

Breast cancer survivors' perceived medical communication competence and satisfaction with care at the end of treatment

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Abstract

Background: Information is a care priority in most breast cancer survivors (BCS). We assessed whether BCS information needs at 8 months after hospital cancer treatment could be related to their age, education level, perceived medical communication competence, satisfaction with care, attachment style, and self-esteem.

Methods: Of 426 BCS approached during the last week of treatment (T1), 85% completed the Medical Communication Competence Scale, European Organisation for Research and Treatment of Cancer Satisfaction with Care Questionnaire, Rosenberg's Self-Esteem Scale and Experiences in Close Relationships Scale. The Hospital Anxiety and Depression Scale and the Supportive Care Needs Survey were completed at T1 and again 8 months later (T2) with a 66% ($n = 283$) response rate.

Results: Baseline respondents' median (range) age was 56 years (23–86 years). Information needs decreased over time, although some persisted. Multivariate regression analyses evidenced overall higher information needs at T2 in younger BCS and in those dissatisfied with the information provided at T1. Specifically, in younger BCS, higher information needs were related to lower satisfaction with doctors' availability, and in older BCS, they were related to higher self-perceived competence in information giving, lower self-perceived competence in information seeking, and lower satisfaction with doctors' information provision. Psychological distress was strongly related to information needs. Education, BCS attachment style, and self-esteem were not associated with information needs.

Conclusions: In order to enhance supportive care for BCS, younger BCS should be provided with more time to address all their concerns and older BCS should be encouraged to express their specific desires for information.

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Introduction

The prevalence of breast cancer survivors (BCS) has steadily increased over the past 20 years [1]. Preparing BCS for the post treatment phase of the illness trajectory has become a major public health mandate [2]. Cancer survivors comprise individuals who have completed primary cancer treatments [3]. In case of early-stage breast cancer (BC), these include surgery with/without chemotherapy and radiotherapy beyond which, in the survivorship phase, long-term endocrine therapy or targeted therapy may still be provided.

Concerns of BCS after the completion of primary treatment include worry about cancer recurrence, ongoing health status monitoring, symptom or stress management, and change in life style [4]. In women affected with BC,

being informed has been highlighted as a major supportive care goal [5]. However, significant BCS unmet information needs have been observed in cross-sectional [6] and longitudinal surveys [5,7], with patterns of resolving, persisting, or emerging needs [8].

After hospital primary BC treatment, the bond between oncology providers and cancer survivors wanes. Cancer survivors have to autonomously engage in self-monitoring and self-management of their health. This may be facilitated by the provision of recommendations and advice tailored to their needs, which implies adequate exchange of information with oncology clinicians.

A number of clinical factors have been related to higher levels of needs in women affected with BC [5]. However, a paucity of psychosocial factors has been addressed [9]. In particular, few studies have addressed

BCS dissatisfaction with care [9–11] or self-perceived medical communication competence [12–14], while this would provide actionable information for improvement of care.

Patients' favorable attitudes towards clinicians have generally been related to effective patient-centered communication [15]. Effective patient-centered communication depends on both the clinicians' and the patients' communication skills [16]. The patient skills that operationalize the concept of patient participation in the medical encounter include expressing concerns and feelings (i.e., giving information) and asking questions (i.e., seeking or verifying information) [17,18]. BCS' communication competence has been shown to improve their quality of life [13]. Enhanced quality of life may indirectly reflect that health care needs have been adequately addressed [19]. So BCS' own medical communication skills may be related to better met information needs.

The perception of health care need is linked to satisfaction with care [20], and satisfaction with care has been shown to be variable across patients' age and education level [21], partly through expectations [22] or the actual provision of care [23]. Similarly, communication competence has evidenced variability across patients' age and education level [24]. Older and less educated patients tend to ask fewer questions during the medical consultation and might therefore have their information needs unmet [24]. So age and education level may moderate the effect of perceived communication skills and satisfaction with care on information needs, but this is still uncertain.

