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Everyday emotion word and personal pronoun use reflects dyadic adjustment among couples coping with breast cancer

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Abstract
Dyadic adjustment is integral for couples facing breast cancer; therefore, it is important to identify its everyday indicators. A total of 52 couples coping with breast cancer wore the Electronically Activated Recorder (EAR) for one weekend and completed the Dyadic Adjustment Scale to investigate how dyadic adjustment manifests in noncancer-related word use. Multilevel models revealed that partners', rather than one's own, positive emotion words positively related to dyadic adjustment. Conversely, spouses' negative emotion words and patients' anger words were negatively related to dyadic adjustment. Furthermore, focus on spouses rather than patients (spouses "I" and patients "you") positively related to dyadic adjustment. Results revealed that dyadic adjustment can be reflected in couples' everyday word use, serving as an objective indicator of marital quality.

The diagnosis and treatment of breast cancer is a distressing experience for patients and their spouses (Compas & Luecken, 2002; Segrin, Badger, Sieger, Meek, & Lopez, 2006). Coping ability can be contingent, in part, on the quality of the relationship between patients and spouses. In weak romantic relationships, patients' ability to cope becomes impaired, consequently hindering their adjustment (Bloom, 1982). Therefore, it is essential to examine how thoughts, feelings, and behaviors between patients and spouses contribute to and maintain marital quality—or dyadic adjustment—in a coping context (Burgess & Cottrell, 1936; Burgess, Locke, & Thomes, 1971; Locke & Williamson, 1958; Spanier, 1976).

Dyadic adjustment facilitates coping with breast cancer. For example, metastatic breast cancer patients tend to have less distress when they are part of a couple that has the ability and motivation to help each other (Giese-Davis, Hermanson, Koopman, Weibel, & Spiegel, 2000). Such relationship skills can be trained in couples coping with breast or gynecological cancer, consequently resulting in reduced coping effort and long-term psychological distress (Scott, Halford, & Ward, 2004). In turn, couples with high dyadic adjustment may already employ these skills. That is, better dyadic adjustment likely operates by encouraging active engagement and communication of needs, thereby facilitating more effective coping with cancer (Manne et al., 2006).

Dyadic adjustment is also influenced by the coping process itself. One study revealed that breast cancer patients and their spouses both experienced poorer dyadic adjustment when they engaged in maladaptive coping behaviors (e.g., avoiding each other; Badr, Carmack, Kashy, Cristofanilli, & Revenson, 2010);

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conversely, dyadic adjustment improved when patients reported receiving tangible and emotional support from their spouses (Badr, Laurenceau, Schart, Basen-Engquist, & Turk, 2010). Altogether, the evidence suggests the interrelated nature of dyadic adjustment and coping, efforts must be made to understand them both during the cancer experience.

As in the studies reviewed here, dyadic adjustment is measured almost exclusively with retrospective self-report methods. However, self-report methods cannot uncover less intentional behaviors that contribute to or reflect dyadic adjustment. People most often speak without thinking about each specific word to use (e.g., in conversation with a romantic partner; Pennebaker, 2011). For this reason, word use can reflect meaningful psychological constructs that often operate without conscious choice or awareness. This study sought to examine everyday word use within the interactions of couples coping with breast cancer using a naturalistic observation method, the Electronically Activated Recorder (EAR). The EAR directly samples word use from short audio recordings of participants' daily environments (Mehl, Pennebaker, Crow, Dabbs, & Price, 2001; Mehl, Robbins, & Deters, 2012). The EAR is well suited to capture habitual word use during natural interactions. Past research has found that patients and spouses naturally discuss cancer approximately 5% of the time, leaving the vast majority of conversations about other topics (Robbins, López, Weihs, & Mehl, 2014). This study focused on noncancer conversations because they comprised the majority of couples' everyday interactions.

