

Doctor, Ease My Mind! Associations between Cancer Patients' Emotional Distress and Their Perception of Patient-Centeredness during Oncology Consultations

Berit Kjærside Nielsen^{1*}, Mimi Mehlsen², Anders Bonde Jensen³, Robert Zachariae²

¹Department of Clinical Medicine, Aarhus University, Aarhus University Hospital, Aarhus, Denmark

²Unit for Psychooncology and Health Psychology, Aarhus University, Aarhus University Hospital, Aarhus, Denmark

³Department of Oncology, Aarhus University Hospital, Aarhus, Denmark

Email: *berini@rm.dk, mimim@psy.au.dk, andjense@rm.dk, bzach@aarhus.rm.dk

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Abstract

Objective: To investigate whether perceived patient-centered communication during oncology consultations relates to patient satisfaction and degree of emotional distress following the medical encounter. **Methods:** 226 cancer patients attending an oncology outpatient clinic completed questionnaires before and after a consultation including the Physician-Patient Relationship Inventory, the brief Profile of Mood States, and the Information satisfaction questionnaire. **Results:** Patients who perceived the communication during the consultations to be highly patient-centered were more likely to be maximally satisfied with information provided by the oncologist. Additionally, adjusting for pre-consultation distress, as well as sociodemographic, clinical, and consultation-related variables, patients who perceived the oncologist to communicate in a highly patient-centered manner, experienced lower levels of emotional distress after the consultation. **Conclusion:** Patient-centered communication may be an important quality in oncology as an approach to positively influence patient outcomes, including emotional distress. However, the findings in the present study of an effect of PCC on patient satisfaction and emotional distress are modest, and no firm conclusions can thus be drawn. **Practice Implications:** Oncology settings may benefit from the positive effects of patient-centered care and physicians should acknowledge the potential of their own relational competence in order to facilitate patient-centered communication.

Keywords

Patient-Centered Communication, Cancer Patients, Emotional Distress, Satisfaction

1. Introduction

A growing body of research has shown patient-physician communication to be important for the delivery of high-quality patient-centered care, and as an indicator of a successful consultation [1]. A reliable and trusting patient-physician relationship is particularly important for cancer patients due to the emotional distress associated with a life-threatening disease and the fear that it evokes. Guarantees are rarely given with respect to treatment outcome, and many patients therefore find themselves in a vulnerable state [2].

Patient-centered communication (PCC) involves developing physicians' abilities to deal with emotional and psychosocial aspects in relation to the patient, e.g. coping with distress and facing fear [3]. However, PCC also involves information giving and sharing. Patients make subjective sense of the information, and their interpretations are influenced by past experiences as well as their own understanding and beliefs about their illness [4]. PCC skills may help physicians to meet the individual needs of the patients by asking for their preferred level of information, to encourage them to ask questions, and to engage in active listening. PCC has been defined by Epstein and Street (2007) in terms of processes and outcomes of the patient-physician interaction, and conceptualized into six core interactive functions including 1) fostering healing relationships, 2) exchanging information, 3) responding to emotions, 4) making decisions, 5) managing uncertainty, and 6) enabling patient self-management. These core functions are not to be understood independent nor hierarchical. Instead, they interrelate and interact to produce communication that has the potential to positively affect patient outcomes, including satisfaction and emotional states [4].

Empirical research in PCC has demonstrated a positive relationship between the quality of patient-physician communication and patient satisfaction [5] [6] [7] [8]. However, although the results of a meta-analysis by Venetis *et al.* (2009) provide some evidence for the effect of PCC on patient satisfaction, only few of the included studies recognize variables that may play a moderating role on the effects of PCC (e.g. patient demographics and disease-related characteristics) [2]. For example, Rademakers *et al.* (2012) found that according to their preferences, patients with a lower educational level received "too much" in the patient-centered domains related to information and shared decision [9]. Identifying influencing variables may therefore increase our understanding of PCC and explain possible variability in patient outcomes.