Finally, BCS' specific attributes may affect the interactions taking place in the medical encounter. Psychological vulnerability complicates patient-centered communication. The framework of attachment theory [25] is relevant to address the relationship between patients and clinicians [26]. Individuals characterized by a more secure attachment style have a greater capacity to adequately ask for help [25,26], thus are more likely to have their care needs met. Furthermore, a BC diagnosis affects self-esteem [27]. Individuals with higher self-esteem tend to actively cope with stressful events [28], which could facilitate spontaneous communication with clinicians, including expression of difficulties and need for help, thereby lowering subsequent needs.

The present study addressed the following hypotheses:

- (1) BCS's perceived communication skills, satisfaction with care, attachment style, and self-esteem independently affect their level of information needs 8 months after treatment completion, controlling for psychological distress, sociodemographic, and clinical factors.
- (2) Age and education level moderate the relationship between perceived communication skills and satisfaction with care, and information needs 8 months later.

Patients and methods

Between March 2012 and February 2013, women affected with localized or loco-regional BC were consecutively approached during their last week of radiation therapy at Institut Curie (Paris, France) (mean of 7.2 [standard deviation of 2.7; range of 3–23] months after BC diagnosis). They were contacted again 8 months later. Approval from the national *Comité Consultatif sur le Traitement de l'Information en matière de Recherche dans le domaine de la Santé* was obtained. Written informed consent was solicited.

Inclusion criteria included being aged 18 years or older, diagnosis of local or loco-regional nonmetastatic BC (stage 0/noninvasive BC to stage III/with axillary nodes involvement), surgery followed by radiotherapy, with or without chemotherapy, and with or without started hormone therapy. Exclusion criteria comprised linguistic or severe cognitive difficulties or BC recurrence.

Data collection and questionnaires

All questionnaires, distributed in the hospital at the end of radiotherapy (T1) and sent by mail eight months later (T2), had to be completed at home within 6 weeks. Baseline sociodemographic data (age, education level, marital status, professional status, and having children or not) and clinical data (disease stage, type of anti-tumor treatment, and medical history) were recorded from medical files.

Information needs were assessed at T1 and T2 by the health system and information needs subscale of the SCNS-SF34 [29] validated in French [30] (list of items in Table 2). Each item is answered on a five-level Likert scale ('Not applicable', 'No need', 'Low need', 'Medium need', or 'High need'). Response scores are standardized on a scale ranging from 0 to 100. Internal consistency coefficient (Cronbach's α) is 0.95.

Psychological distress was evaluated at T1 and T2 using the 14-item Hospital Anxiety and Depression Scale (HADS) [31] validated in a French-speaking cancer population [32], with a score above 13 suggesting an adjustment disorder or major mood disorder [32]. Cronbach's α coefficient for the total HADS score is 0.86.

The following questionnaires were administered at T1.

BCS perceived medical communication was addressed by the Medical Communication Competence Patient Scale (MCCS) [33], used in a French–Canadian version [13] revised for France and addressing the last consultation with the oncology specialist. The MCCS contains four subscales assessing information provision (e.g., *I did a good job of describing the symptoms of my medical problem*), information seeking (e.g., *Letting the doctor know when I didn't understand something*), information verifying (e.g., *Asking the doctor all the questions that I had*), and socioemotional

aspects (e.g., *Contributing to a trusting relationship*). Scale scores range from 1 to 7, with higher scores reflecting self-perception of better medical communication competence. Cronbach's α coefficients range from 0.80 to 0.89.

Satisfaction with care was measured using the doctors subscale of the EORTC in-patient satisfaction questionnaire (EORTC IN-PATSAT32) validated internationally [21], which addresses doctors' technical (e.g., *Their knowledge and experience of your illness?*) and interpersonal skills (e.g., *The interest they showed in you personally?*), information (e.g., *The information they gave you about your treatment?*), and availability (e.g., *The frequency of their visits/consultations?*). Standardized scores range from 0 to 100, with a higher score indicating higher satisfaction. Cronbach's α coefficients range from 0.79 to 0.93.