Use of emotion words and personal pronouns in couples' conversations may relevantly relate to individual and relationship well-being for breast cancer patients and their spouses (Robbins, Mehl, Smith, & Weihs, 2013). Emotion word use reflects general positivity and negativity, which can predict trajectories of well-being. For example, positive emotion word use (e.g., accept, glad, and hope) has been related to benefit finding among women with breast cancer (Low, Stanton, & Danoff-Burg, 2006). Furthermore, effective emotional expression about a stressful experience is composed of a greater than average use of positive emotion and a moderate use of negative emotion words (e.g., hate, mad, and scary; Pennebaker & Chung, 2007; Weinberger, Schwartz, & Davidson, 1979). For major stressful events, the combination of positive and negative emotion words is associated with an attenuation of stress over time, while for trivial stress, only positive words relate to positive outcomes (Han et al., 2008; Larsen, Hemenover, Norris, & Cacioppo, 2003; Pennebaker, Mayne, & Francis, 1997; Pennebaker & Seagal, 1999; Stein, Folkman, Trabasso, & Richards, 1997). In light of this evidence, we hypothesized that emotion words would reflect dyadic adjustment. Specifically, we predicted that daily positive emotion word use would positively, and negative emotion word use would negatively, relate to reports of dyadic adjustment for both partners (Low et al., 2006; Pennebaker & Seagal, 1999; Slatcher & Pennebaker, 2006).

Specific types of negative emotion words also relate to adjustment and can shed light on additional facets of emotional expression. For example, one study found that anger words were related to more depressive symptoms among breast cancer patients, whereas anxiety word use was not associated with adjustment (e.g., Robbins et al., 2013). However, another study found that anxiety word use among military spouses was negatively related to relationship satisfaction—one facet of dyadic adjustment (Borelli et al., 2014). Furthermore, sadness word use by breast cancer patients was associated with family conflict (Robbins et al., 2013). Because these past studies have generally found negative associations among discrete negative emotions and adjustment, we generally predicted we would also find negative associations with dyadic adjustment. However, this was the first study to observe word use for noncancer conversations within the daily lives of couples coping with breast cancer, so we did not hypothesize finer-grained relationships (e.g., for specific actor or partner effects).

While emotion words may more explicitly express a person's state of mind, personal pronouns tap into a more implicit mindset, reflecting a speaker's attentional focus and

self-construal (Pennebaker, 2011). It is unsurprising, then, that pronoun use predicts different facets of dyadic adjustment. Use of first-person plural pronouns, or "we-talk" (e.g., we, us, our), often positively relates to relationship quality because it reflects interdependence between partners (Agnew, Van Lange, Rusbult, & Langston, 1998; Fitzsimons & Kay, 2004; Simmons, Gordon, & Chambless, 2005). Among couples coping with illness, spouses' we-talk tends to predict better health outcomes specifically for patients (Robbins et al., 2013; Rohrbaugh, Mehl, Shoham, Reilly, & Ewy, 2008; Rohrbaugh, Shoham, Skoyen, Jensen, & Mehl, 2012). However, this positive association is not always present (Sillars, Shellen, McIntosh, & Pomegranate, 1997; Simmons et al., 2005; Slatcher, Vazire, & Pennebaker, 2008). Because most of the evidence reveals positive associations between we-talk and relationship outcomes, we predicted that we would find this association in couples' daily conversations. We also predicted that spouses' we-talk would be most strongly associated with patients' dyadic adjustment (Robbins et al., 2013; Rohrbaugh et al., 2008, 2012).

In contrast with we-talk, use of "you" and "I" in romantic relationships generally indicates a focus on one individual rather than a communal outlook but still has implications for dyadic adjustment. Use of "you" among romantic partners often indicates other-focused blaming, and distancing statements, and frequently negatively relates to relationship satisfaction (Hahlweg, Revenstorf, & Schindler, 1984; Sillars et al., 1997; Simmons et al., 2005; Slatcher et al., 2008). Conversely, "I" reveals self-focus (Sillars et al., 1997), which is often associated with positive outcomes in conversation among couples (Hahlweg et al., 1984; Simmons et al., 2005; Slatcher et al., 2008). This is attributed to "I" indicating self-disclosure in personal communication, potentially facilitating greater closeness and intimacy in relationships. Although use of personal pronouns is a daily behavior with clear relevance to couples' relationship quality, the association between personal pronouns and dyadic adjustment has not yet been examined where it naturally occurs, in the context of the everyday lives of couples coping with cancer. We hypothesized that the use of "I" in couples' daily conversations would reflect autonomy and therefore positively relate to patients' and spouses' own reports of dyadic adjustment (Sillars et al., 1997) and may also reflect a positive self-disclosure process between partners, resulting in positive partner effects (Hahlweg et al., 1984; Simmons et al., 2005; Slatcher et al., 2008). In contrast, we predicted use of "you" would more strongly negatively relate to partners', compared to one's own, dyadic adjustment because of the other-focused, blaming nature of *you* (Hahlweg et al., 1984; Robbins et al., 2014; Sillars et al., 1997; Simmons et al., 2005).

