

ORIGINAL ARTICLE

Cancer Communication and Partner Burden: An Exploratory Study

Maria K. Venetis¹, Kate Magsamen-Conrad², Maria G. Checton³, & Kathryn Greene⁴

1 Brian Lamb School of Communication, Purdue University, West Lafayette, IN 47907, USA

2 Department of Communication, Bowling Green State University, Bowling Green, OH 43403, USA

3 Department of Health Care Management, College of Saint Elizabeth, Morristown, NJ 07960, USA

4 Department of Communication, Rutgers University, New Brunswick, NJ 08901, USA

This exploratory article applies Communication Privacy Management theory to an examination of cancer-related open communication, topic avoidance, and partner burden from the perspectives of patients and their partners. 2 models were proposed: 1 model considered participants' communication behaviors, and the other considered partners' perspectives of the other's topic avoidance. Participants include 95 dyads in which 1 partner had been diagnosed and/or treated for cancer. Variables of interest include: patient/partner open communication, patient/partner topic avoidance, patient/partner perceptions of other's topic avoidance, and partner burden. Data were analyzed using structural equation modeling. Results support relationships between openness, topic avoidance, perceived topic avoidance, and partner burden. The manuscript discusses implications of perspective, open communication, and topic avoidance on partner burden.

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A cancer diagnosis presents not only physical but also potentially long-lasting psychosocial health challenges such as anxiety and depression (Lambert, Jones, Girgis, Lecathelinais, & DESS de Mathematiques Appliquees, 2012), fear (Lyons, Jacobson, Prescott, & Oswalt, 2002), and feelings of vulnerability (McWilliam, Brown, & Stewart, 2000). Such challenges are not limited to the cancer patient but also extend to patients' partners and social network. In some cases, the psychological burden is greater for partners than patients (Hagedoorn, Sanderman, Bolks, Tuinstra, & Coyne, 2008). Cancer-related communication between patients and partners can be problematic (e.g., Weber & Solomon, 2008) and yet consequential to cancer coping (Berg & Upchurch, 2007); communication patterns can serve to relieve or exacerbate dyadic coping (Hilton & Koop, 1994). That is, patients and partners are interdependent in their cancer coping, and the adjustment of one affects the

Corresponding author: Maria K. Venetis; e-mail: mvenetis@purdue.edu

adjustment of the other (Hagedorn *et al.*, 2008). Prior research has independently examined cancer patients' and partners' communication and outcomes (e.g., Walsh, Manuel, & Avis, 2005), but as noted in Goldsmith, Miller, and Caughlin (2007), scant prior work considers dyadic data and partner outcomes. To address this void, this project considers how patient and partner communication is associated with partners' burden (e.g., guilt and negative feelings). Using Communication Privacy Management theory (CPM; Petronio, 2002) as a framework, this article examines the associations between cancer patient and partner communication, namely the influence of cancer-related open communication and topic avoidance (TA) on partner burden, considering the perspectives of both patients and their partners.

Partner burden

Partners of cancer patients often perform informal caregiving for the patient, and this caregiving is associated with strain and burden (e.g., time management and finances; Nijboer *et al.*, 1998). Caregiver burden is operationalized as the physical, emotional, and/or financial toll of providing care (George & Gwyther, 1986). Informal caregivers provide social support (i.e., emotional, information, and logistical assistance) while attempting to balance their own lives (Barg *et al.*, 1998; Goldstein *et al.*, 2004; Nijboer *et al.*, 1998). Providing care is associated with disruptions in family and social life, financial strain, resentment, isolation, depression, fatigue, stress, decreased global quality of life, and clinical anxiety (Barg *et al.*, 1998; Lambert *et al.*, 2012; Lucas, 2011; Nijboer, Triemstra, Tempelaar, Sanderman, & van den Bos, 1999). One meta-analysis found that cancer patients and partners reported similar levels of distress (Hodges, Humphris, & Macfarlane, 2005); alternatively, one study found that partners reported greater stress, anxiety, and depression than did patients (Lambert *et al.*, 2012). However, partners may be hesitant to discuss their own stress to both shield the patient and avoid shifting attention to themselves (Bevans & Sternberg, 2012; Thomas, Morris, & Harman, 2002).

Although research has examined several sources of partner burden (e.g., Nijboer *et al.*, 1999), there has been little consideration of how communication between patients and partners affects partner well-being. One notable exception is Fried, Bradley, O'Leary, and Byers' (2005) study of partner perceptions of communication and burden. Terminally ill patients, including cancer patients (37%), and their partner caregivers were asked about their communication concerns. Concerns were measured in terms of difficulty in, importance of, and desire for increased communication (Fried *et al.*, 2005). Forty percent of partners reported unmet communication needs. Fried *et al.* argued that meeting these communication needs could reduce partner burden. This manuscript seeks to extend Fried *et al.* to determine the role of both open communication and TA in predicting partner burden.

Information management

CPM addresses the balance between partners' needs for both information sharing and privacy (Petronio, 2002). CPM explains that individuals recognize that disclosing

information is risky and they are mindful of how they share personal information. One theoretical tenet highlights the dialectical nature of information management acknowledging a potential struggle with selecting whether to share or withhold information. CPM describes how individuals create linkages, or metaphorical bonds, between two (or more) people when information is shared (Petronio, 2002). Linked individuals vary in the degree of openness within the dyad, fluctuating between increased depth and breadth of some issues and minimal depth and breadth of others. Likewise, CPM posits that individuals construct boundaries, or expectations, around particular pieces of information. These boundaries control what information can be shared and with whom; such expectations can also extend to content that is *not* shared, even between intimate partners (Parks, 2007; Petronio, 2002; Venetis et al., 2012). As such, it is possible (and likely) that two relationally close, linked individuals, such as cancer patients and their partners, are simultaneously open and selectively avoidant (Afifi, Caughlin, & Afifi, 2007; Goldsmith et al., 2007; Hilton & Koop, 1994).