Attachment style was evaluated with the Experiences in Close Relationship Inventory 16 [34], which assesses attachment anxiety (fear of rejection and abandonment) and avoidance (discomfort with closeness and defensive independence from others), with scores ranging from 1 to 7, with higher scores reflecting increased attachment anxiety. A forward-backward translation in French was performed. Cronbach's α coefficients for the anxious and avoidant attachment subscales are 0.84 and 0.74, respectively.

Self-esteem was measured by the Rosenberg Self-Esteem Scale [35], validated in French [36], with scores ranging from 0 to 30, with high scores designating higher self-esteem. The Cronbach's α coefficient is 0.88.

Statistical analyses

Hierarchical multiple regression analyses [37] were performed on the dependent outcome variable, i.e., the SCNS-SF34 health system and information subscale scores at T2. For each regression model, we controlled for sociodemographic variables (age at BC diagnosis as

a continuous variable, education level at or below the level of high school, at high school or at technical school versus greater than high school or technical school, having a partner/married, professionally active, and having children), clinical data (BC stages I, II, or III versus 0, mastectomy versus lumpectomy, chemotherapy, endocrine therapy, and comorbid condition) in a first block and for distress assessed at T2 in a second block. Variables for baseline personality characteristics (anxious or avoidant attachment style and self-esteem) and perceived interactions with doctors (patient satisfaction and perceived medical communication competence) were included in a third block. In two subsequent regression models, the interaction between age or education level and the MCCS subscales and the interaction between age or education level and satisfaction with care subscales were included in a fourth block. Variables used in the interaction terms were centered to avoid multicollinearity.

For each multi-item scale, items with missing data were replaced by the mean value of the scale when at least half of the items on that scale had been completed. All multi-item scale scores presented less than 5% of missing data, except the MCCS information giving and verifying subscales with 12% and 6% missing data, respectively. Thus, statistical models including the MCCS information giving or information seeking subscales include less data ($n=218$ instead of $n=249$).

Statistical analyses were performed with SPSS software version 22 (IBM, Somers, NY, USA).

Results

Baseline characteristics and compliance

Of the 426 BCS approached to participate in the study, 360 (85%) completed the questionnaires at T1 and 283 (66%) at T2 as described in Figure 1. There were no

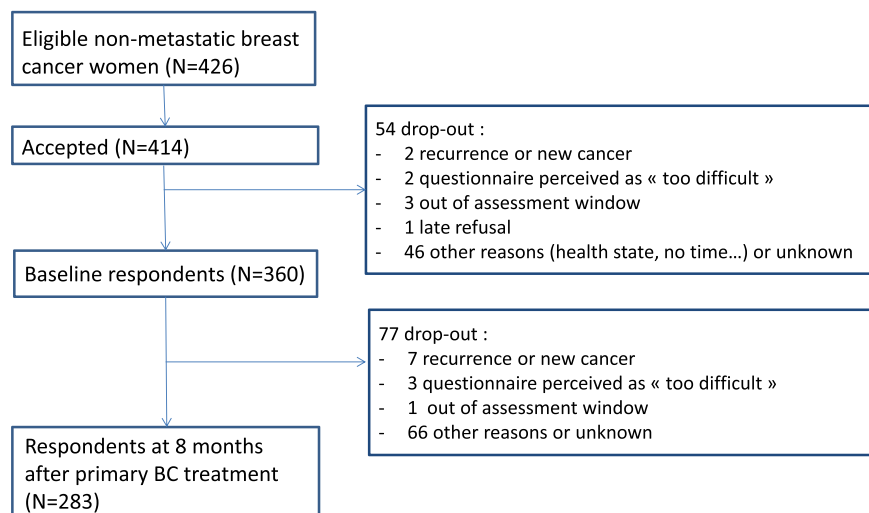


Figure 1. Participants at baseline (end of primary BC treatment) and 8 months later

significant differences between T1 respondents and nonrespondents, except that women who were professionally active or who had a mastectomy were less likely to participate in the study ($p < 0.05$). There were no significant differences between T2 respondents and nonrespondents at 8 months. The sociodemographic and clinical characteristics of the sample are detailed in Table 1. Median age (range) of baseline BCS respondents was 56 years (23–86 years). Most participants were married/partnered (69.3%), above high school education level (60.5%), and diagnosed with stage 0–I BC (57.1%). Approximately

