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Everyday protective buffering predicts intimacy and fear of cancer recurrence in couples coping with early-stage breast cancer

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Abstract

Objective: Patient and spouse/partner mutual self-disclosure is central for maintaining intimacy and cognitive processing when transitioning to life after cancer. Protective buffering inhibits self-disclosure and is defined as efforts to protect one's partner from upset and burden by hiding or denying cancer-related concerns. Intimacy and fear of cancer recurrence (FCR) are important determinants of individual and couple adaptation following cancer. Links between protective buffering and intimacy have not been examined in the context of daily life, and links with FCR have not been studied. We hypothesized that protective buffering is associated with decreased intimacy and increased FCR at a daily, within-person level.

Methods: Sixty-nine early-stage breast cancer (BC) survivors and their spouses completed electronic diaries for 21 consecutive days at the end of adjuvant treatment. Patients and spouses reported on daily protective buffering, intimacy, and FCR. Dyadic multilevel path modeling was used to estimate within-person effects. Patient and spouse protective buffering on one's own as well as one's partner's same-day intimacy and FCR were examined, controlling for previous levels of intimacy and FCR.

Results: Protective buffering was associated with decreased intimacy and increased FCR for the individual reporting buffering that same day. Patient and spouse protective buffering was also linked to decreased intimacy for her/his partner that same day. Moreover, patient protective buffering predicted increased spouse FCR that same day.

Conclusions: Findings supported a daily, within-person link between buffering, intimacy, and FCR, suggesting open disclosure of cancer-related concerns may be a relevant target for interventions for adaptation to BC.

KEYWORDS

breast cancer, cancer, couples, fear of cancer recurrence, intimacy, longitudinal studies, oncology, protective buffering, self-disclosure, spouses

1 | INTRODUCTION

The number of breast cancer (BC) survivors is projected to reach 4.5 million in the next 10 years.[1] Many of these survivors experience distress,[2] depression,[3] and decreased quality of life.[4] A diagnosis of BC can also consequentially impact spouses/partners (hereafter termed *spouse*). Spouses can experience significantly elevated levels of distress matching or exceeding those of patients.[5] Furthermore, spouse distress has been associated with higher patient distress.[6]

Most previous research on couples coping with cancer has focused on either patients or spouses in isolation. However, the long-term consequences for the well-being of both partners highlights that BC is a shared stressor for which adaptation should be examined from a dyadic perspective. To understand the adjustment of both partners, it is important to consider relationship processes unique to the interdependent cancer context within which adjustment occurs. One such process is the extent to which partners disclose their cancer-specific concerns with one another. *Protective buffering* is defined as efforts to protect one's partner from upset and burden by hiding or denying cancer-related concerns and yielding to the partner to avoid disagreements.[7]

Intimacy, an interactive process, arises when one discloses self-relevant feelings and information to a partner and, through the partner's responsiveness, comes to feel understood, accepted, and cared for.[8,9] The Relationship Intimacy Model of Couples' Psychosocial Adaptation to Cancer[10] (RIM) provides a theoretical foundation for understanding the significance of self-disclosure for adjustment to cancer. The RIM proposes that patients and spouses engage in cancer-specific relationship-enhancing (eg, greater cancer-related disclosure) and relationship-compromising communication (eg, protective buffering) that improves and undermines intimacy, respectively.[10]

Several cross-sectional studies and a few longitudinal studies lend support for the RIM.[11-14] For example, in couples coping with early-stage BC, greater self-disclosure of BC concerns and perceived partner disclosure were associated with greater intimacy for both partners.[12] A few studies have examined the effects of an individual's communication on both self-reported and partner-reported intimacy.[11,13] For couples coping with gastrointestinal cancer, high levels of disclosure and low levels of holding back of cancer-related concerns by patients were associated with greater intimacy for both partners.[13] Similarly, more disclosure and less holding back by spouses was associated with their own greater intimacy, and less holding back by spouses was associated with greater patient intimacy.[13] In a longitudinal study of couples coping with head and neck or lung cancer, greater self-disclosure and perceived partner disclosure of cancer-related concerns during treatment was associated with greater intimacy 9 months post treatment, while more negative communication (eg, mutual avoidance and demand-withdraw) of cancer-related concerns was associated with lower levels of intimacy at posttreatment for both partners.[14] Furthermore, negative communication reported by patients and spouses during treatment was associated with lower levels of intimacy as reported by their partners over time.[14]