Contributing to the overarching notion of information management is the dialectical balance between openness and privacy (Petronio, 2002). Open communication, a positive relational maintenance behavior characteristic of intimate partners (Stafford & Canary, 1991), is the act of sharing thoughts, feelings, and information (Goldsmith et al., 2007). Sharing patterns can be examined in terms of depth of disclosure and breadth of content (Altman & Taylor, 1973). Within CPM, increased openness is credited with linkage creation and relational maintenance (Petronio, 2002). Increased open communication could minimize boundaries and heighten the expectation for sharing of thoughts, feelings, and information. Because openness is often reciprocated in close relationships, greater depth and breadth contribute to improved personal and relational outcomes such as reduced stress, improved coping, and increased intimacy and relational satisfaction (Altman & Taylor, 1973; Checton & Greene, 2012; Collins & Miller, 1994; Frattaroli, 2006). Aligned with these prior findings, we anticipate that increased patient and partner cancer-related open communication will contribute to positive outcomes, and specifically to reduced partner burden.

Topic avoidance is one method of embodying privacy, the dialectical counter to openness (Baxter, 1988). TA is a goal-based behavior that occurs when “an individual strategically decides not to disclose information” (Afifi & Guerrero, 2000, p. 166; see also Afifi et al., 2007).¹ Although frequency of TA tends to decrease in intimate relationships (Afifi & Guerrero, 2000), it remains a strategy used in problematic scenarios such as cancer communication. For example, Zhang and Siminoff (2009) found that 65% of lung-cancer patients reported reluctance to discuss particular topics, limiting the depth and breadth of their cancer-related communication. Parks (1982) explains that strategic nondisclosure can serve to provide relief in problematic interactions; thus, despite the literature’s priority of openness, TA is a competent communicative choice (Parks, 2007; Roloff & Ifert, 2000). TA motivations also reflect the recognition of risk from disclosure (CPM, 2002) and include protecting the self, other, and relationship from strain, worry, or uncertainty, and saving face, avoiding conflict, and fostering intimacy (Caughlin & Golish, 2002; Hagedoorn et al., 2008;

Parks, 1982, 2007; Roloff & Ifert, 2000). TA in cancer communication may also be motivated by fear of vulnerability and the desire for privacy, to sustain hope, create normalcy, avoid unnecessary strain, and preserve identities (Bute, 2013; Goldsmith et al., 2007; Gray, Fitch, Phillips, Labrecque, & Fergus, 2000). Commonly avoided topics among cancer populations include death (as particularly difficult, Goldsmith et al., 2007), emotions, fears, worries, sexuality, treatment, being a burden, future plans, bodily change, and healthcare (Boehmer & Clark, 2001; Donovan-Kicken & Caughlin, 2010; Goldsmith et al., 2007). Although neither openness nor privacy inherently creates positive or negative relational outcomes (Baxter, 1988; Goldsmith et al., 2007; Petronio, 2002), some research in cancer communication suggests that mutually avoiding certain topics such as partners' sexual relationship (Boehmer & Clark, 2001) can be associated with increased patient and partner depression (Kayser, Sormanti, & Strainchamps, 1999), distress (Kuijter et al., 2000; Manne et al., 2007; Manne et al., 2006), and relational strain (Walsh et al., 2005) and with reduced relational satisfaction (Donovan-Kicken & Caughlin, 2010). Accordingly, we predict that increased TA will contribute to increased partner burden.

This study responds to the call for additional research on how couples manage the open-avoidant dialectic and consequential relational outcomes (Goldsmith et al., 2007) by examining the associations between cancer-related open communication, cancer-related TA, and partner burden. Thus, the following models are presented for this exploratory study.

Hypothesized model 1—perceptions of own communication behaviors

On the basis of the preceding rationale, the following model is hypothesized (and tested for both patient and partner TA; see Figure 1). First, patient and partner open communication are correlated (H1). Patient and partner open communication predicts TA (about death, the future, sexuality, and burden on the partner) such that increased patient open communication predicts lower patient TA (H2a) and greater partner open communication predicts lower partner TA (H2b). Greater patient (H3a) and partner (H3b) open communication predicts lower partner burden. Finally, increased patient (H4a) and partner (H4b) cancer-related TA is associated with greater partner burden.

Hypothesized model 2—perceptions of other's communication

Much research is conducted from the perspective of one partner in the dyad (e.g., Goldstein et al., 2004; Walsh et al., 2005). This study sought to address this limitation by measuring TA while simultaneously avoiding survey fatigue. Therefore, we asked participants to assess their partner's TA at a broader, more general level than they assessed their own. We propose a second, very similar model, which incorporates the dyad's individual perceptions of the *other's* TA.

This model is hypothesized as follows (see Figure 2). First, patient and partner open communication about cancer are correlated (H1). Greater patient reports of their own open communication predict (1) lower patient perceptions of partner