Method

Participants

Breast cancer patients and their spouses were recruited during routine oncology appointments at the Arizona Cancer Center, as described in a previous report that examined cancer conversations (Robbins et al., 2014). Part of these data (21 breast cancer patients) was also used to study swearing, emotional support, and depressive symptoms (Robbins et al., 2011). Patients were considered for the study if they had a primary diagnosis of Stage 0, I, II, III, or IV breast cancer. Further inclusion criteria required patients to be receiving chemotherapy or radiation treatment and have had definitive surgery. Additional eligibility included: (a) minimum age of 21 for both partners (patient $M = 56$, $SD = 14$; spouse $M = 59$, $SD = 14$), (b) patient and partner must be in a marriage-like relationship and living together, and (c) patient and partner must both be primarily English speaking. A researcher approached 647 patients or couples at their oncology appointment, 32.5% (210) met the inclusion criteria, and 26.7% of the eligible couples (56) enrolled in the study.

Nine total participants had data that were unusable. Two couples withdrew after signing the consent form. The first couple withdrew for unknown reasons prior to follow-up, and the second couple viewed the external microphone as cumbersome. The remaining participants

(two patients and three spouses) had fewer than 30 sound files due to technical problems. The final sample consisted of 52 patients and 51 spouses. All patients were female ($n = 52$), and 86% of partners were male ($n_{male} = 44$; $n_{female} = 7$). Most patients were diagnosed with Stages I–III breast cancer ($n = 42$; 80%), 2 were Stage 0 (4%), 4 were Stage IV (8%), and 4 were unknown (8%). The average relationship length was 23 years ($SD = 16$). Patients were all female, and 81% ($n = 42$) were Caucasian, 11% ($n = 6$) Latina, 4% ($n = 2$) African American, and 4% ($n = 2$) other/unknown. Spouses ($n_{male} = 44$; 86.3%) consisted of 82% ($n = 42$) Caucasian, 16% ($n = 8$) Latino, and 2% ($n = 1$) Asian.

Procedure

Once consent was obtained during their oncology appointments, participants scheduled a time to meet with a member of the research team for their first study session, which usually occurred on a Friday afternoon. At the first visit, participants completed a set of questionnaires that included dyadic adjustment. Participants were then provided an introduction to the EAR. They were told that the device should be worn as much as possible over the weekend and were informed that the EAR would record 50 s of ambient sound at a time and approximately 10% of their days. Participants were informed that the snippets would be recorded without their awareness, and they should proceed with their normal, everyday life as unhindered as possible. They were also told the EAR would cease recording during sleeping hours. All participants were explicitly told they would have an opportunity to review all audio recordings prior to anyone listening to them. Following that weekend, typically on the Monday, EARs were collected from the participants, and another battery of questionnaires, which included demographics and medical information, was administered. Participants additionally reported on EAR use and perceived intrusion of the device. The researcher and participants then met 2 months later, where participants completed the first set of questionnaires again. They were debriefed and given a password-protected CD containing all of their sound files to review. There were over 18,000 sound files collected, and of those, only one participant deleted just one file. Each couple received $150 for their participation.

Measures

EAR device

The EAR was software programmed on an HP iPAQ 100 handheld computer. The device was set to record 50 s every 9 min. This sampling rate has been established in previous studies as a stable estimate of normal daily behavior (Mehl et al., 2012). The device was housed in a protective case affixed to participants' waistlines, and an external microphone (Olympus ME-15) was attached to participants' lapels. Devices were worn by both patients and their spouses. The EAR was preprogrammed to not record for 6 hr during the participants' predefined normal sleep hours, starting 30 min after they indicated they typically go to sleep. The EAR recorded participants' waking days, from the time the participants received the device until they went to sleep on Sunday. This yielded an average of 176 ($SD = 57$) valid, waking sound files (approximately 2.4 hr of data per participant), which was defined as a file where the participant was wearing the EAR with no technical difficulties while the participant was awake.

EAR measures

After participants had the opportunity to review their sound files, research assistants transcribed and coded each EAR recording. The recordings were coded for social interactions. The interactions were coded for with whom the participant was interacting (i.e., spouse, family member, friend, stranger) as well as whether or not they were talking about cancer. Each category was dichotomous, representing either existence or absence of the behavior in each sound file.