While prior work has examined several cancer-related communication strategies (eg, perceived self-disclosure and demand-withdraw), few studies have examined protective buffering, which may differ in important ways.[11] For example, demand-withdraw, when one partner pressures another to disclose and the other avoids the discussion, can result if partners are generally unsatisfied in their relationship, while protective buffering is conceptualized as a prosocial and cancer-specific phenomenon. Additionally, few studies have examined cancer-related communication longitudinally,[14-16] and none to date have examined protective buffering longitudinally, particularly at a daily, within-person level. Intensive longitudinal designs, which include repeated measurements of individuals over time (eg, daily diaries), help

to elucidate within-person associations, minimize retrospective reporting biases, and rule out unmeasured person-level confounders.[17,18] Compared with between-person associations that examine the aggregate (ie, persons who engage in more buffering on average than others), within-person associations can reflect dynamic processes as they unfold over time, allowing us to examine links based on times the individual engages in more or less buffering than is typical for him/her.[19]

Few studies have examined associations between inhibited cancer-related communication and central aspects of psychosocial adjustment to cancer, such as fear of cancer recurrence (FCR).[16] FCR is defined as "fear, worry, or concern relating to the possibility that cancer will come back or progress"[20] and is a top concern of BC survivors and their spouses.[21] FCR has been associated with anxiety, depression, and posttraumatic stress, as well as lower levels of quality of life.[22] Self-disclosure may attenuate patient and spouse FCR by facilitating cognitive processing of concerns, thoughts, and feelings about the possibility of recurrence.[16,23,24] Conversely, inhibited disclosure via protective buffering may prevent adaptive processing and, in turn, increase FCR.[16,23,24] Consistent with this notion, a related construct, social constraints—perceptions of disinterest or dismissive and critical responses by one's partner to cancer-related disclosure—have been linked to greater FCR in recent work.[16]

Even when well intended, ongoing protective buffering may create "missed opportunities" for partner responsiveness to build or maintain intimacy[9,25] and cognitive processing,[23,24] thereby negatively influencing psychosocial adjustment. Thus, protective buffering may have unintended consequences for both patients and partners.

1.1 | Overview of the present study

The present study evaluated links between protective buffering, intimacy, and FCR within the context of the day-to-day lives of couples coping with BC. Data from both partners were collected to examine the effects of one participant's buffering on his/her partner's intimacy and FCR. A 3-week daily diary design was used to obtain daily reports of protective buffering, intimacy, and FCR after surgery and adjuvant treatment. The period following treatment is an important transition in the survivorship trajectory.[16,26-28] Relief that treatment is over and that patients are in remission may be accompanied by treatment-related side effects, loss of support from family and friends who may not realize concerns that accompany this transition, and FCR following loss of regular contact with health care providers.[16,26-28] We hypothesized that protective buffering would predict lower levels of intimacy and greater levels of FCR for both the individual reporting buffering and his/her partner that same day, irrespective of role as patient or spouse.

2 | METHOD

2.1 | Participants and procedure

Participants were recruited from a Mid-Atlantic cancer center as part of a larger longitudinal study with Christiana Care Health System IRB

approval (FWA00006557; CCC# 33026).[16,26] Female BC patients were eligible if they (a) had a diagnosis of early-stage BC (Stage 0 [ductal/lobular carcinoma in situ] though Stage IIIA), (b) received recent BC surgery (lumpectomy or mastectomy), (c) were married to or in a long-term committed relationship with a spouse/partner who was willing to participate, (d) were comfortable speaking and reading in English, and (e) lived within an hour of the cancer center. Potential participants were identified using data available in electronic health records (n = 463). Of the 463 contacted, 110 were ineligible (primarily due to being unpartnered) and 82 could not be reached to determine eligibility. Of those whose eligibility was confirmed (n = 271), 192 declined (most commonly citing "not enough time" or "spouse/partner does not wish to participate"). Seventy-nine patients provided written informed consent. Sixty-nine couples provided data for the diary period, resulting in the final sample (N = 138 paired individuals). Sample characteristics are detailed in Table 1.