46% had undergone chemotherapy, and 73% was currently undergoing endocrine treatment. Chemotherapy was administered less frequently with increasing age (<45: 76.4%, 45–54: 48.0%, 55–64: 36.7%; >64: 26.4%, $p < 0.001$).

Self-reported data

The mean scores for BCS' information needs significantly decreased between T1 (35.0) and T2 (28.9) ($p < 0.001$) (Table 1), although individual scores for information needs increased for 21.4% of the women. Mean scores of psychological distress also significantly declined over time ($p < 0.001$); however, 35% BCS at T2 evidenced levels of psychological distress requiring specialized psychological assessment based on a HADS threshold score of 13 [32].

As shown in Table 2, the item 'Being informed about things you can do to help yourself to get well' was seen as a follow-up information need by 45.1% and as a persistent information need by 36.2% of the women. The item 'Being given written information about the important aspects of your care' was seen as an emergent need by 14.1% of the BCS.

As displayed in Table 3 for self-reported data collected at baseline only, lower mean scores were observed for patient satisfaction with doctors' interpersonal skills (60.7) and availability (61.1) compared with other patient satisfaction subscales. Mean scores were lower for BCS' self-perceived medical communication competence in information seeking (5.7) compared with other BCS' self-perceived medical communication competence subscales.

Mean scores for anxious or avoidant attachment style corresponded to normative values (3.0 and 3.2, respectively) [38]. A high self-esteem mean score was evidenced in this BCS sample (22.3).

Predictors of health system and information needs at 8 months after primary BC treatment

The percentage of explained variance (adjusted R^2) in health system and information needs at T2 was 31% for the first model (Table 4) and 29 and 33% for models including the moderating effect of age on perceived medical communication competence, or on patient satisfaction with doctors' care. Results of models 2 and 3 are presented online.

Younger age ($\beta = -0.184$, $\beta = -0.199$, $\beta = -0.180$, $p < 0.05$) and increased psychological distress ($\beta = 0.355$, $\beta = 0.404$, $\beta = 0.390$, $p < 0.001$) significantly predicted health system and information needs at T2 in the three regression models. Attachment style, self-esteem, and other sociodemographic and clinical characteristics were not predictive in any models.

In the second regression model, independent predictors of information needs at T2 included information verifying ($\beta = 0.177$, $p < 0.05$), information seeking ($\beta = -0.259$, $p < 0.01$), and socioemotional communication ($\beta = -0.252$,

Table 1. Sample characteristics*, distress, and health system and information needs

	Baseline respondents End of primary BC treatment N = 360	Respondents at 8 months after end of primary BC treatment N = 283
Age—mean (SD)	55.6 (12.4)	55.8 (12.4)
Age—median (range)	55.9 (23–86)	56.0 (23–86)
<45	20.8	18.8
45–54	27.8	29.4
55–64	27.5	28.4
>64	23.9	23.4
Married/partner N (%)	246 (69.3)	193 (69.7)
MD	5	2
Has children N (%)	275 (76.6)	220 (78.0)
MD	1	1
Education N (%)		
<High school	31 (8.7)	23 (8.2)
Technical school	58 (16.2)	51 (18.1)
High school	52 (14.6)	39 (13.9)
>High school	216 (60.5)	168 (59.8)
MD	3	2
Employment (active) N (%) MD	90 (25.2)* 3	73 (26.1) 3
Time since diagnosis Months—mean (SD)	7.2 (2.7)	7.1 (2.6)
Stage N (%)		
S0–SI	203 (57.1)	163 (58.2)
SII–SIII	152 (42.9)	117 (41.8)
MD	5	3
Mastectomy N (%)	76 (21.1)*	57 (20.1)
Chemotherapy N (%)	164 (45.6)	125 (44.2)
Endocrine treatment N (%)	252 (73.0)	195 (71.7)
MD	15	11
HADS—Total score		
Mean (SD)**	12.7 (7.0)	11.7 (6.7)
Psychological distress (score > 13) N (%)	142 (39.7)	98 (34.9)
MD	2	2
SCNS Health system and information		
Mean (SD)**	35.0 (18.2)	28.9 (24.8)
% ≥ low–high needs	22.6	21.4
MD	10	7

