Supportive Care in Cancer (2019) 27:1237–1244
https://doi.org/10.1007/s00520-018-4482-9

ORIGINAL ARTICLE

Reciprocity within patient-physician and patient-spouse/caregiver dyads: insights into patient-centered care

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Received: 27 April 2018 / Accepted: 18 September 2018 / Published online: 28 September 2018

Abstract

Purpose To explore the reciprocal process of decisional conflict within the patient-physician dyad, and its relationship with patient general health and patient-perceived physician helpfulness. Among the subset of participants who were in a committed relationship, we examined the congruence in reciprocal processes between patient-spouse/caregiver and patient-physician dyads.
Methods An online retrospective survey of cancer patients was conducted in the USA. The reciprocal process of decisional conflict within the patient-physician dyad was measured using the Decisional Conflict Scale (DCS). The Perception of Spousal Reciprocity Scale (POSRS) was used to measure reciprocity in the patient-spouse/caregiver dyad.
Results The final analytic cohort consisted of 116 participants. The average age of participants was 58.4 years, the majority were female (66.7%), and the most common diagnosis was breast cancer (27.9%). Participants who perceived their physician as more helpful were more likely to report lower levels of decisional conflict on the DCS total scale and subscales (r range = 0.24–0.46, $p < 0.05$). Higher scores on the PSORS were associated with lower levels of decisional conflict ($r = -0.37$, $p < 0.01$). Participants not in a relationship had higher levels of decisional conflict about their treatment decisions ($M = 21.69$) than participants in a relationship ($M = 9.69$, $t(26.95) = -2.26$, $p = 0.032$).
Discussion Physicians are an important resource for both the patient and caregiver during the cancer journey. Understanding reciprocal processes within the patient-physician relationship related to patient-centered care and including the caregiver in the medical decision-making process can decrease the threat of decisional conflict and subsequent adverse outcomes.

Keywords Reciprocity · Patient-centered care · Relationship · Decisional conflict

Background

Relationships and interpersonal contexts are crucial for patients diagnosed with cancer [1]. Theorists across many disciplines have long considered reciprocity, or an interactional exchange, an essential feature of interpersonal relationships [2]. Reciprocity can be defined as an iterative dynamic that includes the mutual exchange of feelings, thoughts, and behaviors between two or more people; more simply, it can be described as the "give and take" among individuals in a relationship [2–4]. Reciprocity is an essential process within the triadic interactions among a caregiver, cancer patient, and physician that promotes optimal patient-centered care (PCC) and reflects the dynamic context of the relationship [1, 5, 6]. While unilateral concepts like "support" have received much attention in the literature, reciprocity—especially in the context of the cancer patient-physician relationship—remains not well understood [7–9].

The focus on linear concepts, like support, may limit our understanding of the nuanced experiences of cancer patients by not measuring patient preferences for support. For example, cancer patients can perceive efforts of support from caregivers as ineffective, excessive, or unwanted [10, 11]. In fact, previous research has demonstrated that the perception of adequate care was more associated with improved depressive symptomatology than the perception of support [12, 13]. Rather, measuring the concept of reciprocity may better

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identify important elements of the therapeutic relationship among patients, physicians, and caregivers that are congruent with the values and preferences of the patient.

The Institute of Medicine (IOM), a nonprofit organization affiliated with the National Academies of Sciences designed to provide national leadership on issues related to improving the nation's health, defines PCC as care that is responsive to individual patient preferences, needs, and values [14]. Factors that impede implementation of PCC may be related to the difficulty in changing traditional patterns of patient-provider interaction [15]. To this point, the traditional provider-centric model has conceptualized the patient-physician relationship as paternalistic in nature. Patients often received care that was "one-size-fits-all" and did not take into account individual values and preferences [16]. In contrast, PCC focuses on the patient-physician relationship where both parties are equal and engaged in decision-making about treatment, considers the patient in their context, tailors patient treatment to their needs, and includes family members in patient care.