The 21-day daily diary period began after adjuvant treatment, approximately 5 months (SD = 2.09, range = 2-12) after BC surgery. On each day, both patients and spouses were asked to independently complete a short morning and evening survey within approximately an hour of waking and an hour of going to sleep, respectively. Patients

TABLE 1 Sample characteristics

	% of Sample	Mean (SD)
Relationship Length, y		**28 (14)**
Married	93%	
Heterosexual	97%	
Family income		
$10 000-40 000	10%	
$40 001-60 000	18%	
$60 001-80 000	15%	
$80 001-100 000	24%	
>$100 001	34%	
Patients		
Age, y		57 (9)
Hispanic/Latino	0%	
Caucasian	88%	
Black/African American	11%	
Asian	1%	
Spouses		
Age, y		58 (10)
Hispanic/Latino	0%	
Caucasian	86%	
Black/African American	11%	
Asian	3%	
Cancer stage		
Stage 0	12%	
Stage IA	53%	
Stage IIA	25%	
Stage IIB	9%	
Stage IIIA	1%	
Adjuvant treatment		
Chemotherapy	30%	
Radiation	72%	
Hormonal therapy	84%	

and spouses completed 86% and 83% of morning surveys and 86% and 84% of evening surveys, respectively.

2.2 | Measures

Daily protective buffering was assessed using seven items following the scale developed by Suls et al.[29] Items were adapted for daily use (see Supporting Information) and each evening, participants rated the extent to which they engaged in protective buffering with their partner that day (eg, "denied or hid my anger" and "acted more positive than I felt") on a Likert-type scale ranging from 0 = *Not at all* to 4 = *Extremely*. Items were averaged to create a composite (possible range = 0-28). Omega, an index of within-person reliability for multi-item composite scales administered repeatedly,[17,30] was acceptable for patients (ω = 0.87) and spouses (ω = 0.87).

Intimacy was assessed each morning and evening using three items from prior work assessing daily intimacy.[9,25] The first two items assessed how "intimate/connected" and "emotionally close" participants felt with their partner at that moment using a Likert-type scale ranging from 0 = *Not at all* to 4 = *Extremely*. The third item asked, "All things considered, what degree of happiness best describes your relationship with your spouse/partner at this moment?" using a Likert-type scale ranging from 0 = *Unhappy* to 9 = *Perfectly happy*. Responses were converted to percent of maximum possible, placing the items on a common scale (0-10),[31] which were averaged to create composites of momentary morning and evening intimacy. Omega reflected acceptable within-person reliability for morning (patient = 0.87, spouse = 0.81) and evening intimacy (patient = 0.87, spouse = 0.84).

Daily FCR was assessed each evening. Six items from the Distress, Insight, and Severity subscales of the Fear of Cancer Recurrence Inventory (FCRI)[32] were adapted for daily use.[16,26] Five items assessed anxiety, sadness, anger, helplessness, and excessive worry related to FCR. The Severity item asked, "How much time today did you spend thinking about the possibility of cancer recurrence?" Items were measured on a Likert-type scale from 0 to 4 with higher scores indicating greater FCR and were summed to create a composite (possible range 0-24) reflecting acceptable within-person reliability for patients (ω = 0.89) and spouses (ω = 0.88). It is worth nothing that while the distribution of daily FCR was skewed and count-shaped with an excess of zeros, 40 patients (58%) and 27 spouses (39%) reported clinical levels on the global FCRI-severity subscale, comparable with prior studies.[33]