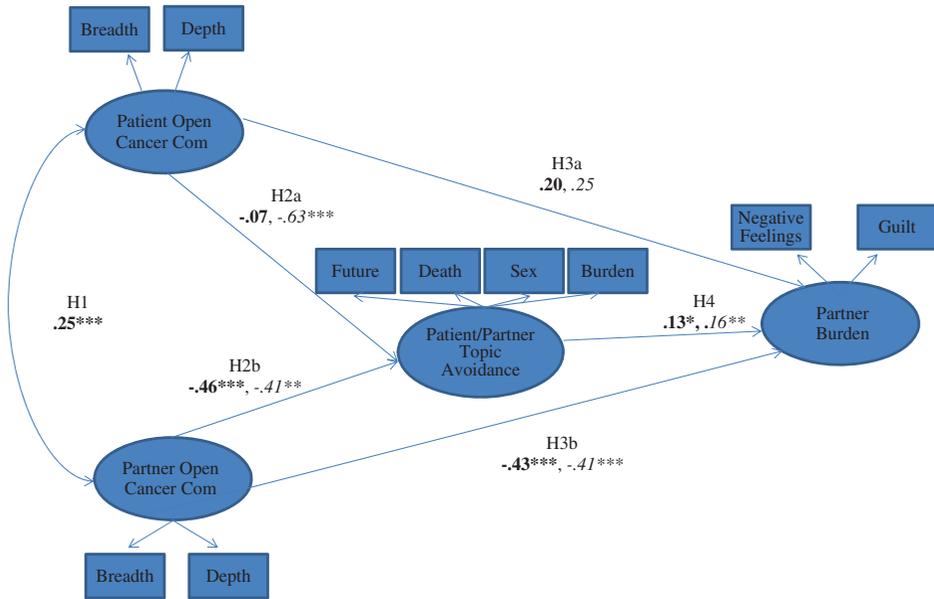


Figure 1 Theoretical model and results—perceptions of own communication behaviors and partner burden. *Note:* Unstandardized paths * $p < .05$, ** $p < .01$, *** $p < .001$. Partner topic avoidance (TA) model, *Patient TA Model* (frequency subscale of TA removed in the patient model).

avoidance (H2a), and (2) lower partner perceptions of patient avoidance (H2b). Greater partner reports of their own open communication about cancer predict (1) lower partner perceptions of patient avoidance (H2c) and (2) lower patient perceptions of partner avoidance (H2d). As in the prior model, greater patient (H3a) and partner (H3b) open communication predict lower partner burden. Patient and partner perceptions of the other’s cancer-related TA are positively correlated (H4). Finally, increased patient (H5a) and partner (H5b) perceptions of the other’s avoidance of cancer-related topics predicts increased partner burden.

Methods

Participants

Participants ($N = 95$ dyads, 190 individuals) were couples in which *one* partner ($n = 95$) was diagnosed with cancer. Participants with the cancer diagnosis (hereafter referred to as “patient”) included 65 (68%) women and 30 (32%) men, and partners included 30 (32%) women and 65 (68%) men. Participants ranged in age from 32 to 91 years ($M = 53.67$, $SD = 10.97$), identified primarily as Caucasian (84%), and reported being in a relationship with their partner from less than one year to 63 years ($M = 24.11$, $SD = 12.98$). Cancer diagnoses in the sample included: breast (37.5%), hematologic (14.6%), gynecologic (11.5%), male genitourinary (10.4%), throat/neck

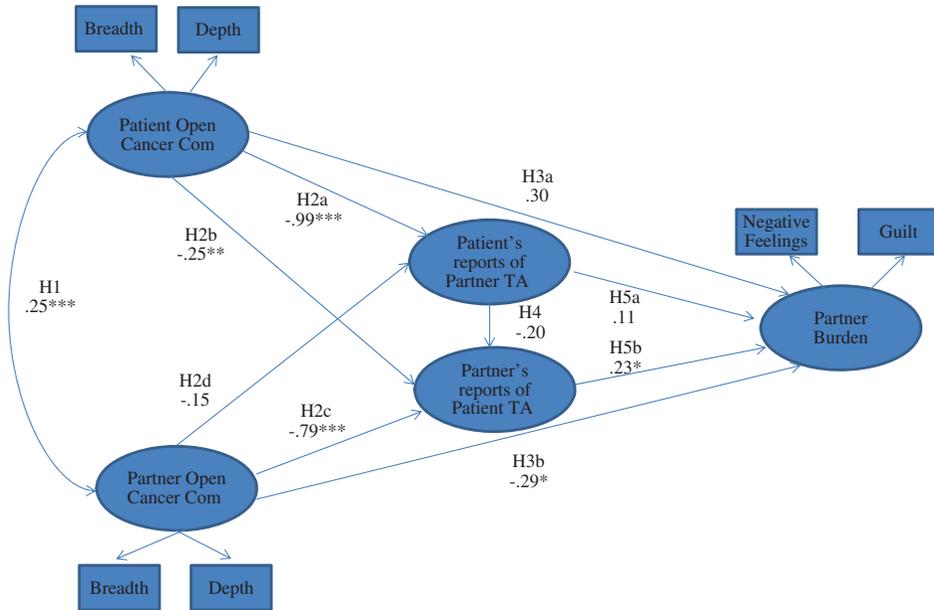


Figure 2 Theoretical model and results—perceptions of other’s communication and partner burden. *Note:* Unstandardized paths * $p < .05$, ** $p < .01$, *** $< .001$. Partner topic avoidance (TA) model, *Patient TA model*.

(9.4%), digestive (5.2%), lung (3%), and other (1%). Time since diagnosis ranged from less than 1 year to 22 years ($M = 5.20$, $SD = 4.95$). Eighty-four patients (88%) were currently undergoing medical care, 59 patients (63%) reported currently taking cancer medication, and 43 patients (49%) were currently undergoing other treatment therapies. Patients rated their general health as good and that they are currently managing and coping with their cancer well.

Procedure

As part of the research component of a communication research methods course at a large Northeastern university in the United States, upper-level undergraduate students recruited couples in which one member had been diagnosed with and had undergone/was undergoing treatment for cancer. All participants completed surveys individually and privately (e.g., in couples’ own homes, with partners separated).²

Measures

Participants completed several demographic and descriptive measures. Items assessed patient and partner age, gender, race/ethnicity, patient’s cancer diagnosis, and time since diagnosis. Both patients and partners assessed patients’ current medical treatment plan, patient general health, and patient cancer management; only patient responses were reported. Current medical care, medication status, and treatment therapy status were each measured with the following one-item questions that were

created by the authors: “Are you under the care of a medical professional for your cancer?” “Do you take medication as part of your treatment?” and “Do you receive any type of therapy as part of your treatment?” Responses for all three items included “yes” or “no.” Patient general health was measured with one item created by the authors that stated, “In general, I would say my health is.” Responses ranged from 1 (*poor*) to 5 (*excellent*), and patients reported “good” health ($M = 3.33$, $SD = .98$, Range 1–5). Patient cancer management was measured with five items created by the authors. All items were measured with 5-point Likert-type items, and responses ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item included, “I am handling my cancer.” Higher scores indicated greater cancer management ($M = 4.21$, $SD = .62$, Range 1–5; $\alpha = .81$).