The needs of the cancer patient may also vary depending on the desired involvement and availability of a social support system, including the patient's caregiver or significant other. Currently, approximately five million people in the USA care for someone with cancer at home, with spouses and partners most often assuming the caregiver role [17]. Caregivers of cancer patients may be important participants in discussions around care due to their role in receiving and processing information to make critical decisions in conjunction with the cancer patient [18]. While some factors that are relevant to spousal/family/significant other relationships differ relative to the patient-physician dyad, other interpersonal processes like collaboration, bonding, satisfaction, and division of power may overlap. These factors may be particularly pronounced in the dyadic relationship between a patient and their cancer physician due to the multiple uncertainties surrounding diagnosis, treatment-related decisions, and prognosis [5, 19–21]. Therefore, the objective of the current study was to explore the reciprocal process of decisional conflict within the patient-physician dyad and its relationship with patient general health and patient-perceived physician helpfulness. Among the subset of participants who were in a committed relationship, we examined the congruence in reciprocal processes between patient-spouse/caregiver and patient-physician dyads.

Methods

An online survey of cancer patients was conducted among participants recruited from medical listservs like ResearchMatch©, which is designed to bring together researchers and potential participants for research studies. Among the volunteers on ResearchMatch©, 70.8% are female, 28.9% are male, and 0.3% are transgender. Volunteers reside in all 50 states across the USA with Ohio having the densest population of volunteers (~ 13,500) followed by Tennessee (~ 8400) and California (~ 8200). For this study, we specifically searched for volunteers diagnosed with cancer [22]. Only patients who were over 18 years old, able to read and write English, at a minimum of 4-month post-diagnosis, and currently receiving treatment or follow-up care related to their cancer were included. The study was approved by The Ohio State University Wexner Medical Center institutional review board (protocol# 2017E0678).

Measurement

Demographics

Sociodemographic variables related to the individual participants were collected including age, race, income, and current relationship status. Cancer demographics were also assessed including diagnoses, treatment history, and current cancer status. Questions about the helpfulness of the physician and spouse and patient-reported general health were assessed using a 5-point Likert-style scale.

Physician reciprocity: decisional conflict

Participant decisional conflict related to the most recent cancer treatment was measured to assess a reciprocal dynamic between patient and physician. The Decisional Conflict Scale (DCS) was designed to capture modifiable social, emotional, and cognitive factors that influence feelings of uncertainty related to treatment decision-making, including the level of uncertainty, feeling informed, values, clarity, support, and effective decision-making [23]. The DCS had 16-items that were summed and transformed to create a total score, ranging from 0 to 100. Scores lower than 25 were associated with strong, implemented decisions, while scores over 37.5 indicated decisional delay or uncertainty. The DCS has been previously validated with reported test-retest correlations and a Cronbach alpha (α) > 0.78 [24].

Spousal reciprocity

Among participants who indicated that they were in a spousal or partner relationship during their cancer journey, the Perception of Spousal Reciprocity Scale (POSRS) was used to determine reciprocity within the spousal relationship. The POSRS is a 17-item scale with responses rated on a 6-point Likert-style scales ranging from strongly disagree (1) to strongly agree (6). The reported validity statistics for the POSRS have been reported to be strong ($\alpha = 0.95$) [25].

A cross-sectional descriptive design was used to explore the quantitative survey items. Data were analyzed using SPSS Version 24. The listwise deletion procedure was used to manage missing data in the analyses. Data were reported as frequencies, as well as other descriptive statistics, reliability analysis, correlations, and *t* tests. Cronbach alpha (α) was used to determine the reliability of scale and subscale items, and Pearson correlations (r) were used to examine relationships between individual items and subscales. Independent t tests were used to explore the perceptions of physician helpfulness and reciprocity within that relationship for participants that were and were not in a relationship. All statistical tests were two-tailed and considered significant when p values were < 0.05.

Results

Approximately 2500 ResearchMatch© registered volunteers who had a cancer diagnosis and were over 18 years of age received an email containing information related to the survey study. Participants who self-reported that they met inclusion criteria and expressed initial interest in participating in the survey were contacted ($N = 242$). These potential participants received a follow-up email with an anonymous link to complete the survey; 119 individuals took the survey for a response rate of 49.2%. After reviewing the data, three participants were excluded due to failure to fill out study consent ($n = 1$) or failure to complete the survey after consenting ($n = 2$). The final analytic cohort consisted of 116 participants.