Two research assistants coded each file, and the independent sets of coding were then averaged across each participant's total set of coded sound files. One-way random effects intraclass correlations (ICC[1;2]) yielded scores ranging from .80 to .98. Given the very high

intercoder agreement, one set of coding per participant was chosen to select the transcripts in which participants were talking to their partner about a noncancer-related topic. This study specifically focused on noncancer conversations between the couple and focused on the approximately 95% of normal, daily interactions between the couple that were not about cancer (Robbins et al., 2014). These transcripts were first created by one research assistant, and a second research assistant "cleaned" them for any errors.

Each participant's set of transcripts was analyzed using Linguistic Inquiry Word Count (LIWC; Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007). LIWC software is an extensively used text-analysis tool that has been widely validated with specific regard to emotion words (Bantum & Owen, 2009; Tausczik & Pennebaker, 2010) and pronoun use (Pennebaker, 2011; Pennebaker, Mehl, & Niederhoffer, 2003). LIWC analyzes text word by word and categorizes it into different psychological and linguistic categories. The software then creates a percentage of word use (specific category/total word use) by categories for each individual in the sample. This study focused on each participant's use of positive emotion words (e.g., care, love), anxiety words (e.g., worry, distress), anger words (e.g., hate, resent), sadness words (e.g., cry, woe), and a category of negative emotions words (e.g., bad, harm) that did not contain any of the former. The negative emotion word category, exclusive of the three specific negative emotion word categories, contained all of the remaining words from the original, validated negative emotion word category (129 words). This step was taken to allow for the inclusion of all types of negative emotion word variables in the same multilevel model to reduce multicollinearity (all the specific types of negative emotion words are contained in the total negative emotion word category). Analyses also focused on participants' use of first-person plural (we-talk), first-person singular (I), and second-person (you) pronouns.

Dyadic adjustment

Each participant completed the Dyadic Adjustment Scale (DAS; Spanier, 1976). The DAS is a widely used, reliable scale that assesses relationship quality using 32 items that comprise four subscales (Cohesion, Consensus, Satisfaction, and Affection; Graham, Liu, & Jeziorski, 2006). All responses are summed to create an overall dyadic adjustment score, where higher scores indicate better adjustment. Items on the DAS mainly consisted of 5- or 6-point Likert scale questions inquiring about both positive and negative relationship questions. A typical Consensus item ($n = 13$) asks on a 6-point Likert scale (5 = *always agree*, 0 = *always disagree*) how often you and your partner agree or disagree on the "amount of time spent together." The Affectional Expression subscale consists of 4 items typically asking either dichotomously or on a 6-point Likert scale how often you and your partner agree or disagree on "sex relations" or "demonstrations of affection." A typical item in the Satisfaction subscale ($n = 10$) asks on a 6-point Likert scale (0 = *all of the time*, 5 = *never*) "How often do you discuss or have considered divorce, separation, or terminating your relationship?" The final subscale, Cohesion, consists of 5 items on either a 5- or 6-point Likert scale (0 = *never*, 5 = *more often than once a day*). A typical question asks how often the couple has "a stimulating exchange of ideas." Couples were, on average, very well adjusted, although there was substantial variability in this sample ($M_{\text{patients}} = 126.69$, $SD = 11.54$; $M_{\text{spouses}} = 124.55$, $SD = 12.71$; Table 1).

Data analysis

First, Pearson correlations were used to examine raw associations between word use and dyadic adjustment before controlling for partner effects among actor effects and vice versa in the next step of the analyses, and to identify relevant control variables. These correlations were calculated separately for patients and their spouses.

Second, actor–partner interdependence models within multilevel modeling in SPSS (APIM; Kenny, Kashy, & Cook, 2006) were used to test how patient and spouse word use related to dyadic adjustment while controlling for the nonindependence between

Table 1. *Means and correlations for word use and dyadic*

Patients		DAS_{actor}	$DAS_{partner}$
	M (*SD*)	126.69 (11.54)	
Emotion words			
Positive	3.52 (1.17)	.21	.35*
Negative	0.35 (0.22)	.05	−.08
Anger	0.27 (0.22)	−.25†	−.18
Anxiety	0.11 (0.16)	−.15	−.12
Sadness	0.11 (0.11)	−.23†	.01
Pronouns			
I	5.24 (1.32)	.05	.06
We	1.17 (0.60)	.07	.20
You	3.30 (0.99)	.15	−.13
Spouses		DAS_{actor}	$DAS_{partner}$
	M (*SD*)	124.55 (12.71)	
Emotion words			
Positive	3.35 (1.29)	.23†	.12
Negative	0.38 (0.28)	−.27†	.10
Anger	0.34 (0.35)	−.22	−.37**
Anxiety	0.10 (0.11)	.00	−.10
Sadness	0.13 (0.12)	.00	−.07
Pronouns			
I	4.88 (1.18)	.37**	−.17
We	1.10 (0.60)	.32*	.10
You	3.62 (1.30)	−.23	.27†

