optimism with the context of coping with other chronic and life-threatening illness, including those with male patients, would illuminate whether these findings apply to a broader clinical population.

All in all, more experimental evidence is necessary to determine a causal pathway between the use of positive emotion words and an increase in received social support. If these results are replicated, these findings have potential clinical implications. Clinicians might effectively help their patients elicit social support by modifying their language use. For example, patient-focused interventions could encourage patients to use more positive emotion words.
Conclusion

To conclude, this is one of the first studies to provide naturalistic evidence of how optimism is implicated in the coping progress. It highlights the potential benefits of a linguistic correlate of optimism in eliciting social support and possibly in decreasing individuals’ chances of experiencing depression in response to a life-threatening disease such as breast cancer.
References