Demographics

The average age of the study participants was 58.4 years (SD = 12.1, range 27.0–86.0). Approximately, 32.4% were male and 66.7% were female; more than half of respondents had a college or post-graduate degree (60%) and most individuals reported making more than \$50,000 annually (\$50–90K, 43.7%, \$100–150K, 16.7%, > 150K, 17.9% vs. < \$50K, 21.7%). Table 1 summarizes participant demographic variables. The most common diagnosis was breast cancer (37.9%) or prostate cancer (16.5%); other cancer diagnosis included thyroid/parathyroid (9.7%), lung (4.9%), skin (4.9%), gynecological (6.8%), bladder/kidney/urothelial (6.8%), gastrointestinal (7.8%), and other (4.7%). Most respondents reported receiving multiple cancer treatments (surgery, 81.1%; chemotherapy, 54.7%; radiation, 56.8%). Approximately one-third (33.7%) of participants indicated that they received "other" treatments, while a small subset of respondents (3.2%) reported no treatment. Respondents noted multiple cancer care providers, yet most considered their medical oncologist as their primary cancer doctor (52.5%); in contrast, fewer patients identified their surgical (27.7%) or radiation (3.0%) oncologist as their primary cancer physician; 16.8% of patients reported a non-oncologist provider as their primary cancer physician. Of note, the majority of respondents (73.9%) self-reported being cancer free at the time of survey completion; 13.8% of respondents reported having cancer at the time of the survey, while 6.9% reported being unsure.

Table 1 Demographic variables

	n	*M* (SD)	Min-max
Age	56	58.43 (12.05)	27.0–86.0
Relationship length (yrs)	79	22.20 (15.43)	1.5–68.0
General health[a]	88	2.70 (1.03)	1.0–5.0
	n	Valid %	
Gender	111		
Male	36	32.7	
Female	74	67.3	
Annual income	78		
< \$50K	17	21.7	
\$50K–99,999	34	43.7	
\$100K–\$149,999	13	16.7	
> 150K	14	17.9	
Relationship status	77		
Partnered	54	70A	
Not partnered	23	29.9	
Education level	90		
< College degree	28	40.0	
Bachelor's degree	21	14.4	
Post-graduate degree	41	45.6	
Race/Ethnicity	107		
White	83	77.6	
Not-White	24	22.4	
Cancer free	92		
Yes	68	73.9	
No	16	13.8	
Don't know	8	6.9	

[a] 1-excellent; 5-poor

Physician reciprocity: decisional conflict

The reliability for the DCS scale was strong ($\alpha = 0.94$), and there was a strong association among subscale scores (r range = 0.51–0.92, $p < 0.001$). Table 2 details the descriptive statistics for the DCS scale total and subscales. There was a strong association between physician helpfulness and DCS total scale and subscale scores (r range = 0.24–0.46, $p < 0.05$), with the support subscale having the strongest correlation ($r = 0.45$, $p < 0.01$) and the value subscale being the weakest ($r = 0.24$, $p < 0.05$). Specifically, participants who perceived their physician as more helpful were more likely to report lower levels of decisional conflict. Participant reports of current general health did not correlate with the DCS total scale score ($r = 0.13$, $p = 0.23$); however, there was a correlation between the DCS support subscale ($r = 0.23$, $p < 0.05$). These data suggested that participants who rated themselves

Table 2 Reciprocity scale descriptive

Concept	Scale (α)	Subscales	# of items	Mean (SD)	Range
Physician reciprocity	DCS (0.94)[a]		16	13.58 (17.87)	0–69.64
		Uncertainty	3	23.79 (28.62)	0–100
		Feeling informed	3	11.11 (18.77)	0–75.0
		Values clarity	3	12.63 (24.07)	0–100
		Support	3	12.81 (19.25)	0–75.0
		Effective decision	4	11.36 (18.59)	0–75.0
Spousal reciprocity	POSRS (0.96)[b]		17	4.86 (1.17)	1.0–6.0

[a] Scores were transformed to a scale of 0–100, with 0 being no decisional conflict and 100 being extremely high decisional conflict

[b] Likert scale, 1-Strongly Disagree, 6-Strongly Agree; Higher score indicates higher reciprocity

as healthier also felt more supported in their decision-making around their recent cancer treatment.