Note. Emotion words and pronouns are percentage of total words spoken to each other in noncancer conversations. DAS scores at the top denote total dyadic adjustment scores measured by the Dyadic Adjustment Scale and correspond to the outcomes of the patient (top) and spouse (bottom). Actor correlations appear in the left column (own word use correlated with own dyadic adjustment), and partner correlations are in the right column (partner's word use correlated with own dyadic adjustment).
†$p \leq .10$. *$p \leq .05$. **$p \leq .01$.

partners. APIMs allowed for the investigation of patients' and spouses' word use to their own (actor effects) and each other's (partner effects) dyadic adjustment. To obtain standardized, and therefore easily interpretable, estimates in the APIMs, all predictors and outcome variables were standardized prior to being entered in the model. Interactions between patient or spouse role and actor or partner effects were further deconstructed if $p \leq .20$ to use a conservative approach for detecting different effects for patients versus spouses (Kenny & Ledermann, 2010). Interactions were deconstructed using Case 1 from Preacher's hierarchical linear modeling (HLM) two-way interaction online tool (Preacher, Curran, & Bauer, 2006), which yielded the simple slopes. Confidence intervals for each slope were then obtained using an online calculator (http://www.danielsoper.com/statcalc3/calc.aspx?id=26).

Results

LIWC and DAS means and standard deviations for both patients and spouses, as well as correlations, are presented in Table 1. Paired sample *t* tests were conducted, and no significant differences between patients and spouses were found for any of these variables ($p > .51$). Correspondingly, patients' and spouses' positive

emotion words and anger words were significantly correlated to each other ($p < .05$).

Potential covariates

Before running APIM analyses, correlations were run to determine which demographic, relationship, and medical variables to include as covariates. Age, length of relationship, stage of cancer, time since diagnosis, and recurrence did not significantly correlate with DAS scores ($p > .11$) and were therefore not controlled in any of the following APIMs.

How does emotion word use relate to dyadic adjustment?

Correlations

First, emotion words and personal pronouns were correlated with dyadic adjustment to examine the "raw" associations, and to determine whether they should be included in the next step of analyses, the APIMs. LIWC variables were included in the APIMs if their correlations were at least marginally significant, $p \leq .10$, for either the spouse or the patient.

Table 1 displays the correlations among participants' emotion words with their own, and their partners', dyadic adjustment. Spouses' ($r = .23$, $p = .10$), but not patients' ($r = .21$, $p = .15$), positive emotion words were marginally positively related to their own dyadic adjustment, although the effect sizes were similar in magnitude. Furthermore, spouses' positive emotion words were positively related to patients' dyadic adjustment ($r = .35$, $p = .01$) but not vice versa ($r = .12$, $p = .41$). This suggested that spouses', more than patients', positive emotion words were indicative of couples' dyadic adjustment. Spouses' negative emotion words were also marginally negatively related to their own reports of dyadic adjustment ($r = -.27$, $p = .06$), whereas patients' negative emotion words were statistically unrelated to their own adjustment ($r = .05$, $p = .72$). Examination of specific negative emotion word use revealed that patients'($r = -.25$, $p = .07$), but not spouses' ($r = -.22$, $p = .12$), anger word use was marginally negatively related to their own reports of dyadic adjustment, although the effect sizes were comparable. Patients' anger words were also negatively related to spouses' dyadic adjustment ($r = -.37$, $p = .01$), suggesting that they were particularly indicative of dyadic adjustment. Unexpectedly, no correlations were statistically significant between patients' or spouses' anxiety words and dyadic adjustment ($p > .29$). Finally, patients' use of sadness words was marginally negatively related to their own dyadic adjustment ($r = -.23$, $p = .10$), but the same was not true for spouses ($r = -.004$, $p = .99$).