*No significant difference between T1 respondents and nonrespondents at T1, except for employment and mastectomy ($p < 0.05$) and between T1 respondents and nonrespondents at 8 months. MD = missing data, provided if not 0.
** $p < .001$.

Table 2. Patterns of change in the scns-sf34 'health system and information' item needs (%)

Items	Baseline unmet needs (T1)	Unmet needs at 8 months (T2)	Persistent needs	Resolved needs	Emergent needs
Being given written information about the important aspects of your care	23.4	25.7	11.4	12.2	14.1
Being given information (written, diagrams, and drawings) about aspects of managing your illness and side-effects at home	39.5	29.3	18.0	21.0	10.9
Being given explanations of those tests for which you would like explanations	38.3	29.6	19.3	17.5	10.4
Being adequately informed about the benefits and side-effects of treatments before you choose to have them	39.0	34.5	21.0	19.5	13.6
Being informed about your test results as soon as feasible	34.9	23.8	15.0	20.2	8.6
Being informed about cancer which is under control or diminishing (i.e., remission)	46.7	38.3	27.6	22.6	11.1
Being informed about things you can do to help yourself to get well	56.2	45.1	36.2	22.1	9.2
Having access to professional counseling (e.g., psychologist, social worker, counselor, and nurse specialist) if you, family, or friends need it	29.5	26.6	15.4	15.4	11.3
Being treated like a person not just another case	20.8	22.0	10.9	7.9	11.6
Being treated in a hospital or clinic that is as physically pleasant as possible	15.9	15.5	5.2	8.2	10.4
Having one member of hospital staff with whom you can talk to about all aspects of your condition, treatment and follow-up	44.0	37.1	24.8	19.6	12.6

Table 3. Descriptive statistics for psychosocial predictors* (N = 360)

	Baseline respondents	End of primary BC treatment
<i>Patient Satisfaction</i>	PATSAT mean (SD)	
Score range [0–100]	Interpersonal skills	60.7 (26.1)
	MD	5
	Technical skills	77.0 (18.4)
	MD	4
	Information provision	65.0 (24.4)
	MD	2
	Availability	61.2 (23.3)
	MD	7
<i>Medical Communication Competence</i>	MCCS	
Score range [1–7]	Information giving	6.1 (0.7)
	MD	43
	Information verifying	6.0 (0.8)
	MD	22
	Information seeking	5.7 (1.2)
	MD	6
	Socio-emotional	6.2 (1.0)
	MD	6
<i>Attachment Anxiety</i>	ECR	
Score range [1–7]	Anxious	3.0 (1.3)
	MD	4
	Avoidant	3.2 (1.1)
	MD	4
<i>Self-Esteem</i>	RSES	
Score range [0–30]	MD	4

*Assessments performed at the end of radiotherapy; MD = missing data. Higher scores for patient satisfaction, medical communication competence, attachment style, and self-esteem correspond to higher satisfaction with care, medical communication competence, attachment anxiety, and self-esteem.

$p < 0.01$). Moderating effects of age on information giving ($\beta = 0.203$, $p < 0.05$) and on information seeking ($\beta = -0.241$, $p < 0.05$) were highlighted in relation to information needs at T2 (data presented online).