Spousal/caregiver reciprocity

Respondents who had a spouse/partner ($n = 54$) completed the POSRS to measure reciprocity within their relationship. Reliability for the scale was strong ($\alpha = 0.96$). Scale descriptive statistics are reported in Table 2. Overall, respondents who self-reported not being in a committed relationship had higher levels of decisional regret around their cancer-related treatment decisions ($M = 21.69$, SD = 22.35) than participants in a committed relationship ($M = 9.69$, SD = 12.25, $t(26.95) = -2.26$, $p = 0.032$). Furthermore, there were differences in the mean scores for the support and effective decision subscales among patients who did and did not self-report being in a committed partnership with a spouse or significant other. In particular, participants in a committed relationship reported feeling more supported in their decision-making and were more likely to report that they made a "good" decision than participants not in a relationship. Table 3 details the DCS scale and subscale scores stratified by relationship status.

Correlational analyses revealed that there was also a strong correlation between a respondent's perception of helpfulness relative to their partner/significant other and their physician ($r = 0.31$, $p < 0.01$). These data suggested that participants who reported that their partner was more helpful were also more likely to report that their physician was helpful. Furthermore, participants not in a relationship perceived the physician as being less helpful ($M = 1.95$, SD = 0.91) than respondents who were in a relationship ($M = 1.31$, SD = 0.65, $t(68) = -3.24$, $p = 0.002$) (Fig. 1).

Additionally, higher levels of spousal reciprocity were associated with lower levels of overall decisional conflict ($r = -0.37$, $p < 0.01$; Fig. 2). Of note, there was an inverse correlation between spousal reciprocity and the caregiver support ($r = -0.50$, $p < 0.01$) and effective decision-making ($r = -0.33$, $p < 0.05$) subscales (Fig. 3). Collectively, these data suggested that stronger spousal reciprocity was associated with increased patient perception of patient-perceived level of caregiver support and effective decision-making in patient-provider relationship.

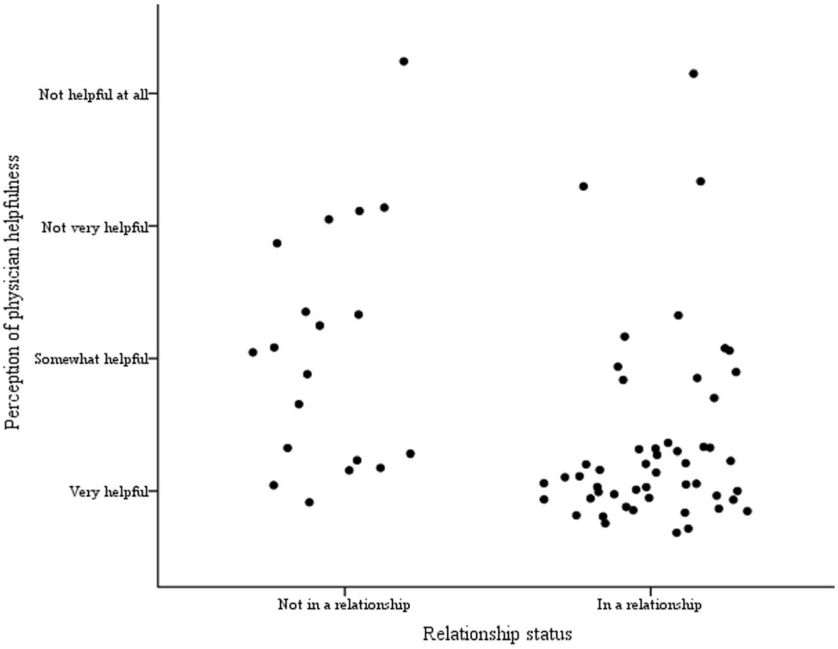
Discussion

Within the current study, we examined the association between the reciprocal process of decisional conflict within the patient-physician dyad relative to patient-reported general health and perceived helpfulness of the physician. Among the subset of respondents who self-identified as being in a committed relationship, the potential congruence in reciprocity within the patient-spouse/partner dyads and physician-patient was assessed. Patients can face difficulties in making

Table 3 Independent samples *t* test comparing DCS scores by relationship status

	In a relationship		Not in a relationship			
	M	SD	*M*	SD	*t*	*p*
DCS total	9.69	14.25	21.69	22.35	− 2.26	0.032
Support subscale	10.13	16.86	22.61	24.88	− 2.11	0.044
Effective decision subscale	7.35	13.90	18.45	23.09	− 2.06	0.050
Informed subscale	6.86	12.33	18.65	26.99	− 1.92	0.067
Value clarity subscale	8.33	18.65	21.43	27.71	− 1.99	0.057
Uncertainty subscale	19.36	28.43	30.95	30.52	− 1.54	0.128