2.3 | Statistical analysis

Multilevel dyadic path modeling was conducted in Mplus[34] to accommodate the structure of these daily diary data (ie, days crossed with patients and spouses).[17,35] The linear effect of time was included as a fixed within-person covariate. Random intercepts and, when possible, random effects for the slopes of focal predictors were estimated. Time-varying predictors (eg, daily protective buffering) were person-mean centered to obtain estimates of within-person effects and person-means were grand-mean centered to obtain estimates of

between-person effects.[17,19] Actor-partner interdependence model-ing[36] was used to model interdependence of partners' outcomes by examining both actor (ie, the intrapersonal effect of one participant's buffering on his/her own outcomes) and partner effects (ie, the interpersonal effect of one participant's buffering on his/her partner's outcomes), which were estimated simultaneously in each model.

We first examined the concurrent, within-person associations between protective buffering and intimacy. Patient and spouse evening ratings of intimacy were regressed on both own and partner's daily reports of protective buffering, controlling for own morning levels of intimacy. For our second aim, we examined the concurrent, within-person associations between protective buffering and FCR. Patient and spouse ratings of FCR were regressed on both own and partner's daily reports of protective buffering, controlling for own levels of FCR the previous evening. It was noted that the patient and spouse actor effects were similar in magnitude when modeling both intimacy and FCR as were the patient and spouse partner effects when modeling intimacy. For parsimony, we estimated models that constrained the actor and partner effects to be equal. The deviances of the constrained and unconstrained models did not differ for intimacy ($\chi^2(2) = 1.49$, $P = 0.47$) or FCR ($\chi^2(1) = 0.182$, $P = 0.67$), suggesting equivalent fit. The results of the constrained models are reported. Between-person effects were estimated but not reported, as the current focus is within-person processes.

3 | RESULTS

3.1 | Protective buffering and intimacy

Descriptive statistics and bivariate correlations are shown in Table 2. Results of the model predicting intimacy are detailed in Table 3. It should be noted that by controlling for morning levels of intimacy, these effects capture residualized change from morning to evening.[37] The within-person actor effect (constrained across patient and spouse) indicated that on days that a patient or spouse reported one unit more of buffering than was typical for her/him, there was an associated decrease of nearly three-quarters of a point in her/his own intimacy that same day ($\gamma = -0.73$, $P < 0.001$). The partner effect (constrained across patient and spouse) indicated that on days that a patient or spouse reported more buffering than was typical for her/him, there was an associated decrease in his/her partner's intimacy ($\gamma = -0.29$, $P = 0.018$) that same day. For brevity, the random effects are detailed in Table 3, but it is worth mentioning that the random slopes pointed to substantial person-to-person variability. For example, the random slope for the patient actor effect (variance = 0.84, SD = 0.92) indicates that the slopes of about 95% of patients fell between −2.57 and 1.11.

3.2 | Protective buffering and FCR

Results of the model predicting FCR are detailed in Table 4. Due to the distribution of daily FCR being skewed and count-shaped with an excess of zeros, zero-inflated multilevel Poisson modeling was used.[38] Although zero-inflated count models technically have two parts—one focusing on the prediction of counts and the other focusing on the

TABLE 2 Descriptive statistics and bivariate correlations of primary variables[a]

	1	2	3	4	5	6
1. Patient protective buffering	(0.59)					
2. Spouse protective buffering	0.11***	(0.47)				
3. Patient evening intimacy	−0.26***	−0.11*	(.68)			
4. Spouse evening intimacy	−0.10**	−0.24***	0.31***	(0.71)		
5. Patient evening FCR	0.24***	0.01	−0.09*	−0.01	(0.44)	
6. Spouse evening FCR	0.15***	0.25***	−0.12***	−0.05	0.21***	(0.58)
Mean	0.28	0.23	7.34	7.56	2.11	1.43
Within-person SD	0.33	0.34	1.15	1.09	2.54	2.01