PCC may also influence the patients' level of emotional distress; however, the evidence is rather small and inconclusive. Whereas physicians' empathy have been associated with less patient distress in some studies [10] [11] [12], other studies have found that empathy was associated with increased patient distress after their visit [13]. Moreover, other studies found no associations [14] [15]. A diagnosis of cancer often disrupts important aspects of daily living, and many treatments are associated with considerable side effects. In conjunction with the complexity of the medical information, this adds a significant emotional dimension to the patient-oncologist interaction [16] [17]. Cancer patients may not di-

rectly express feelings of distress and the physicians' ability to elicit and subsequently respond to patients' emotions may therefore influence patient outcomes [18]. In a study of cancer patients' preferences for information, involvement and support, it was shown that although most patients wanted their oncologist to ask them if they wanted emotional support, a fourth of cancer patients were dissatisfied with the emotional support received [19]. Healthcare professionals might not have the necessary communication skills to identify patients' individual concerns and problems [20]. The information provided may therefore be insufficiently tailored to the patients' information and communication needs, which could have a negative impact on the patient's perception of PCC. Moreover, providing high-quality patient-physician interactions can be difficult due to time constraints. It has been argued that time pressure may result in a more inflexible and disease-oriented consultation with less attention given to the psychosocial aspects of the patient's illness. As a result, the patient's perspective may be neglected and fewer psychological issues identified [21]. However, the results of an experimental study has shown that it took less than 40 seconds for a physician to be perceived as compassionate by the patient and thereby reduce the patient's anxiety levels [22].

Taken together, due to a lack of conceptual clarity as well as methodological variations between the existing studies of the effect of PCC on patient outcomes it continues to be difficult to draw any firm conclusions. Additionally, studies often fail to control for important confounders, e.g. patient demographics or disease status. The aim of the present study was therefore to investigate whether the degree of perceived PCC during oncology consultations relates to patient satisfaction and emotional distress following the encounter while controlling for pre-consultation distress and potential sociodemographic and clinical confounders. Based on previous findings, we hypothesized:

H1: Patients who perceive the oncologist to behave in a highly patient-centered manner are more satisfied with the consultation than patients who perceive the oncologist to be less patient-centered.

H2: Adjusting for emotional distress prior to the consultation, patients who perceive the oncologist to behave in a highly patient-centered manner experience lower levels of emotional distress after the consultation, compared with patients who perceive the oncologist to be less patient-centered.

2. Method

2.1. Participants

We conducted the study as part of a research project investigating cancer patients' information needs and patient-oncologist communication in an oncology outpatient clinic [23]. All patients, regardless of cancer type and treatment status, scheduled for a consultation with an oncologist at the outpatient clinic from September 20th to 25th 2010 were considered eligible if they were: 1) over the age of 18, 2) able to read and write Danish, and 3) without any severe cognitive impairments.

2.2. Procedures

One week prior to their consultation, eligible patients received written information about the study, a questionnaire-package (*Questionnaire 1*), and a closed envelope. Questionnaire 1 was to be completed before the consultation, while the closed envelope holding a second questionnaire-package (*Questionnaire 2*) was to be opened and completed immediately after the consultation. Participating patients gave their informed consent, and on the day of the consultation, they returned Questionnaire 1 prior to and Questionnaire 2 following the consultation to a research assistant who was present in the waiting room.

2.3. Questionnaires

Questionnaire 1 included questions about demographic and disease-related factors and the following instruments and single items:

1) Preferred content of information in relation to the consultation was assessed by asking patients to estimate how detailed they would want their oncologist to inform them during the consultation. Response options ranged from very detailed “*thorough information on the subject*”, “*general information on the subject*”, to “*practical information on the subject*” relevant for activities of daily living.

2) Current level of emotional distress was assessed with the 11-item brief version of The Profile of Mood States (POMS), which has been used in previous studies [24] [25] [26]. POMS is a well-validated measure often used to measure changes in emotional state after interventions for cancer patients [27] [28] [29]. The POMS-11 measures general distress, rather than its specific dimensions (e.g. anxiety or depression), and has been found to correlate highly with the total distress score of the longer version ($r = 0.93$) [24]. POMS-11 was used before and after the consultation to evaluate the immediate impact of the encounter on the patients’ levels of distress. A higher score indicates more severe distress. POMS-11 internal consistency (Cronbach’s alpha) was 0.9 before and after the consultation.

Questionnaire 2 consisted of POMS-11 and the following single items and instruments:

1) Consultation characteristics were assessed with single items concerning previous encounters with the same oncologist, the duration of the consultation, and whether a relative was present at the consultation.