Variables measured included cancer-related open communication (patient and partner), cancer-related TA (patient and partner), perceptions of other’s TA (patient and partner), and partner burden (partner). Confirmatory factor analysis (CFA) was used to evaluate the dimensionality of the measures; tests of parallelism were conducted to establish discriminant validity. CFA requires items within factors to meet criteria of face validity, internal consistency, and external consistency (Anderson & Gerbing, 1988).³ Composite scores were created by averaging responses to individual items. Reliability was estimated by Cronbach’s alphas. In the next section, sample items were from patient surveys, and wording in brackets was from partner surveys.

Open cancer-related communication

Open communication was conceptualized as breadth and depth of communication about one’s cancer diagnosis. All items were measured with 5-point Likert-type items adapted from Checton and Greene (2012), and responses ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). A second-order CFA was constructed by assigning the items to their scales, and in turn, assigning the two scales of breadth and depth to the latent factor of open cancer-related communication. Findings indicated that the scales were unidimensional at the second-order level, $\chi^2(19) = 29.81$, $p = .05$, $CFI = .96$, $RMSEA = .08$ (patients) and $\chi^2(19) = 37.53$, $p = .07$, $CFI = .94$, $RMSEA = .10$ (partners). *Breadth*, or the extent of the range of topics discussed, was measured with five items. A sample item included, “I discuss a wide variety of issues related to my cancer [my partner’s cancer].” Higher scores indicated more breadth ($M = 3.70$, $SD = .89$, $\alpha = .77$, patients; $M = 3.55$, $SD = .87$, $\alpha = .82$, partners). *Depth* focused on intimacy of the communication and included four items. A sample item included, “I have heart-to-heart talks with my partner about my [his/her] cancer.” Higher scores indicated more depth ($M = 3.86$, $SD = .81$, $\alpha = .70$, patients; $M = 3.62$, $SD = .81$, $\alpha = .75$, partners).

Topic avoidance

The extent to which patients and partners reported their own TA about various cancer-related topics was measured with 10 items adapted from Donovan-Kicken and Caughlin (2010), and responses ranged from 1 (*strongly disagree*) to 5 (*strongly*

agree). A second-order CFA was constructed by assigning items to their scales, and in turn, assigning the four scales (death, sexuality, being a burden, the future) to a single second-order factor. Findings indicated that the scales were unidimensional at the second-order level, $\chi^2(48) = 68.40$, $p = .03$, $CFI = .97$, $RMSEA = .07$ (patients), and $\chi^2(61) = 103.81$, $p < .01$, $CFI = .94$, $RMSEA = .09$ (partners). The measures encompassed four subcategories. *Death* included two items that focused on issues of dying and recurrence. A sample item included, "I avoid talking to my partner about the chance that I [s/he] might die from this cancer." Higher scores indicated more death TA ($M = 2.38$, $SD = 1.12$, $\alpha = .88$, patients; $M = 2.96$, $SD = 1.33$, $\alpha = .87$, partners). *Sexuality* included three items about sex and body image. A sample item included, "I avoid talking to my partner about physical intimacy." Higher scores indicated more sexuality TA ($M = 2.32$, $SD = 1.16$, $\alpha = .92$, patients; $M = 2.50$, $SD = 1.09$, $\alpha = .91$, partners). Five items measured *being a burden*, which addressed perceptions of being a burden in terms of household contributions and finances. A sample item included, "I avoid talking to my partner about who will take care of me [how I will take care of him/her] if I [he/she] become extremely ill." Higher scores indicated more burden TA ($M = 2.18$, $SD = .85$, $\alpha = .81$, patients; $M = 2.27$, $SD = .97$, $\alpha = .82$, partners). Two items measured perceptions of avoiding cancer-related topics about *the future*. A sample item included, "I avoid talking to my partner about plans for the future." Higher scores indicated more future TA ($M = 1.77$, $SD = .94$, $\alpha = .93$, patients; $M = 1.73$, $SD = .88$, $\alpha = .89$, partners).

Perception of other's TA

The extent to which patients and partners perceived that their partner avoids cancer-related communication was measured with six items created by the authors based on prior disclosure literature (e.g., Afifi & Steuber, 2010; Altman & Taylor, 1973), and responses ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). The questionnaires began with the stem, "These questions ask about how your partner generally responds when you talk about your [his/her] cancer." A sample item included, "My partner changes the subject or somehow avoids talking about [my] cancer." CFAs revealed that items loaded onto the latent constructs, $\chi^2(5) = 5.30$, $p = .34$, $CFI = .99$, $RMSEA = .02$ (patients), and $\chi^2(3) = 5.70$, $p = .13$, $CFI = .99$, $RMSEA = .10$ (partners). Higher scores indicated increased perception of other's TA ($M = 2.14$, $SD = 1.03$, $\alpha = .85$, patients; $M = 2.19$, $SD = 1.01$, $\alpha = .85$, partners).