Abbreviation: FCR, fear of cancer recurrence.
[a]Within-person correlations are displayed below the diagonal and intraclass correlations are displayed in parentheses along the diagonal.
*$P < 0.05$.
**$P < 0.005$.
***$P < 0.001$.

excess of zeros—the results reported below focus on the count part. We attempted to estimate random effects for both the actor and partner fixed effects of protective buffering; however, this model with a highly complex random effect variance-covariance structure did not converge. Zero-inflated multilevel count models are a relatively new innovation in applied statistics and can be difficult to estimate with several random effects.[38] Nevertheless, we were able to estimate a model with random intercepts and random effects for the slopes of the actor effects and only the patient partner effect (ie, patient buffering predicting spouse FCR). Again, the results control for the previous evening's level of FCR (capturing residualized change).[37] The constrained actor effect indicated that on days that a participant reported more buffering than was typical for her/him, there was an associated increase in her/his own daily FCR ($\gamma = 0.14$, $P < 0.001$; Rate Ratio = 1.15). The patient partner effect suggested that on days that a patient reported more buffering than was typical for her, there was an associated increase in her spouse's FCR ($\gamma = 0.83$, $P = 0.051$; Rate Ratio = 2.29). Again, there was substantial person-to-person variability, with the random slope for the patient partner effect on spouse FCR (variance = 1.82, SD = 1.35) indicating that the slopes of about 95% of spouses fell between −1.86 and 3.53.

4 | DISCUSSION

This is the first known study to examine within-person links between protective buffering and psychosocial adjustment. The present work

TABLE 3 Multilevel regression results of the link between daily protective buffering and intimacy[a]

Effect	Estimate (SE)	Z	P	95% CI Lower	Upper
Fixed effects (intercepts, slopes)					
Within-couple					
P & S protective buffering (actor)	−0.73 (0.15)***	−4.87	<0.001	−1.03	−0.44
P & S protective buffering (partner)	−0.29 (0.12)*	−2.37	0.018	−0.53	−0.05
P morning intimacy	0.39 (0.05)***	7.38	<0.001	0.29	0.50
S morning intimacy	0.43 (0.06)***	7.09	<0.001	0.31	0.54
P time	0.01 (0.01)	0.88	0.377	−0.01	0.02
S time	0.01 (0.01)	1.07	0.284	−0.01	0.02
Random effects ((co)variances)					
Level-2 (between-couple)					
P actor effect	1.53 (0.62)*	2.47	0.014	0.32	2.75
S actor effect	0.65 (0.31)*	2.10	0.036	0.04	1.26
P partner effect	0.07 (0.19)	0.36	0.719	−0.31	0.44
S partner effect	0.14 (0.11)	1.32	0.186	−0.07	0.36
Level-1 (within-couple)					
Patient residual	0.84 (0.11)***	7.86	<0.001	0.63	1.04
Spouse residual	0.80 (0.09)***	8.64	<0.001	0.62	0.98
P-S residual covariance	0.11 (0.04)**	2.71	0.007	0.03	0.19

[a]P = patient. S = spouse. Between-person random effect covariances were estimated, but are not displayed. SE = standard error. N = 69, days = 926.

*$P < 0.05$.

**$P < 0.01$.

***$P < 0.001$.

TABLE 4 Multilevel regression results of the link between daily protective buffering and FCR using zero-inflated Poisson modeling[a]

Effect	Estimate (SE)	Z	P	95% CI Lower	Upper
Fixed effects (intercepts, slopes)					
Within-couple					
P & S protective buffering (actor)	0.14 (0.04)**	3.42	0.001	0.06	0.22
P protective buffering (partner)	0.83 (0.43)†	1.95	0.051	0.06	0.22
P time	0.01 (0.01)	0.64	0.524	−0.01	0.02
S time	0.01 (0.01)	1.32	0.187	−0.01	0.03
P prior evening FCR	0.01 (0.01)	0.62	0.537	−0.01	0.03
S prior evening FCR	0.01 (0.02)	0.87	0.383	−0.02	0.05
Random effects (variances)					
Level-2 (between-couple)					
P actor effect	0.01 (0.01)	0.23	0.822	−0.02	0.02
S actor effect	0.01 (0.01)	0.23	0.822	−0.02	0.02
P partner effect	1.82 (1.14)	1.60	0.110	−0.41	4.05

[a]P = patient. S = spouse. Between-person random effect covariances were estimated, but are not displayed. SE = standard error. N = 68, days = 910.