2) Consultation-specific satisfaction with information was assessed with a single item from the Information Satisfaction Questionnaire (ISQ) measuring overall satisfaction with the information provided by the oncologist during the consultation [30]. Responses were given on a five-point Likert scale ranging from “very dissatisfied” (“1”) to “very satisfied” (“5”). Consistent with previous studies, the satisfaction scores revealed a ceiling effect [31] [32]. We therefore chose to dichotomize the variable into *less than maximally satisfied* and *maximally satisfied*. Although this dichotomization may lead to loss of information and statistical power, it is likely to be more valid in multiple regressions than highly

skewed continuous data.

3) Perceived patient-centered communication was assessed with a revised version of the Physician-Patient Relationship Inventory (PPRI) [6] [10] [23]. This questionnaire, consisting of 12 items and two single items, measures the patient's perception of the degree to which the oncologist exhibits PCC. The items cover several of the core functions of PCC, including exchanging information; e.g. "*the physician explained things to me so I can now understand what may be wrong with me*", "*the physicians way of responding was open and flexible, and I felt I got through to him*" fostering healing relationships; e.g. "*the physician treated me respectfully and politely*", responding to emotions; e.g. "*the physician usually sensed how I felt*", and making decisions; e.g. "*the physician gave me the opportunity to express my thoughts and feelings concerning the tests and treatments I am having*". Additionally, patients were asked to rate their satisfaction with the personal contact with the physician and the ability of the physician to handle the medical aspects of the patient's situation. The response format was a 7-point Likert scale ranging from "strongly disagree" to "strongly agree", and a higher score (range: 12 - 84) indicates higher perceived PCC. Although not validated, the PPRI has previously been reported to have adequate psychometric properties [6] [23] [33], and in the present sample, internal consistency was 0.9.

4) Severity of the patient's cancer disease was given by the oncologist based medical records and the current treatment goal (*curative intention, not curative*). Unfortunately, in 61 (27%) cases the oncologist did not report disease severity. To maintain statistical power, missing cases were coded as "*unknown*" and included in the analyses.

Data concerning the cancer type, age, and gender of the eligible non-responding patients were obtained from medical records.

2.4. Statistics

For all scales, the proportion of missing values was computed, and missings were substituted with the mean values for the remaining scale items for each patient. For cases with more than 50% of items in the respective scale, the case was omitted from the analysis [34].

An independent samples t-test was used to test hypothesis 1 (a positive association between perceived PCC and satisfaction with consultation-specific information). Hypothesis 2 (the association between perceived PCC and post-consultation emotional distress) was tested with multivariate hierarchal regressions, determining the association between perceived PCC and distress following the consultation, while adjusting for pre-consultation distress, socio-demographic, clinical, and consultation-related variables. Prior to testing a final model, in order to prevent over-fitting, three independent regressions were conducted in order to determine which variables should be included in the final hierarchical regression. The first model consisted of socio-demographic variables: age, sex, marital status, and education, the second model tested the clinical variables: cancer type, time since diagnosis, and disease severity, and the

third model tested the consultation specific variables: duration of consultation, information satisfaction, and perceived PCC. To prevent under-fitting, the significance level in the first 3 independent regression models was set at $p < 0.10$, and variables that were statistically significant at this level were carried forward to the next model. In the final model, pre-consultation distress was included together with all variables that were significant at level $p < 0.10$ in the previous three independent models. The level of significance for the final model was set at $p < 0.05$.

3. Results

A total of 226 (46%) patients gave their informed consent and completed all questionnaires (Table 1). Participants did not differ in age or gender, but were

Table 1. Patient characteristics.