Partner burden

The degree to which partners perceived their own burden was measured with 22 items adapted from John, Hennessy, Dyeson, and Garrett (2001), and responses ranged from 1 (*never*) to 5 (*always*). This scale included four subcategories of negative feelings, guilt, caregiver efficacy, and role conflict. John et al. (2001) used the measure in a study of Native American Indian primary family caregiving burden; we adapted items by substituting the term "elder" with "your partner" or "your partner's cancer" as appropriate. We conducted a second-order CFA by assigning the items to their

scales, and in turn, assigning the scales to a single second-order factor; however, there was not good model fit. We surmise the vast change in population may have contributed to lack of model fit. We then subjected the items to an exploratory factor analysis, and two factors similar to the John et al. scale emerged: (a) negative feelings (eigenvalue = 6.10; 46.22% variance) and (b) guilt (eigenvalue = 1.83; 14.10% variance); all items loaded at .58 and higher. We constructed a second-order CFA by assigning the items to their scales, and in turn, assigned the two scales to a single second-order factor. Findings indicated that the scales were unidimensional at the second-order level, $\chi^2(87) = 137.12$, $p = .001$, $CFI = .96$, $RMSEA = .08$. *Negative feelings* reflected partners' negative feelings about the caregiver role as well as how the caregiving interferes with the partner's life; this scale included nine items. A sample item included, "How often do you feel that your social life has suffered because of your partner's cancer?" Higher scores indicated more negative feelings ($M = 3.44$, $SD = 1.50$, $\alpha = .91$). *Guilt* reflects caregivers' feelings of inadequacy as a caregiver; this scaled included four items. A sample item included, "How often do you feel that you should be doing more for your partner?" Higher scores indicated more caregiver guilt ($M = 2.51$, $SD = .87$, $\alpha = .77$).

Results

This section describes analyses and results of the predicted associations. It begins by review of the preliminary analyses. The section continues with a description of the use of structural equation modeling to construct an actor-partner interdependence model (APIM) to test the hypotheses. We employed an actor-partner interdependence model (APIM) as the analytical framework for modeling the dyadic effects predicted by H1–H5 because this methodological approach highlights the dynamic interdependence that exists between partners (e.g., Cook & Kenny, 2005; Cook & Snyder, 2005). Because the dimensions of open communication were strongly correlated, we modeled open communication for patients and partners as a second-order factor comprised of the individual variables of breadth and depth. Analysis of a second-order factor revealed that they would form a reliable second-order variable for patients ($\alpha = .88$) and partners ($\alpha = .85$). We also affixed the error variance for each of the remaining latent variables in the model to $(1 - \alpha)(\sigma^2)$ to account for measurement error within variables (Bollen, 1989). Our final model reports the unstandardized path coefficients. This method is favored in studies that compare across groups (i.e., the comparisons made here between patients and partners) because different groups may produce indicators, latent variables, or error terms with different variances (Knobloch & Theiss, 2010).

Preliminary analyses

We initially conducted paired-sample t -tests to evaluate differences in patient and partner perspectives for study variables (see Table 1). Results revealed a significant difference ($t = 3.71$, $p < .001$) between patient and partner TA about death such

Table 1 Preliminary Analyses: Summary Table of Paired-Sample *t*-Tests Between Patients and Partners

Study Variables	Paired-Sample <i>t</i> -test (2-tailed)	Patient <i>M</i> , <i>SD</i>	Partner <i>M</i> , <i>SD</i>
Death-related topic avoidance	$t = -3.72^{**}$	$M = 2.36, SD = 1.17$	$M = 2.85, SD = 1.14$
Future-related topic avoidance	$t = 0.10$	$M = 1.74, SD = .92$	$M = 1.73, SD = .88$
Sexuality-related topic avoidance	$t = -0.67$	$M = 2.39, SD = 1.44$	$M = 2.46, SD = 1.07$
Burden-related topic avoidance	$t = -0.38$	$M = 2.20, SD = .09$	$M = 2.24, SD = .10$
Breadth	$t = -1.95^*$	$M = 3.71, SD = .88$	$M = 3.52, SD = .81$
Depth	$t = -2.35^*$	$M = 3.85, SD = .82$	$M = 3.62, SD = .81$

* $p < .05$. ** $p < .01$.

that partners ($M = 2.85, SD = 1.14$) avoid talking about death more than patients ($M = 2.36, SD = 1.17$). *t*-Tests also revealed a significant difference between patient and partner open communication. Patients reported greater breadth ($t = -1.94, p = .05$, patient $M = 3.71, SD = .88$, partner $M = 3.53, SD = .81$) and greater depth ($t = -2.35, p = .02$, patient $M = 3.85, SD = .82$, partner $M = 3.62, SD = .81$) than did partners. We then assessed the bivariate correlations among all variables for patients and partners (see Table 2).

Substantive analyses

Own communication behaviors

Results of the SEM revealed that the predicted model (see Figure 1) using partner TA provided a good fit for the data, $\chi^2(32) = 38.70$, relative $\chi^2 = 1.21, p = .19$, $CFI = 0.98$, $RMSEA = 0.05$, however, the patient TA model did not initially fit $\chi^2(32) = 67.90$, relative $\chi^2 = 2.12, p = .001$, $CFI = 0.89$, $RMSEA = 0.11$. We examined modification indices and discovered several large modification indices between multiple latent variables and one subscale of (patient) TA: avoiding talking about the future. When the TA about future subscale was removed, the model fit adequately, $\chi^2(25) = 43.70$, relative $\chi^2 = 1.75, p = .01$, $CFI = 0.94$, $RMSEA = 0.09$. Results were almost identical across the two final models. As predicted in H1, patient and partner open communication was positively correlated. In addition, the results support H2 (a & b) such that greater patient and partner cancer-related open communication predicted less cancer-related TA. For H3, greater partner open communication predicted less partner burden (H3b supported), but the patient-level relationship (H3a) was not supported. Finally, for both partners and patients, greater TA predicted greater partner burden (H4a & b supported).