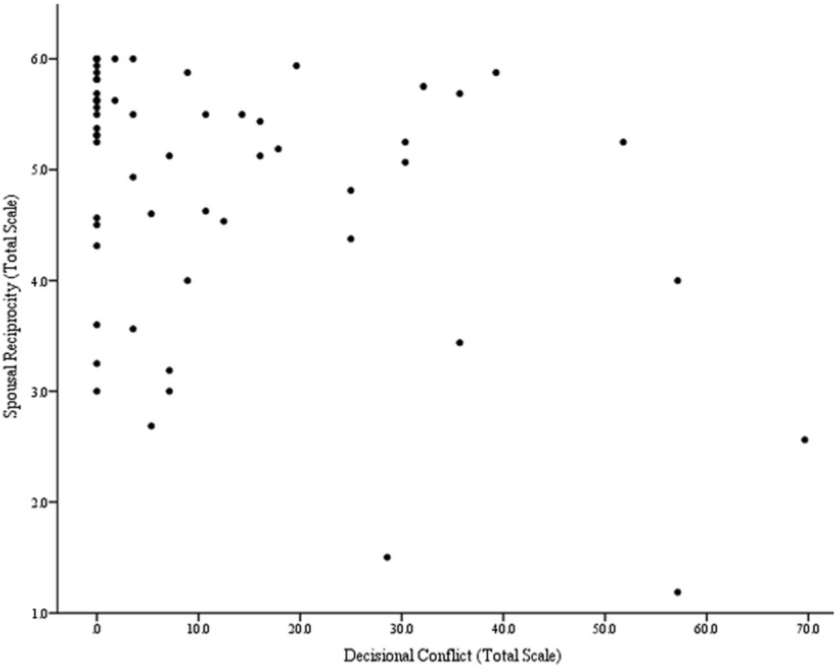
Fig. 1 Distribution of physician helpfulness rating by relationship status



treatment-related decisions (e.g., decisional conflict) and reciprocal processes within the patient-physician relationship may decrease the threat of decisional conflict and subsequent adverse outcomes [1, 21, 26]. The needs of the cancer patient can also vary depending on the desired involvement and availability of a social support system, including the patient's significant other. Of note, respondent perception of physician helpfulness was correlated with the DCS total, as well as with the support subscale. Also, a higher level of spousal reciprocity was associated with lower level of overall decisional conflict with an inverse correlation between spousal reciprocity and effective decision-making.

Patient perception of physician helpfulness was highly correlated with overall DCS scale and subscale scores, suggesting participants who perceived their physicians as more "helpful" experienced less decisional conflict. In contrast, respondents' general health was not correlated with DCS or the subscale scores, except for the support subscale. Hall and colleagues previously reported that mutual reciprocity was related to both the physician perception of the relationship with the patient, as well