Actor–partner interdependence models

Dyadic adjustment scores were regressed on word use variables using APIMs (Table 2). Patients' and spouses' positive emotion words positively related to their partners' ($\beta = 0.36$, $p = .03$) but not to their own ($\beta = 0.17$, $p = .27$) dyadic adjustment. While the associations for positive emotion words were the same for patients and spouses, the associations between negative emotion words and dyadic adjustment were different for both actor ($\beta = 0.53$, $p = .01$) and partner ($\beta = -0.31$, $p = .12$) effects. Examination of the simple slopes revealed that patients' negative emotion words were not significantly related to their own dyadic adjustment ($\beta = 0.21$, $p = .16$), while spouses' negative emotion words negatively related to their own adjustment ($\beta = -0.32$, $p = .02$). Furthermore, only spouses' negative emotion words marginally negatively related to patients' dyadic adjustment ($\beta = -0.22$, $p = .10$) and not vice versa ($\beta = 0.09$, $p = .54$), revealing that spouses' general negative emotion words reflect poorer dyadic adjustment for patients and spouses.

However, the examination of specific subcategories of negative emotion words revealed a different pattern. First, anger words differed among patients and spouses for both actor ($\beta = -0.48$, $p = .04$) and partner ($\beta = 0.64$, $p = .02$) effects. Patients' anger words were significantly negatively related to their own ($\beta = -0.40$, $p = .03$) and their spouses' ($\beta = -0.42$, $p = .004$) dyadic adjustment. However, spouses' anger words were

Table 2. *APIMs for word use on dyadic adjustment*

		Standardized estimates		95% CI	
		Pt.	Sp.	Pt.	Sp.
Emotion words					
Positive	Pt.	0.17	0.36*	[−0.14, 0.48]	[0.03, 0.69]
	Sp.	0.36*	0.17	[0.03, 0.69]	[−0.14, 0.48]
Negative	Pt.	0.21	0.09	[−0.08, 0.51]	[−0.21, 0.40]
	Sp.	−0.22†	−0.32*	[−0.49, 0.05]	[−0.59,−0.05]
Anger	Pt.	−0.40*	−0.42**	[−0.76, −0.03]	[−0.69,−0.14]
	Sp.	0.23	0.08	[−0.22, 0.67]	[−0.18, 0.34]
Sadness	Pt.	−0.05	−0.20	[−0.32, 0.22]	[−0.49, 0.10]
	Sp.	−0.20	−0.05	[−0.49, 0.10]	[−0.32, 0.22]
Personal pronouns					
I	Pt.	0.34*	−0.02	[0.06, 0.63]	[−0.31, 0.27]
	Sp.	−0.02	0.34*	[−0.31, 0.27]	[0.06, 0.63]
We	Pt.	0.24	−0.01	[−0.06, 0.54]	[−0.32, 0.29]
	Sp.	−0.01	0.24	[−0.32, 0.29]	[−0.06, 0.54]
You	Pt.	0.30†	0.33†	[−0.06, 0.66]	[−0.01, 0.67]
	Sp.	−0.18	−0.20	[−0.51, 0.16]	[−0.50, 0.10]

Note. Emotion words and personal pronouns were entered in two separate actor–partner interdependent models (APIMs). Estimates are all standardized effects. Main effects are reported in the table and are the same for patient and spouse unless significance reached the $p \leq .20$ threshold wherein effects were deconstructed to denote significantly different effects for patient and spouse. All analyses reported are from the full sample. The magnitude and interpretation of effects did not differ when analyzed without the same-sex couples. Pt. = patient; Sp. = spouse.
†$p \leq .10$. *$p \leq .05$. **$p \leq .01$.

not significantly associated with patients' ($\beta = 0.23$, $p = .32$) or their own ($\beta = 0.08$, $p = .55$) dyadic adjustment. This pattern suggests that patients' anger words were particularly indicative of couples' poor dyadic adjustment. Neither actor ($\beta = -0.05$, $p = .69$) nor partner ($\beta = -0.20$, $p = .18$) effects for sadness words and dyadic adjustment were significant.

How does pronoun use relate to dyadic adjustment?

Correlations

First, we found that the only significant association between we-talk and dyadic adjustment was spouses' we-talk and their own dyadic adjustment ($r = .32$, $p = .02$; Table 1). However, because of the particular attention to we-talk in research on couples' word use, we conducted a post hoc correlational analysis of the subscales of the DAS and found that spouses' we-talk was significantly associated with their own reports of consensus ($r = .39$, $p = .005$) and patients' satisfaction ($r = .33$, $p = .02$) and marginally associated with spouses' own satisfaction ($r = .26$, $p = .06$). The remaining actor and partner correlations for we-talk and the four dyadic adjustment subscales were not significant ($p > .23$).