Table 2 Bivariate Zero-Order Correlation Matrix for Study Variables (N = 95 dyads, 190 individuals)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. DpthPtn	1.00															
2. BrdthPtn	.69**	1.00														
3. TADthPtn	-.32**	-.41**	1.00													
4. TASexPtn	-.49**	-.46**	.45**	1.00												
5. TACBPtn	-.37**	-.34**	.45**	.52**	1.00											
6. TAFutPtn	-.27**	-.28**	.13	.29**	.27**	1.00										
7. CBGuilt	-.35**	-.47**	.30**	.36**	.35**	.31**	1.00									
8. CBNgFlgs	-.17	-.32**	.16	.20	.31**	.33**	.44**	1.00								
9. TABhPtn	-.48**	-.53**	-.19	.29**	.18	.21*	.27**	.40**	1.00							
10. DpthPat	.36**	.24*	-.15	-.19	.16	-.19	.03	-.10	-.27*	1.00						
11. BrdthPat	.43**	.36**	.25*	.31**	-.20	-.15	-.08	-.04	-.32**	.74**	1.00					
12. TADthPat	-.32**	-.39**	.40**	.39**	.42**	.20	.27**	.27**	.30**	-.39**	-.40**	1.00				
13. TASexPat	-.42**	-.42**	.35**	.48**	.42**	.08	.32**	.17	.19	-.31**	-.35**	.49**	1.00			
14. TACBPat	-.29**	-.31**	.29**	.30**	.53**	.16	.20	.22*	.17	-.57**	-.49**	.61**	.61**	1.00		
15. TAFutPat	-.07	-.08	.08	.18	.25*	.36**	.21*	.40**	.20	-.23*	-.18	.23*	.39**	.36**	1.00	
16. TABhPat	-.39**	-.34**	.26**	.28**	.22*	.22*	.18	.05	.22*	-.63**	-.61**	.37**	.48**	.45**	.42**	1.00

BrdthPtn = breadth of communication (partner); BrdthPat = breadth of communication (patient); CBGuilt = caregiver guilt (partner only); DpthPtn = depth of communication (partner); DpthPat = depth of communication (patient); TABhPtn = partner perception of patient TA; TABhPat = patient perception of partner TA; TACBPtn = burden-related TA (partner); TACBPat = burden-related TA (patient); TADthPtn = death-related TA (partner); TADthPat = death-related TA (patient); TAFutPtn = future-related TA (partner); TAFutPat = future-related TA (patient); TASexPtn = sexuality-related TA (partner); TASexPat = sexuality-related TA (patient).

* $p \leq .05$. ** $p \leq .01$.

Perceptions of other's communication

Results revealed that the predicted model (see Figure 2) using participants' perceptions of other's general cancer communication avoidance (thus, patient reports of partner behaviors and partner reports of patient behaviors) adequately fit the data, $\chi^2(16) = 29.18$, *relative* $\chi^2 = 1.83$, $p = .02$, $CFI = 0.95$, $RMSEA = 0.10$. As predicted in H1, patient and partner open communication are positively correlated. Results partially supported H2, such that patient reports of their own open communication significantly predicted less patient perceptions of partner TA (H2a supported) but did not predict a relationship between patient open communication and partner perceptions of patient TA (H2b not supported). Similarly, greater partner open communication predicted less partner perceptions of patient TA (H2c supported) but partner open communication did not predict patient perceptions of partner TA (H2d not supported). Greater partner, but not patient, open communication was associated with less partner burden (H3b supported; H3a not supported). Patient reports of partner TA and partner reports of patient TA were not associated (H4 not supported). Finally, greater partner reports of patient TA predicted greater partner burden (H5b supported); patient perceptions of partner TA were not associated with partner burden (H5a not supported).

Alternative analyses

Because this is an exploratory study, we decided to test alternatives to the predicted models. Although the hypothesized models support our predictions, they do not necessarily negate the alternative explanation that partner burden predicts patient and partner TA. Therefore, to better understand potential directionality of paths, we reversed paths to test partner burden as a predictor of patient and partner TA and openness. The alternative partner and patient models of their own behavior provided a good fit for the data, $\chi^2(26) = 32.60$, *relative* $\chi^2 = 1.25$, $p = .17$, $CFI = 0.93$, $RMSEA = 0.05$ (partner), and $\chi^2(25) = 42.10$, *relative* $\chi^2 = 1.68$, $p = .001$, $CFI = 0.95$, $RMSEA = 0.09$ (patient). The alternative perception of other's communication model did not fit the data, $\chi^2(18) = 45.12$, *relative* $\chi^2 = 2.51$, $p = .19$, $CFI = 0.90$, $RMSEA = 0.13$. Despite good model fit for two of the models, we continue with the hypothesized, theoretically and empirically supported models. Both communication and cancer management are iterative experiences and directionality of predictors cannot be determined without longitudinal studies.

Discussion

The impact of cancer affects not only the diagnosed, but also patients' partners, families, and friends (e.g., Hagedoorn et al., 2008). A cancer diagnosis disrupts the life of the patient and his/her social network, introducing issues such as uncertainty and fear as individuals contemplate mortality, treatment, disabilities, and survivorship. In such uncertain times, individuals, such as patients and partners, turn to each other for comfort in managing instrumental, informational, and emotional social

support needs (Kroenke, Kubzansky, Schernhammer, Holmes, & Kawachi, 2006). Open communication is one method to address these needs; avoidance is a method to potentially hinder the needs of the other. One understudied feature of care is how patient and partner communication, both open and avoidant, affects partner burden. Burden is a predictor of partner well-being, and partner well-being affects the care environment, as well as patient well-being (Nijboer *et al.*, 1998). This exploratory study provides a dyadic examination of patient and partner reports of own and the other's openness and TA and how those communicative behaviors are associated with partner burden. Use of dyadic data is an imperative step in understanding how each partner's communication affects the other in the interdependent process of coping (Hagedoorn *et al.*, 2008). Unique contributions of this study include (a) openness and privacy are negatively associated such that increased patient and partner openness predict lower patient and partner TA (respectively); (b) greater partner openness predicts lower partner burden; and (c) increased patient TA, partner TA, and partner perceptions of patient TA predict lower partner burden. Implications of findings and application to CPM are described below.