	N	(%)	Mean age
Eligible patients	494	(100.0)	-
Participating patients	226	(45.7)	60.6
<i>Gender</i>			
Male	91	(40.3)	62.4
Female	135	(59.7)	59.4
<i>Age</i>			
20 - 40 years	16	(7.1)	-
41 - 50 years	28	(12.4)	-
51 - 65 years	97	(42.9)	-
>65 years	85	(37.6)	-
<i>Marital status</i>			
Married/Living with a partner	172	(76.1)	62.6
Living alone	49	(21.7)	59.9
Unknown	5	(2.2)	65.6
<i>Education</i>			
7 - 12 years of school	146	(64.6)	60.9
More than 12 years of school	73	(32.3)	59.1
Unknown	7	(3.1)	68.6
<i>Cancer type</i>			
Breast cancer	70	(31.0)	56.9
Lung cancer	33	(14.6)	64.7
Gastrointestinal cancer	26	(11.5)	67.2
Urogenital cancer	34	(15.0)	61.2
Head or neck cancer	19	(8.4)	63.8
Other cancer type	44	(19.5)	58.0
<i>Disease severity</i>			
Curative intention	99	(43.8)	59.4
Not curative (life-prolonging/palliative)	66	(29.2)	64.2
Unknown ^a	61	(27.0)	58.6
<i>Years since diagnosis</i>			
<1 year	109	(48.2)	58.9
≥1 year	114	(50.4)	62.2
Unknown	3	(1.3)	65.6

^aDisease severity was not reported by the oncologist in 61 cases (27%).

less likely to have lung cancer compared to eligible non-participants ($\chi^2(5, 443) = 11.76, p < 0.05, \text{phi} = 0.2$).

3.1. Consultation Characteristics

Data were obtained from 226 consultations. As shown in **Table 2**, most patients came for a routine follow-up. Only few patients stated that they always saw the same oncologist, and for more than half of the patients it was their first meeting with the actual oncologist. Of those who have had previous consultations with the same oncologist, 89.7% indicated that they had been either satisfied or very satisfied with the previous consultations. More than half of the patients were accompanied by a relative. Patients with more severe disease status (not curative) were more likely to bring a relative than patients who had been treated with curative intentions or had unknown disease status ($\chi^2(2, 209) = 8.65, p < 0.05, \text{phi} = 0.2$).

Of the sociodemographic, clinical, and psychological characteristics, only time since diagnosis was associated with preferred content of information. Patients who were diagnosed more than one year previous to participating in the study were more likely to prefer practical information compared with patients diagnosed less than one year prior to the study ($\chi^2(2, n = 211) = 10.8, p = 0.04, \text{phi} = 0.2$).

More than two thirds of the consultations lasted 20 minutes or less. Longer duration was associated with longer education ($\chi^2(1, n = 203) = 4.1, p = 0.04, \text{phi} = 0.2$) and the presence of a relative during the consultation ($\chi^2(1, n = 208) = 10.5, p = 0.001, \text{phi} = 0.2$). There were no associations with age, gender, marital status, and disease severity. Patients who spent more than 20 minutes with the oncologist also reported higher levels of distress (POMS-11 Mean = 12.9, SD = 8.1) than patients who spent 20 minutes or less with the oncologist (Mean = 8.6, SD = 7.8) ($t(198) = -3.3, p = 0.001$). Additionally, more distressed patients were generally less satisfied with the duration of the consultation than patients feeling less distressed ($r = -0.2, p < 0.01$).

3.2. Satisfaction with Patient-Centered Communication (H1)

No significant associations between patients' age and gender and their perceived level of PCC. Having a partner was associated with higher levels of perceived PCC (Mean = 75.1; SD = 7.5) compared to patients who were single (Mean = 70.6; SD = 13.4), $F(2, 204) = -2.2; p = 0.03$). Although not statistically significant, there was a trend for an association between perceived PCC and the presence of a relative, indicating that patient who had a relative present at the consultation perceived the physician to communicate in a more patient-centered way (Mean = 75.1; SD = 6.7) compared with patients who attended the consultation without a relative (Mean = 72.1; SD = 12.5), $F(2, 195) = -3.1; p = 0.056$. While we found no associations between preferred content of and satisfaction with information provided at the consultation ($p > 0.05$), patients who preferred information with a practical relevance perceived the oncologist as more patient-

Table 2. Consultation characteristics.