Spouses' use of "I" was positively correlated with their own reports of dyadic adjustment ($r = .37$, $p = .01$), which was the only significant correlation among the use of "I" and dyadic adjustment ($p > .22$). Considering this in conjunction with the same pattern for we-talk and dyadic adjustment, this suggested that spouses' use of first-person pronouns reflects their own positive dyadic adjustment. Finally, patients' use of "you" was significantly related to spouses' better dyadic adjustment ($r = .27$, $p = .05$), while all other correlations for "you" were not statistically

significant ($p > .11$). Consistent with the pattern noted above, these associations reveal that focus on the spouse, rather than the patient, reflects positive dyadic adjustment.

Actor–partner interdependence models

As with emotion word use, APIMs were used in a second step of analyses to understand the relation between both partners' pronoun use and dyadic adjustment, controlling for actor and partner pathways. A main actor effect for both partners' use of "I" revealed a positive association with dyadic adjustment ($\beta = 0.34$, $p = .02$), whereas no main partner effect emerged ($\beta = -.02$, $p = .88$), showing that when controlling for interdependence, focus on the self reflects one's own positive dyadic adjustment. The actor effect for patients' and spouses' use of "you" differed by role ($\beta = 0.50$, $p = .06$), and simple slope analyses revealed a marginal positive association between patients' use of "you" and their own dyadic adjustment ($\beta = 0.30$, $p = .10$) with a trend for spouses showing the opposite relation ($\beta = -0.20$, $p = .18$), although not statistically significant. In addition to differing actor effects, different partner effects ($\beta = -0.51$, $p = .06$) emerged such that patients' use of "you" was marginally positively associated with spouses' dyadic adjustment ($\beta = 0.33$, $p = .06$), while patients' adjustment was not significantly related to spouses' use of "you" ($\beta = -0.18$, $p = .29$). This is consistent with the pattern found in the correlational analyses that focus on the spouse, rather than the patient, reflects dyadic adjustment. We-talk was not significantly associated with dyadic adjustment in this model ($p > .12$).

Discussion

This study examined indicators of dyadic adjustment—everyday use of emotion words and personal pronouns—among couples coping with breast cancer. This was the first study to use a naturalistic design to elucidate meaningful patterns of word use in the noncancer conversations between breast cancer patients and their spouses. Results revealed that positive emotion words were reflective of partners', but not one's own, dyadic adjustment. Furthermore, spouses' general negative emotion words were associated with poorer dyadic adjustment for both partners. Among specific negative emotion words, patients' anger word use emerged as most indicative of both partners' poorer dyadic adjustment. Finally, both partners' focus on the spouse, as indexed by use of personal pronouns, indicated better dyadic adjustment.

Emotion words and dyadic adjustment

As predicted, positive emotion words were positively associated with partners' dyadic adjustment. It was unexpected, however, that there was no significant actor effect. Although other studies have found evidence for actor effects of positive emotion words on positive outcomes (Low et al., 2006; Pennebaker et al., 1997; Slatcher & Pennebaker, 2006), these studies did not test or control for partner effects and examined written, rather than spoken, text. This study suggests that partners' everyday use of positive emotion words, more than one's own use, is more strongly tied to dyadic adjustment. This is partly consistent with Slatcher et al.'s (2008) finding that men's positive emotion words in couples' instant messages were positively related to women's relationship satisfaction. Altogether, this reveals that relationship quality is more reflected in the partner's positive words rather than one's own. Future studies should test whether this is a causal association, such that increasing one partner's positive emotion words leads to increases in the other partner's perception of relationship quality. In sum, although high relationship quality is, in other contexts, reflected in one's own positive emotion words, attending to a significant other's positivity might be most indicative of a person's dyadic adjustment in couples' everyday conversations.

General and specific negative emotion words were mostly negatively related to dyadic adjustment, as expected. Specifically, spouses' general negative emotion words were associated with both partners' poorer dyadic

adjustment, which is consistent with past work (Baptist & Nelson Goff, 2012; Robbins et al., 2013; Rude, Gortner, & Pennebaker, 2004). In the context of coping with breast cancer, patients tend to seek support from their spouse, so spouses' negativity could be especially detrimental to the coping process for both partners.