Openness, TA, and patient burden

In both models, hypothesis 1 was supported, and patient and partner open communication were positively correlated. That is, one dyadic partner does not report more or less depth and breadth of cancer-related communication than the other when discussing cancer-related topics that neither is attempting to avoid. It is likely that communicative partners are monitoring the other to gauge "appropriate" depth and breadth and align with the other (Altman & Taylor, 1973). An interesting supplement to this finding is that patients report significantly greater depth and breadth than partners. This finding may be explained by the CPM concept of information ownership (Petronio, 2002). CPM explains that often individuals, such as cancer patients, perceive that they own their information, such as cancer-related information, and the owner can determine when, how, and how deeply the information is addressed. It is possible that patients serve as gatekeepers to discussing the cancer and may have the "right" to initiate cancer-related discussions. Although partners serve as information co-owners once they receive the information, it may be that partners are hesitant to approach cancer-related topics without the patient's consent (e.g., Bevans & Sternberg, 2012; Thomas *et al.*, 2002). Future research should examine effects of information ownership and co-ownership within cancer communication.

The second hypothesis stated that increased open communication predicted less TA. As noted above, these relationships were largely supported. Despite the nondichotomous nature of openness and privacy (see Afifi *et al.*, 2007; Bute, 2013), within cancer communication, it appears that greater depth and breadth of cancer communication predict less TA. Within Figure 1, greater patient openness predicted lower patient TA, and greater partner openness predicted lower partner TA. However, consideration of Figure 2 presents a slightly different picture. In Figure 2, greater patient and partner openness predicted the perception that the

other also has reduced avoidance such that greater patient openness predicted the lower perceived partner TA. That is, if patients report that they are open, they also perceive that their partner has lower TA, and vice versa. It may be that the greater one's depth and breadth, the more the person perceives that the other is receptive and not avoidant. However, patient and partner openness does not consistently predict if the other perceives him/her as topic avoidant. When patients report greater openness, partners report less perceived patient TA. That is, greater patient breadth and depth contribute to partners perceiving that patients are not topic avoiding. However, the reverse is not true for the partner. Greater partner openness is not associated with patient perceptions of partner TA. Patients may be less attuned to their partner's cancer-related communication behaviors, and therefore may be less likely to recognize partner avoidance. Alternatively, it may be that partner breadth and depth is a reciprocated response driven by patient-initiated communication, and although partners are participating in patient-initiated conversations, they continue to engage in TA for other problematic content (e.g., Altman & Taylor, 1973; Bute, 2013). However, additional research is needed to explore these possibilities.

The third hypothesis predicted that greater patient and partner open communication predicted less partner burden. Within both models, greater patient openness did not affect partner burden but greater partner openness did predict less partner burden. It may be that greater partner depth and breadth allow for meeting partner communication needs (see Fried *et al.*, 2005), reducing burden. Patient openness may have variable effects on partner burden, and patient depth and breadth may not necessarily correspond with meeting partner information needs. For example, the patient's breadth and depth of certain topics may exceed what the partner is comfortable receiving, affecting burden. It is possible that the patient continues to discuss the certain cancer topics to the degree that it is cumbersome for the partner while not addressing other topics at all. As noted above, as a co-owner in cancer-related information, partners may not feel comfortable directing conversations in ways that may affect their burden. Furthermore, alternative models suggest that burden can also negatively predict openness. This path is beyond the scope of the current investigation, but future research should examine how burden may affect communication practices.

Hypotheses four (Figure 1) and five (Figure 2) predicted that TA and perceptions of TA affect partner burden. As hypothesized, when examining their own behaviors (in Figure 1), both increased patient and partner TA predicted increased partner burden. Put differently, partners feel burdened not only when they (partners) knowingly avoid cancer-related topics, but also when patients avoid cancer-related topics. Furthermore, partner perceptions of patient avoidance predict burden. This finding is consistent with patient-partner literature that perceptions of insufficient communication surrounding an ongoing health issue are associated with patient and/or partner anxiety, depression, and distress (e.g., Kayser *et al.*, 1999; Kuijer *et al.*, 2000; Manne *et al.*, 2006), and consistent with this study, partner avoidance is associated with negative partner outcomes (e.g., Coyne & Smith, 1991; Manne *et al.*, 2007).

Perceptions of other's communication behaviors

This study highlights an important limitation in research that attempts to evaluate what is a dynamic process between individuals from only the perspective of one individual or perceptions of one's own behavior. Individuals' evaluations of partners' communication behaviors affect outcomes, and specifically in this study, when partners perceived that patients were avoidant about cancer, partners experienced more burden. Perceptions of other's behavior guide interpretation, even if perceptions differ from actual or intended behavior by the actor (Dijksterhuis & Bargh, 2001). Although patients (as well as partners) report their own TA, what is less clear is which specific factors or markers contribute to perceptions of TA. Consideration of patient report of TA corroborates partner perception of patient TA, but what occurs in the interaction that signals that the other is topic avoiding? Future research should examine if it is the avoidance itself or some signaling of avoidance (i.e., some element of the interaction) that may contribute to negative relational outcomes such as burden.

Information management

CPM (Petronio, 2002) provides support for several of our findings. First, the dialectical tension of openness and privacy are demonstrated with patients' and partners' reports of openness while also selectively employing TA (see also Goldsmith *et al.*, 2007; Hilton & Koop, 1994). CPM is also useful in providing a potential reason why partners may allow for patient TA even if that TA contributes to their own personal burden. Partners may feel unable to share their communication needs (see Bevens & Sternberg, 2012) because the other (the patient) is personally battling cancer and thus owns the right to discuss the cancer (see CPM, information ownership). Patients' primary ownership of the information may serve to make the patient the gatekeeper for depth and breadth of the cancer-related communication; results that patients reported greater depth and breadth of cancer-related issues support this assertion. As previously noted, future research could examine issues of information ownership in managing cancer. Finally, the CPM tenet that information patterns are rule based, and that specific pieces of information are protected with boundaries supports the finding that topics such as death, sexuality, and burden are somewhat difficult within ongoing cancer communication. Future research could examine how rules are established and boundaries enacted within cancer communication.