In the third regression model, independent predicting effects of satisfaction with doctors' information ($\beta = -0.220$, $p < 0.05$) and a moderating effect of age on satisfaction

Table 4. Predictors of health system and information needs at 8 months after primary BC treatment (N = 283)

Predictors	Model 1 (β)
Age	-0.184*
Below high school	-0.001
High school	-0.015
Technical school	0.002
Married/partner	-0.081
Professionally active	-0.079
Have children	0.066
Breast cancer: stage 1	0.138
Breast cancer: stage 2	0.093
Breast cancer: Stage 3	0.090
Mastectomy	0.052
Chemotherapy	0.023
Endocrine treatment	-0.111
Comorbid condition	0.033
Adjusted R^2 Bloc 1 (control variables) (p variation)	0.032 (0.111)
HADS scores at same time point	0.355**
Adjusted R^2 Bloc 2 (+ HADS) (p variation)	0.185 (<0.001)
PATSAT: interpersonal skills	0.051
PATSAT: technical skills	-0.069
PATSAT: information provision	-0.257*
PATSAT: availability	-0.028
ECR: anxious attachment	0.108
ECR: avoidant attachment	-0.015
MCSS: information giving	0.044
MCSS: information verifying	0.165
MCSS: information seeking	-0.101
MCSS: socio-emotional	-0.169
RSES: Self-esteem	0.015
Adjusted R^2 Bloc 3 (+ tested effects) (p variation)	0.306 (<0.001)

* $p < .05$.

** $p < .001$.

with doctors' information ($\beta = -0.248$, $p < 0.01$) and on satisfaction with doctors' availability ($\beta = 0.150$, $p < 0.05$) were evidenced in relation to information needs at T2 (data presented online).

Results of the second and third regression models are depicted in Figures 2 and 3 and described hereafter.

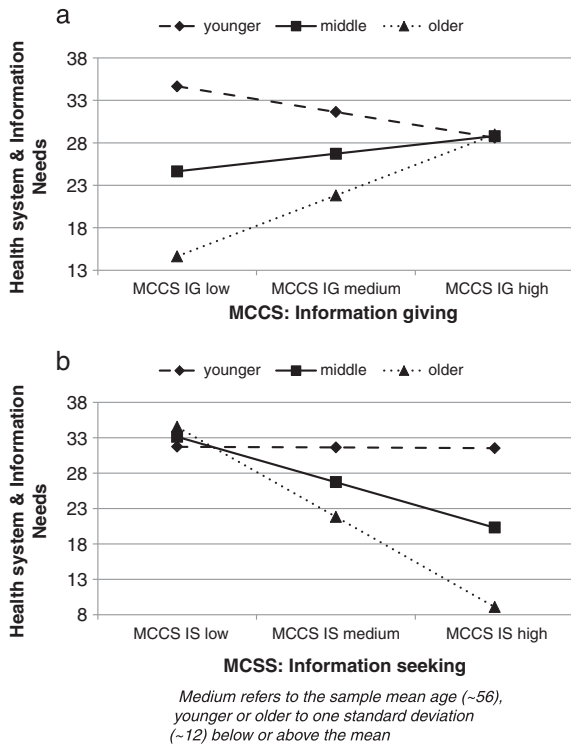


Figure 2. Health system and information needs 8 months after primary cancer treatment completion in relation to age and BCS perceived competence in medical communication–information giving (2a) and information seeking (2b)

Figure 2a suggests that in older BCS, a higher level of self-perceived information giving skills is related to higher information needs at T2 and in younger BCS, to lower information needs at T2. For medium age (~56 years old), no such effect was found. Figure 2b illustrates that older age (> ~68 years old) and, to a lesser extent, medium age BCS' higher self-perceived competence in information seeking is related to lower information needs at T2. No such effect was found for younger BCS (< ~44 years old). Figure 3a highlights that an increase in satisfaction with doctors' information provision resulted in lower information needs at T2 in BCS of medium and especially older age, while no effect was noted for younger BCS. Finally, in Figure 3b, we observe that satisfaction with doctors' availability was weakly related to information needs at T2 in older BCS whereas it was strongly related to these needs in younger BCS.