In contrast to general negative emotion words, only patients', and not spouses', anger words reflected both partners' poorer dyadic adjustment. To interpret this finding, it is important to note that swear words are fully subsumed by anger words. A previous report studying 21 of the women with breast cancer from this sample and 13 women with rheumatoid arthritis found that swearing in the presence of others predicted decreased emotional support and increased depressive symptoms (Robbins et al., 2011). The results of this study corroborate the previous conclusion that women's, but not men's, use of anger and swear words is related to negative outcomes, perhaps because of gender stereotypes (Bird & Harris, 1990).

Sadness and anxiety words were largely unrelated to dyadic adjustment. However, all of the regression coefficients for sadness words were in the expected negative direction. The one statistically significant association was patients' sadness words and spouses' worse dyadic adjustment. This is in line with previous research finding that patients' sadness words negatively related to family conflict (Robbins et al., 2013). In both this and previous studies, only patients', and not spouses', sadness word use significantly related to adjustment. This could be attributed to gender differences in norms for expressing emotion (Dindia & Allen, 1992) or talking about different topics (Newman, Groom, Handelman, & Pennebaker, 2008). Future research should continue to explore contextual factors surrounding word use in order to further understand this association. Finally, the use of anxiety words does not have consistent ties to relationship quality in past studies and therefore did not allow for clear a priori hypotheses (e.g., Robbins et al., 2013). This was reflected in this study as anxiety words did not significantly correlate with dyadic adjustment and were thus not included in the APIMs. Furthermore, anxiety words were used infrequently and had little variation, rendering it difficult to detect an association with dyadic adjustment.

Personal pronouns and dyadic adjustment

Counter to prediction, we-talk was not significantly associated with dyadic adjustment when controlling for partners' interdependence and other personal pronouns in the APIM. However, the raw associations between we-talk and dyadic adjustment were positive for both patient and spouse, adding to the existing literature of positive findings within patient samples (Lyons, Mickelson, Sullivan, & Coyne, 1998; Robbins et al., 2013; Rohrbaugh et al., 2008, 2012). Additionally, this study revealed that spouses' use of "I" and patients' use of "you" were associated with better dyadic adjustment. Focus on the spouse in the context of coping with breast cancer can indicate more balance within the relationship rather than an exclusive focus on the patient. Past research has found that the spouses of cancer patients are more emotionally exhausted and lose respect for their partners when they feel that their own needs are not attended (Ybema, Kuijer, Hagedoorn, & Buunk, 2002). These findings should be interpreted very cautiously due to the fact that this study did not measure inequality in couples' division of labor and relationship maintenance directly. However, in conjunction with past research (Ybema, Kuijer, Buunk, DeJong, & Sanderman, 2001; Ybema et al., 2002), our results suggest that in the context of couples' everyday, noncancer interactions, couples without an exclusive focus on the patient may fare better as a couple. Future research should determine how much balance between patient and spouse is optimal for couples coping with serious illness.

Limitations and future directions

There are important limitations in this study. The small, mostly Caucasian sample limits the generalizability of the present findings, although this study makes an initial step in

studying the relation between noncancer conversations among couples coping with breast cancer. Furthermore, this was a correlational study, and future work should begin to examine how aspects of noncancer conversations among couples may influence dyadic and psychological adjustment. Finally, role (patient vs. spouse) and gender were almost completely confounded in this sample. This may alter the interpretation of our findings where effects differed by role. For example, we interpreted the association between patients' anger words and poorer dyadic adjustment in light of gender roles, but this study cannot rule out that it was not due to patient versus spouse roles. Although it is difficult to completely uncouple medical and gender roles, a meta-analysis indicated that gender appears to play at least some role in the experience of distress in coping with cancer (Hagedoorn, Sanderman, Bolks, Tuinstra, & Coyne, 2008). Including equal numbers of same- and opposite-gender couples in future studies is important to more directly test the differences due to patient and spouse role versus gender effects in coping with cancer.

In sum, this study advances understanding of how patterns of daily word use in noncancer conversations reflect dyadic adjustment among couples coping with breast cancer. Couples' relationships do not cease to be central to their lives as they cope with cancer. In fact, most of couples' conversations did not center around cancer (Robbins et al., 2014). This study revealed that attending to word use within noncancer conversations can serve as an observable marker of how a couple's relationship is faring in the face of coping with cancer.

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