Topics avoided in cancer communication

This study found that partners avoid discussing death more than patients. Discussing death is a cultural taboo (Walter, 1991) which may be more salient for the partner than the patient battling cancer. In consideration of "talking about the future," we surmise that this topic did not fit the patient model because unlike sexuality, burden, and death, the future provides a broad and variable context. While issues like sexuality, being a burden, and death are typically taboo both within and beyond the context of cancer (Vangelisti, Caughlin, & Timmerman, 2001), talking about the future is quite variable. The future can be a topic of hope or dread depending on

the context. Because the study population varied in terms of date of diagnosis and placement in the treatment continuum, we suspect that some patients may have been in remission and therefore hopeful while others were currently in treatment and may see the future differently. TA about the future may be a more salient category of TA among a more narrowly defined cancer patient population.

Limitations

There are several limitations to this study. The sample included patients with a variety of cancer diagnoses who had been treated for a range of years. A more homogenous population (in regard to timing of diagnosis) may have provided different results but would have limited generalizability as well. Analyses by type of cancer did not reveal significant differences on study variables, thus cancer types were combined in this study. In addition, the sample was not stratified by prognosis, and communication patterns may differ based on the severity of the cancer diagnosis. Another limitation is that all participants were sampled from one region of the United States. Lastly, patients and partners were not asked about the capacity in which the partner served as a caregiver.

Future research

Although numerous areas for potential future research have been noted above, the greatest focus for our future research is replication this study with a larger sample, allowing for stratification of the sample by severity of diagnosis or specific cancer. We anticipate a longitudinal design that captures time of diagnosis, treatment-decision making, stages of treatment, and remission/survivorship to provide more detailed insight of how communication patterns, including TA, are related to patient and partner outcomes. Longitudinal exploration along the treatment trajectory could better unravel how both privacy and openness serve to improve the treatment experience. This study has relied on CPM as a framework, but does not explicitly test CPM. Future research could provide test the theory; we would also like to explore how CPM concepts of ownership, linkage, and boundaries around specific topics fluctuate during the cancer continuum. We plan to examine additional variables that could serve as predictors of openness and TA such as cancer stage as well as outcomes of openness and TA such as relational satisfaction, coping, anxiety, depression, and relational turbulence. Lastly, we will further examine the role of burden as a predictor and outcome of communication patterns.

Conclusion

CPM (Petronio, 2002) provides a useful framework in exploring how issues of patient and partner openness and avoidance affect partner burden. As stated by CPM, patients and partners navigate issues of sharing and privacy, balancing both depth and breadth of cancer-related issues as well as avoidance of others, and in particular, death, sexuality, and being a burden. Key findings include support for communication patterns of openness and privacy, a negative relationship between

partner openness and burden, and the positive relationship between TA and burden. In particular, increased patient and partner avoidance and partner perceptions of patient avoidance predict greater partner burden. In sum, greater TA and less openness contribute to increased guilt and negative feelings for partners of cancer patients. This study served as an initial examination of these relationships and has highlighted several specific areas for future research.

Notes

- 1 Research on privacy management has also focused on protective buffering, a similar construct to TA. Protective buffering is strategy in which partners are “hiding concerns, denying worries, yielding to the partner to avoid disagreements” (Coyne & Smith, 1991, p. 405) and reduce the partner’s worry and burden (Manne et al., 2007). Protective buffering is motivated to protect the other, and TA is motivated by self-, other-, and relationship-protection needs. Because communicative enactment of both TA and protective buffering are similar (i.e., the strategic decision not to share information in which the other has a legitimate claim, Afifi et al., 2007), and because the goal of the current research is to understand consequences of strategic nondisclosure rather than motivation, the literature on TA and protective buffering are both reported and are henceforth referred to as TA.
- 2 First, all students in a 200-student research methods course received institutional review board (IRB) certification, and a university IRB approved all procedures. Next, the researchers presented all students with four data collection options including the dyadic cancer communication study. Students were aware of the data collection requirements for each study option, and one week following the option presentation, students selected among the study options. Approximately 30 students selected the dyadic cancer communication option. Researchers conducted extensive training sessions with the students prior to providing them with research packets to begin recruitment and data collection. Students were to recruit four couples from among their friends and family in which one member of each couple had been diagnosed with cancer. Participant inclusion criteria included that both partners were at least 30 years old, had been in a committed relationship at the time of the cancer diagnosis and had been committed at least 6 months, only one partner had a cancer diagnosis, and the cancer treatment involved more than one treatment session; all forms of skin cancer were excluded from the sample. Students explained the purpose of the study to couples during prearranged face-to-face meetings. After signing consent forms, the couples *individually* completed a survey (~15 minutes), placed the survey in an envelope, sealed it, and returned the envelope to the student. The students returned the signed consent forms and sealed envelopes (separately) to the researchers. Finally, to ensure that only couples who have managed (or are managing) a cancer diagnosis completed the surveys, participants were asked to provide their phone number for random callbacks from the researchers. Callbacks were conducted (23% contact), and all data from researchers ($n = 1$) where questions arose from all callbacks were deleted and not included in the final sample ($n = 3$ dyads).
- 3 We report the *relative* χ^2 ratio in addition to the p -value for the χ^2 to adjust the χ^2 test to be less dependent on sample size. The *relative* χ^2 determines model fit by assessing the ratio of the χ^2/df . An acceptable *relative* χ^2 should have a ratio that is less than 3:1 or 2:1 if the model provides an adequate fit to the data (Kline, 1998; Ullman, 2001).

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