We did not find a moderating effect of education level on perceived medical communication competence or on satisfaction with care subscales, for information needs at T2.

Discussion

This study addressed BCS information needs at 8 months after primary BC treatment. It assessed whether BCS

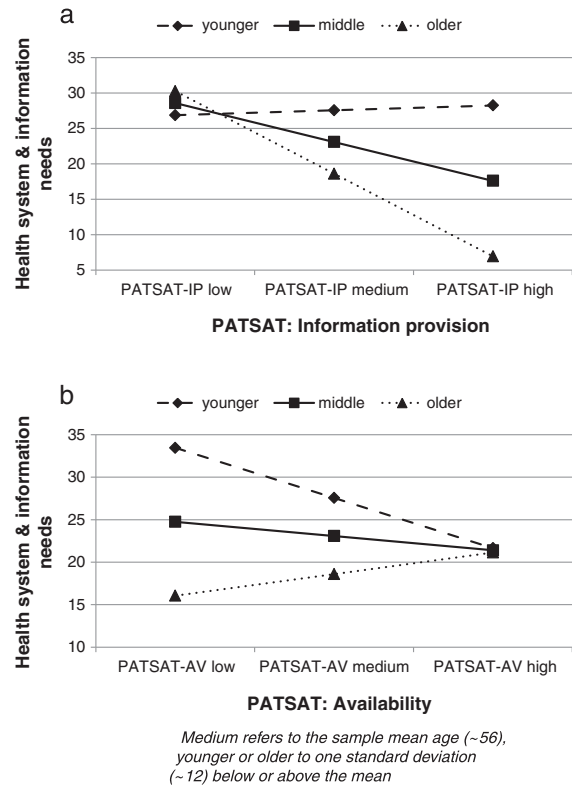


Figure 3. Health system and information needs 8 months after primary cancer treatment completion in relation to age and BCS satisfaction with medical care–information provision (3a) and availability (3b)

individual factors or factors related to their perceived interactions with doctors during hospital primary cancer treatment were associated with information needs measured 8 months later. Addressing a knowledge gap [5,14], this study was meant to provide clinical recommendations to improve supportive care in BCS.

BCS information needs significantly decreased over 8 months after treatment completion ($p < 0.001$) as observed in previous studies with similar BCS [5,8]. However, as also observed in these studies, specific information needs were still prevalent at follow-up. For example, in our study, many women presented at follow-up with unmet specific needs for information such as *being informed about things you can do to help yourself to get well* (45%) or *having one member of hospital staff with whom you can talk about your condition* (37%); at the end of treatment, 36 and 25% already had these respective information needs. New information needs also emerged during this early surveillance phase, such as *being given written information about your care* (14.1%) or *being adequately informed about the benefits and side-effects of treatments* (13.6%), reflecting a woman's lasting concerns while she resumes her daily life activities.

Lower information needs in the surveillance phase were found in relation to higher satisfaction with information

provision at the end of treatment. This is in line with Farin [12] and underlines the importance of ensuring satisfaction with doctors' information provision before entering the BCS surveillance phase.

Our data confirms the benefit of BCS' medical communication skills [13,39] because BCS' ability in information seeking and in contributing to a good doctor–patient relationship was associated with reduced information needs at follow-up. However, the ability of women in this sample to check their understanding contributed to increased information needs. Information verification pertains to information already provided by doctors whereas information seeking refers to new information doctors may not have addressed prior to being solicited by patients. Information verification could be related to doubt or less trust in clinicians in more insecurely attached individuals [26]. However, this medical communication competence was unrelated to attachment style in our BCS sample (data not shown). Our results would rather indicate the necessity to offer alternative ways of repeating or clarifying treatment and care information.