†$P < 0.10$.

*$P < 0.05$.

**$P < 0.01$.

***$P < 0.001$.

focused on daily intimacy, an important indicator of relationship adjustment, and FCR, an individual adjustment outcome unique to the cancer experience, in couples coping with early-stage BC. Given prior work suggesting that patients' and spouses' adaptation is influenced by their own as well as their partners' cancer-related communication,[13-15] we utilized both patient and spouse reports to examine the intrapersonal and interpersonal effects of daily protective buffering.

As hypothesized, after controlling for morning intimacy, protective buffering was associated with a within-person decrease in evening intimacy for both the individual reporting buffering and for his/her partner that same day, irrespective of role (ie, patient or spouse). While the direction of this effect cannot be determined from this observational study, these associations echo the RIM and our view of relationship-compromising cancer-specific communication being detrimental for intimacy.[10] Turning to FCR, as hypothesized, we found that protective buffering was associated with a within-person increase in FCR for the individual reporting buffering, irrespective of role, that same day. Patient buffering was also associated with an increase in same-day spouse FCR. Should future research determine that protective buffering indeed increases FCR (rather than vice-versa), results may be interpreted as limits on self-disclosure restricting the ability to process the experience of cancer. Future research should more explicitly test the direction of these effects and attempt to identify the mechanisms by which protective buffering may exert these deleterious influences.

It is worth noting that the average intrapersonal and interpersonal effects of protective buffering varied from couple to couple. The size of the random effects indicated that for some, the effect of protective buffering was much more detrimental, while for others, the associations were in the opposite direction. This suggests there may be moderators of these effects; however, the present study was not designed nor powered to test between-person moderators of the links between these variables at a daily, within-person level. Future research should investigate theoretically motivated variables such as personality, indicators of relationship functioning, and contextual factors as potential moderators. For example, in a cross-sectional study of couples coping with BC, relationship satisfaction moderated intrapersonal and interpersonal associations between protective buffering and distress.[39] Specifically, patient buffering predicted more distress for patients and spouses who reported greater relationship satisfaction.[39]

4.1 | Study limitations

There are several limitations of the current study. First, protective buffering, evening intimacy, and FCR were assessed concurrently, and thus, we cannot rule out the possibility that individuals engage in more buffering on days they report particularly low intimacy or high FCR. However, by controlling for prior levels of the outcomes, results reflect daily associations between protective buffering and residualized changes in intimacy from morning to evening and FCR from the previous day—helping to address directionality. Future studies should attempt to capture these processes closer in time to when they occur over the course of the day. A relatively low response rate (79 of 271 potentially eligible participants) resulted in a small sample that was additionally homogenous, thus replication and extension would be important. Study results may therefore not generalize to all couples coping with early-stage BC. Future studies should attempt to recruit larger and particularly more diverse samples to increase generalizability of results. Finally, the timing and focus on couples coping specifically with early-stage BC further limit the generalizability and clinical implications. These associations may vary during different periods of survivorship or for couples coping with other types of cancer.

4.2 | Clinical implications

The diagnosis and treatment of BC is often experienced as stressful by patients and spouses. It is not surprising that both partners may refrain from communicating concerns, needs, or fears in the hopes of not upsetting or burdening one another. Following our findings, couple-focused interventions that target cancer-related communication may improve both individual and relationship functioning beyond focusing on partners in isolation. Specifically, couple-focused interventions facilitating reciprocal self-disclosure of cancer-related concerns within a context of safety may foster interactions that promote intimacy and processing of the cancer experience for both patients and spouses.

CONFLICT OF INTEREST

The authors have declared no conflicts of interest.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.