	N	(%)		
<i>Referrals</i>				
Newly referred	6	(2.7)		
Chemotherapy	46	(20.4)		
Specific problems	37	(16.4)		
Routine follow-up	99	(43.8)		
Acute patient	1	(0.4)		
Unknown ^a	37	(16.4)		
<i>Preferred content of information detail</i>				
Thorough and detailed information	91	(40.3)		
Overall information	45	(19.9)		
Practical information	78	(34.5)		
Unknown	12	(5.3)		
<i>Previous consultations with the oncologist</i>				
This is the first time	116	(51.3)		
3 times or less	61	(27.0)		
More than 3 times	19	(8.4)		
I always see this oncologist	11	(4.9)		
Unknown	19	(8.4)		
<i>Duration of consultation</i>				
Less than 10 min	84	(37.2)		
10 - 20 min	72	(31.9)		
20 - 30 min	41	(18.1)		
More than 30 min	11	(4.9)		
Unknown	18	(8.0)		
<i>Relative present at the consultation</i>				
Yes	132	(58.4)		
No	77	(34.1)		
Unknown	17	(7.5)		
<i>Current emotional distress</i>				
	Mean (%)	SD	(Range)	
Before consultation (POMS-11)	9.8	8.2	(0 - 44)	
After consultation (POMS-11)	6.7	6.9	(0 - 44)	
<i>Perceived patient-centered communication</i>				
Perceived patient-centeredness (PPRI)	74.2	9.3	(12 - 84)	
Perceived importance of patient-centeredness (PPRI-I)	54.1	5.6	(12 - 60)	
<i>Satisfaction</i>				
Maximally satisfied with information (ISQ)	(46.5)			
Less than maximally satisfied with information (ISQ)	(44.7)			
The oncologists handling of medical aspects	6.5	0.9	(1 - 7)	
Personal contact with the oncologist	6.4	0.9	(1 - 7)	

^aReferrals were not reported by the oncologist for 16.4% of the patients. *Note:* POMS = Profile of Mood States, PPRI = Patient Physician Relationship Inventory, ISQ = Information Satisfaction Questionnaire.

centered (Mean = 76.0, SD = 7.2) than patients who wanted to receive information on a more general level (Mean = 71.8, SD = 12.5), $F(2, 199) = 3.0, p = 0.05$). Patients wanting thorough and detailed information from the oncologist did not differ from either of the two remaining categories with respect to their evaluation of PCC. Following the consultation, patients who were maximally satisfied with information provided by the oncologist perceived the communication as being more patient-centered (Mean = 77.8, SD = 8.0) than patients who were less satisfied (Mean = 70.0, SD = 9.1), $t(194) = -6.4, p < 0.01$. Furthermore, the degree to which the oncologist exhibited PCC during the consultation was positively correlated the oncologists handling of medical aspects ($r = 0.8, p < 0.01$), and the personal contact with the oncologist ($r = 0.8, p < 0.01$).

3.3. Emotional Distress before and after the Consultation (H2)

On average, patients' experienced significantly less emotional distress after the consultation (Mean = 6.6, SE = 6.8) than prior to the consultation (Mean = 9.7, SE = 8.1), $t(198) = 7.1, p < 0.01$. **Table 3** presents the results of the bivariate unadjusted and the adjusted multivariate hierarchical regressions. The final model adjusted for distress prior to the consultation and included all variables statistically significant at $p < 0.10$ in the previous adjusted regressions. The significance level in the final model was set at $p < 0.05$. Four variables reached statistical significance, with emotional distress prior to the consultation being the strongest predictor of emotional distress after the consultation. Longer consultation time and having more severe disease status were associated with higher levels of post-consultation distress, whereas higher levels of perceived PCC was associated with lower levels of post-consultation distress. The final model explained 49.8% of the variance, and 6% was accounted for by the consultation characteristics, *i.e.* consultation time and PCC, corresponding to a medium Effect Size Correlation (ESR) of 0.25. Perceived PCC independently accounted for 2% of the variance corresponding to a small Effect Size Correlation (ESR) of 0.10.

4. Discussion

In the present study of cancer patients attending an oncology outpatient clinic, we examined the association between perceived PCC, patient satisfaction, and emotional distress following a consultation. Based on previous findings [5] [8] [35] [36] [37], we hypothesized that when oncologist exhibited PCC, patients would experience higher levels of satisfaction and lower levels of emotional distress. The results confirmed our hypotheses. When patients perceived the oncologist as communicating in a patient-centered way, patients were more satisfied with information received, the oncologist's handling of the medical aspects, and the personal contact with the oncologist. Moreover, while adjusting for potential confounders, including disease severity and the patients' pre-consultation levels of emotional distress, patients who perceived the oncologist's communication to be more patient-centered were also more likely to experience lower levels of emotional post-consultation distress.