Overall, psychological distress was strongly associated with information needs, which confirms the importance of meeting information needs for BCS' well-being [40]. In addition, being younger predicted higher information needs, which is consistent with other studies in BCS [6–8,11,41]. Younger BC women generally use more active coping [42] and thus may more actively seek medical information. Moreover, their quality of life is often more severely impaired compared with older (>50 years old) BCS [43]. To manage these difficulties, younger BCS survivors may thus need extra medical information tailored to their coping style.

Age modified the relationship between BCS self-perceived medical communication competence and satisfaction with care on information needs at follow-up. In contrast to older BCS whose unmet information needs were higher when they perceived less satisfaction with doctors' information provision at the end of treatment, younger BCS evidenced higher unmet information needs when they experienced less satisfaction with doctors' availability (i.e., duration or frequency of the consultations). Slightly longer consultation may, indeed, be required to respond to younger BCS' higher needs for information.

In older BCS, higher information needs at 8 months was predicted by higher self-perceived skills in information giving and lower self-perceived skills in information seeking. So as older BCS increased in their perceptions of competence in supplying doctors with information, the more they experienced subsequent unmet information needs. Compared to previous cohorts, older BCS today may be willing to receive more medical information and take a more active role in their care [44]. However, oncologists' communication style has been shown to vary with older BCS. A more directive speech is adopted,

which may inhibit older patients from expressing their preferences and concerns [45]. In this study, we observed a mismatch between older BCS communication skills (providing information rather than seeking information) and the perception of information received at follow-up. They may still be reluctant to clearly express their questions. Oncologists could support older BCS by soliciting their non–spontaneously expressed questions.

Contrary to our expectations, no direct or moderating effect of BCS' education level, and no effect of their personality characteristics, was observed in relation to their information needs at follow-up. Overall, this BCS sample exhibited high education levels and self-esteem scores that limited the possibility to test for their effects. Besides, as insecure attachment style and psychological distress were highly correlated, this latter variable may have explained all the information needs variance attributed by these variables.

This study has some limitations. It was performed in a single institution, so it should be replicated to ascertain results. Response rate at follow-up dropped to 66%; however, the remaining BC sample mostly reflects the eligible population. The information provision and verifying subscales of the MCCS encompassed a number of items with missing data (6 and 12%), which calls for further validation of this scale. In fact some items (e.g., '*Presenting important history associated with my medical problem*') might not have been relevant for the context of end of BC treatment. Interactions between BCS and their doctors were only assessed through BCS' self-assessments. Observed data of hospital oncology consultations could have provided further understanding of the type of medical communication content and skills related to BCS care experience.

Conclusion

In spite of these caveats, this study is one among the few that specifically addressed BCS information needs at follow-up as predicted by factors related to their perceived interactions with oncology providers during hospital BC primary treatment.

Although the overall prevalence of information needs decreased after treatment, specific unmet information needs were still present in a significant number of BCS. In our institution, between the fourth and eighth months after treatment, BCS may receive an initial medical surveillance consultation. So during the first four months after hospital BC treatment, they may endure unaddressed concerns. To ascertain timely response to BCS information needs, a consultation with a BC nurse or navigator [46] could be provided when follow-up is starting.

We found an association between both doctors' and BCS' communication skills and further information needs. In addition, the moderating effect of age on these relationships confers more precise clinical implications.

Psychosocial interventions targeted at oncology providers [18] or patients [47] are available to better meet

BCS information needs. Health care information is particularly expected by younger BCS. Besides, specific deficiencies evidenced in the medical communication with older BCS should be addressed. Older BCS providing information to clinicians may be a cue of their wish to receive further information; clinicians could help them clearly articulate their questions by inquiring about their concerns. Simultaneously, BCS information needs could be acknowledged, and BCS could be taught to formulate their questions. Since the perception of unmet information

needs was unrelated to self-esteem and insecure relational attachment style, specific psychological interventions are not directly required on these individual traits to improve information needs in BCS.

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