Fig. 2 Correlation between spousal reciprocity and decisional conflict



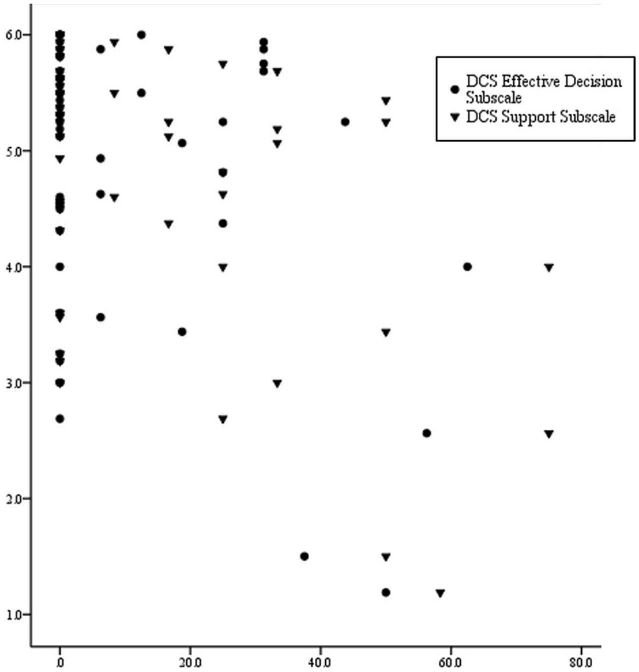


Fig. 3 Correlation between spousal reciprocity and decisional conflict subscales

as the actual patient-reported level of satisfaction with their physician [27]. In particular, increased patient perceptions of physician helpfulness reduced the risk of decision conflict. Decisional conflict and decisional regret are highly correlated; thus, physician helpfulness may potentially mitigate adverse post-treatment outcomes due to decisional regret. Collectively, the data strongly suggest that the relationship between the patient and physician is an important aspect of PCC.

Interestingly, there was a difference in the perception of physician helpfulness and levels of decisional regret based on patient relationship status. Specifically, patients who self-reported being in a relationship were more likely to rate their physician as being more helpful and had less decisional conflict. In contrast, patients who did not report having social support, like a spouse/significant other/caregiver, were at higher risk of cancer-related decisional conflict. Previous research has suggested that patients who lack social support may be more at-risk for adverse outcome post-diagnosis and treatment due to a lower psychosocial adjustment to their cancer [28]. Additionally, research shows that patient-perceived therapeutic alliance with their oncologist positively impacted mental health-related quality of life and emotional well-being of their caregiver after the patient's death [29]. Future research should aim to assess the relational support of cancer patients at the time of diagnosis to identify individuals at higher risk of negative outcomes due to lack of social support.

The correlation between the reciprocal dynamic between patient-caregiver/spouse and patient-physician dyads suggested that physicians may play a role in shaping the caregiver interface with the patient. By integrating a spouse/partner in the medical decision-making process, physicians may minimize decisional conflict as the disease progresses. Caregivers may also be an important source of information for treating physicians on patient symptoms, as well as help to contextualize patient goals of therapy [30]. The role of the spouse/partner/significant other can, however, be nuanced as some patients desired more autonomy and independence while others preferred more collaboration and shared decision-making with their partner. Some cancer patients have been reported to have higher levels of stress and lower feelings of control when their partners were overly supportive and protective. Similarly, partner/caregivers who perceived their spouse to be successfully coping with a cancer diagnosis were less likely to be overly supportive and protective [10, 11]. In addition, cancer patients reported more symptoms of depression when they believed that they had invested too little into the relationship, whereas their partners were more likely to report depression when they thought that they had received too few benefits in the relationship [12, 31].The concept of reciprocity is, therefore, well suited to explain this dynamic as it helps balance the "give and take" among patients, family support, and caregivers. Caregivers often accompany cancer patients to appointments and collect treatment-related information, take note of physician comments, help patients process and understand medical information during and after appointments, and provide additional emotional and physical support. By engaging the caregiver throughout a patient's cancer journey, the physician can enhance reciprocity within the patient-caregiver dyad to decrease decisional conflict during disease treatment planning.

Limitations

Several limitations should be considered when interpreting data from the current study. Volunteer bias was possible given that the sample was anonymous, derived from participants who willingly signed up for ResearchMatch© and agreed to participate in the study without an incentive. Social desirability bias may have also affected participant survey responses, particularly about negative feelings within familial relationships [32]. Additionally, retrospective perspectives may be subject to bias from recall difficulty, acquired meaning-making of memories, and the current mood of the participant [33]. Lastly, the sample was not nationally representative. Specifically, breast and prostate cancer survivors were over-represented in the study population. Due to their anatomic location, these cancers may have a direct impact on the intimate relationship between the patient and partner/spouse, which could influence the reciprocal dynamic. To address these limitations, the results need to be confirmed in a larger cohort of patients with a wide array of different cancer types to assess better the validity and generalizability of our findings.

In conclusion, respondent perception of physician helpfulness was correlated with decision conflict, as well as with the support subscale. In addition, a higher level of spousal reciprocity was associated with lower level of overall decisional conflict with an inverse correlation between spousal reciprocity and effective decision-making. The current study supports the notion that the physician can be an important resource for both the patient and patient's significant other/partner during the cancer journey. A focus on reciprocity as a means to better understand the context of the therapeutic cancer relationship may help better inform tools to improve PCC.

Data availability The authors maintain full control of all primary data included in this article and are available from the authors on reasonable request.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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