Table 3. Hierarchical multivariate regression model for predicting emotional distress after the consultation.

Independent variables	Bivariate analyses		Adjusted analyses	
	β	p	β	p
Model 1: Socio-demographic characteristics				
1. Age	0.17	0.81	-0.03	0.72
2. Sex	0.09	0.20	0.09	0.24
3. Marital status (Single/living with a partner)	-0.03	0.71	0.001	0.99
4. Educational level (<12/≥12 years)	0.08	0.28	0.10	0.18
$R^2 = -0.005$, ns				
Model 2: Clinical characteristics				
5. Cancer type (Breast = reference)	-0.10	0.18	0.01	0.88
6. Years since diagnosis (<1/≥1 year)	-0.16	0.03	-0.17	0.01
7. Disease severity (Not curative intention = reference)	-0.22	0.001	-0.22	0.003
$R^2 = 0.059$, $p = 0.002$				
Model 3: Consultation characteristics		Adjusted for 6 and 7 in model 2 ($p < 0.1$)		
8. Preferred content of information (Thorough = reference)	-0.05	0.47	0.01	0.84
9. Consultation time (<20/≥20 minutes)	0.27	<0.01	0.29	<0.01
10. Information satisfaction (Less than max/max)	-0.31	<0.01	-0.19	0.01
11. Perceived patient-centered communication	-0.16	0.02	-0.17	0.02
$R^2 = 0.194$, $p = 0.002$				
$\Delta R^2 = 0.155$, $p < 0.0001$				
Final model		All variables at $p < 0.1$ in model 2 and 3		
Step 1: Pre-consultation emotional distress			0.57	<0.01
Step 2: Years since diagnosis (<1/≥1 year)			0.01	0.79
Disease severity (Not curative intention = reference)			-0.11	0.04
Step 3: Consultation time (<20/≥20 minutes)			0.20	<0.01
Information satisfaction (Less than max/max)			-0.10	0.11
Perceived patient-centered communication			-0.12	0.04
$R^2 = 0.498$, $p < 0.001$				
ΔR^2 step 2 = 0.017, ns				
ΔR^2 step 3 = 0.06, $p < 0.001$				
($R^2 = 0.03$ for consultation time; $R^2 = 0.007$ for information satisfaction, ns; $R^2 = 0.024$ for perceived PCC)				

Note: In the first three models, a significance level of 10% was chosen for adding variables in the subsequent model. In the final adjusted model, emotional distress before the consultation was entered in the first step and the significance level was set at 5%.

Although we assessed the patients prior to the consultation with respect to preferred content of information, this variable did not exceed the significance threshold ($p < 0.1$). Thus, contrary to previous findings, we found no clear indication of an association between preference for information and post-consultation distress [37] [38]. One explanation for the null-finding could be that pa-

tients may not be consistent in their information preferences before and after the consultation, as their needs may be influenced by specific events during the consultation, which may influence their current information needs, which in turn may have an effect on post-consultation emotions [38]. This is consistent with the findings of Robinson *et al.* (2012), who found that patient satisfaction appeared to be more closely linked to the actual participation in decision-making than it did to mere opportunities to participate [32]. On the other hand, we found a borderline-significant association between patients' information preferences and post-consultation satisfaction with information ($p = 0.09$), which could indicate that while tailoring of information may influence patient satisfaction, emotional aspects are more likely to be influenced by the relational aspects of PCC. Furthermore, in the bivariate and multivariate analyses conducted prior to adjusting for pre-consultation distress (Table 3, model 3), satisfaction with information was significantly associated with post-consultation distress, which could be seen as providing some support for the findings by Robinson *et al.* (2012) suggesting an indirect pathway between perceived PCC, satisfaction, and psychosocial health [32].

Our results also indicated that patients who were more distressed prior to the consultation spent longer time with the oncologist than patients reporting less distress. Moreover, when entered into the regression model, consultation time emerged as a statistically significant predictor of distress, showing that patients who spent more than 20 minutes with the oncologist were more distressed after the consultation compared to patients spending less than 20 minutes with the oncologist. Despite spending more time with the oncologist, patients who were more distressed were also less satisfied with the amount of time available at the consultation. A recent study of more than 2,500 cancer patients showed that depression was associated with feelings of insufficient consultation time [39]. General distress has shown to correlate moderately with depression [40], and one could argue that patients who are either depressed or emotionally distressed may find it harder to process information, and therefore perceive the available consultation time as insufficient. Another study found that patients being dissatisfied with consultation time were also less satisfied with the extent to which their emotional needs were met [41]. The patients in our study, who were more distressed, perceived the oncologist as being less patient-centered compared with patients, who were less distressed, and according to the findings by Ogden *et al.* (2004) they may have lacked the feeling of being seen and understood emotionally, which could explain higher level of post-consultation distress. Although disease severity was not independently associated with duration of consultation, more severe disease was associated with higher levels of post-consultation distress. However, we did not record the consultation, and since it was a medical consultation, we do not know whether some patients may have been told that their disease had progressed, hence feeling more emotionally distressed.

Given the relative large sample of patients included in the present study, we were able to adjust for a number of demographic-, disease-, and consultation

specific variables in the multivariate analyses, which is a considerable strength in our study. However, the current study also has a number of limitations that need to be acknowledged. First, our study is based on a single visit per patient-oncologist interaction and may not give a comprehensive understanding of the perception of PCC [42]. Therefore, the long-term impact of PCC on distress is unknown. Second, we only have the patients' perspectives on the oncologists' PCC, and recent critiques claim that patient-centeredness must also include the physicians' perspective on the patient's way of communicating, since physician's communicative behavior may be related to the communicative style of the patient. Hence, a comprehensive measure of PCC would involve everyone taking part in the consultation (e.g. physician, patient, relative), as the quality of the interaction itself depends on the joint involvement [43] [44]. Third, in the present study we were only given information on the physicians' age and genders. Not being able to identify the individual physician hindered multilevel modeling, which may have revealed between-physician variation in PCC. Future studies should take into account the possible variation of physicians regarding their PCC skills and including an individual identification number of participating physicians should be attempted. Fourth, the literature includes both observational and perceptual assessments of patient-physician interactions. In our study we used the perceptual approach, which has both strengths and limitations. Unlike observational approaches based on more objective measures, the perceptual approach is based on subjective, self-reported statements from the patients, and may not wholly reflect the reality of the consultation [42]. However, post-consultation outcomes often depend upon how patients perceive and interpret the events of the encounter, and patient perceptions may therefore have a greater impact on patient outcomes than the actual behavior of the physician [42]. For example, Blanchard *et al.* (1990) have shown that compared to observer-coded physician behaviors, patient perceptions explained a larger amount of the variance in overall satisfaction [45]. Nevertheless, although patients may be considered the best subjects to evaluate PCC exhibited by physicians, their responses may also be influenced by recall bias. When patients experienced lower levels of emotional distress after the consultation, they may, in retrospection, have perceived the encounter with their oncologist as more (or less) supportive than they did during the encounter. Therefore, it is not possible to establish a cause and where the effect is to be located.

Some critiques of patient satisfaction as an outcome measure has been concerned with the issue that some patients may be satisfied with inadequate health care, and that effective patient-physician communication should lead to improved patient health [46]. Research has shown that although patients and physicians may both believe they had a high-quality consultation and patients reported being very satisfied, audits still suggested inadequate care [4]. However, in the study by Robinson *et al.* (2012), they established an indirect effect by showing that increased PCC was associated with increased patient satisfaction, which in turn was associated with decreased hopelessness [32]. Therefore patient

satisfaction will continue to be a valuable and informative measure in regard to patient outcomes, such as emotional distress.

5. Conclusion

The results in the present study generally confirmed that patient-centeredness may be an important quality goal in oncology settings as an approach to positively influence patient outcomes, including emotional distress. However, the findings in the present study of an effect of PCC on patient satisfaction and emotional distress are modest and conclusions are limited to the present sample, and thus we are not able to draw any firm conclusions.

6. Practice Implications

Patient-centered communication is reliant on both the physician's ability to identify and respond to the patient's needs, as well as communicating at times rather complex information. Oncology settings may therefore benefit from the positive effects of patient-centered care and physicians should acknowledge the potential of their own relational messages in order to facilitate patient-centered communication.

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