Original article _____

A comprehensive assessment of satisfaction with care:
Preliminary psychometric analysis in an oncology institute in Italy

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Summary

Background: Little is known about patients' perception of the quality of the care they receive in oncology hospitals. We developed a 61-item comprehensive assessment of satisfaction with care (CASC) to evaluate the competence of hospital physicians and nurses, as well as aspects of care organisation and hospital environment. The aims of this study were to define the structure of the CASC and assess the internal consistency and convergent and discriminant validity of its scales.

Patients and methods: Three hundred ninety-five consecutive cancer patients discharged from an oncology institute in Italy were asked to complete the CASC at home and return it in a self-addressed envelope.

Results: Two percent of the patients refused to participate and 25% failed to return the questionnaire. Separate factor analyses of the CASC sub-scales disclosed the perceived extent of doctors' and nurses' availability, coordination, human quality, technical competence, provision of psychosocial care and information, as well as the patients' general satisfaction, perception of the organisation of their care, access and comfort. Multi-trait scaling analysis was carried out on item-grouping resulting from factor analyses. High levels of internal consistency and convergent validity were obtained but discriminant validity could be improved.

Conclusions: Results of present psychometric testing of the CASC forecast adequate properties. This will be confirmed by repeating these analyses in a cross-cultural setting.

Key words: oncology, patient satisfaction, questionnaire, validity

Introduction

Patient assessment of the quality of their care has a long history. The concept was introduced in the 1970s as an endpoint in the evaluation of health care services. In oncology, attention to patient satisfaction is more recent [1–6]. It coincides with the recognition of the impact of cancer at all human levels. Cancer is no longer inevitably fatal. Thanks to new technologies the probability of recovery or prolonged survival has expanded. However, this has been at the cost of increasingly sophisticated technical procedures often accompanied by side effects and long-term sequelae. These may also cause impersonal interactions with patients. In that context, attention has been directed to the patients' viewpoint in the evaluation of treatment efficacy and overall care.

Quality of life instruments have been elaborated to measure the effects of cancer and its treatment on the individual. Satisfaction with care instruments are intended to raise patient opinion of the quality of health care interventions and services. Insufficient quality of health care provision may constitute an additional burden on patients. Besides, dissatisfaction with care may alter an already challenged compliance which in turn may undermine treatment effectiveness [7].

In the cancer field, patient satisfaction with care entails particular features. Cancer patients usually experience long-term uncertainty and concerns about the nature, course and prognosis of their illness. They inevitably face continued dependency on health care providers, for either lengthy treatment, medical follow-up or rehabilitation. Moreover, in view of the frequent combinations of therapies they are often handled by numerous different health care professionals. In that context, providers' interpersonal and communication skills are of special value, not only in their interaction with patients but also to ensure consistency.

The content and format of instruments used until now in studies of the satisfaction of cancer patients with their care vary widely. It is thus difficult to compare their results. Consequently, little is known about patients' opinions of the quality of their care across settings. Besides considering the common over-reporting of high satisfaction with care levels, alternative methods for assessing satisfaction with care need to be tested.

The general objective of this study was to assess cancer patients' perception of the quality of hospital physicians and nurses as well as of selected aspects of care organisation and hospital environment across settings in different countries. A 'comprehensive assessment

of satisfaction with care' (CASC) was designed for that purpose [8]. The present paper reports on the psychometric testing of the CASC in patients treated at an oncology institute in Italy (EIO).

For the psychometric analysis of the CASC, the following research questions were posed:

1. To what extent does the conceptual structure of the CASC fit the empirically generated structure of the scale?
2. To what extent do the multi-item scales of the CASC reflect internal consistency?
3. To what extent do the multi-item scales of the CASC demonstrate convergent-discriminant validity?

Development of a comprehensive assessment of satisfaction with care (CASC)

The initial design and pre-testing of the CASC was reported in a previous publication [8]. The CASC is composed of items selected from existing patient satisfaction questionnaires but reviewed for their relevance by oncology specialists and cancer patients. It is organised in three parts: the first pertaining to doctors; the second to nurses; and the third to hospital services and general satisfaction. It addresses the technical and interpersonal skills, information provision and availability of physicians and nurses, and includes issues pertinent to oncology which are rarely addressed in other satisfaction with care assessment questionnaires such as co-ordination between health care providers, elicitation of information on psychosocial difficulties, waiting time for obtaining test results or implementing treatment.

To counter the over-reporting of elevated satisfaction levels and increase the variability of scores, we took several precautions. First, we chose a multi-dimensional rather than a global assessment approach. A multidimensional questionnaire encompasses multiple items bearing on specific aspects of care whereas a global item consists of an overall assessment (e.g., 'I am fully satisfied with the medical care I received'). Second, a 'poor', 'fair', 'good', 'very good' or 'excellent' response scale was used to rate each aspect of care. This type of response scale was shown in the literature to provide methodological advantages [9].

The CASC was originally written in French, then translated into and pilot-tested in the languages of each of the participating institutions. The translation process followed the guidelines of the European Organisation for Research and Treatment of Cancer Quality of Life study group [10]. For the Italian version, however, the translation was directly made from French. Two initial translations were independently performed by two persons of Italian mother tongue with good knowledge of French. A comparison of the two translations led to an intermediate Italian version that was then re-translated into the original questionnaire language by a French person working in Italy. An Italian version for pilot-

Table 1. Patient characteristics.

	Respondents ($n = 290$) (%)	Non-respondents ($n = 105$) (%)
Age (years)		
Median	54	57
Range	21–96	19–87
Sex		
Male	86 (30)	32 (31)
Female	204 (70)	73 (69)
Education level		
Elementary	74 (26)	30 (29)
High school	170 (57)	63 (60)
College/University	46 (16)	12 (12)
Diagnosis		
Not yet established	8 (3)	1 (1)
Breast cancer	132 (46)	36 (34)
Gynaecological cancer	29 (10)	8 (8)
Digestive cancer	25 (9)	9 (9)
Colon cancer	23 (8)	12 (11)
Lung cancer	23 (8)	14 (13)
Head and neck cancer	12 (4)	5 (5)
Urologic cancer	10 (3)	7 (7)
Lymphoma/leukemia	10 (3)	4 (4)
Others	16 (6)	8 (8)
No information	2 (1)	1 (1)
Disease stage		
Not yet established	54 (19)	14 (13)
Solid tumour		
Local	93 (32)	22 (21)
Loco-regional	41 (14)	19 (18)
Metastasis	86 (30)	44 (42)
Leukaemia/lymphoma/myeloma	10 (3)	4 (4)
No information	6 (2)	2 (2)
Treatment setting		
In-patient	264 (91)	96 (91)
Out-patient	26 (9)	9 (9)

testing with patients was produced on the basis of comparison of both the original and re-translated French questionnaires. The final Italian version took into account patients' comments and a review by an Italian research assistant. A report of this translation process is available from the first author.

Patients and methods

Patients and data collection

Between March 1997 and March 1998, several hours per week were dedicated to patient recruitment, resulting in a consecutive series of approximately eight patients who were approached per week in the different EIO departments. All patients were within three days of hospital discharge or undergoing out-patient chemotherapy. They were approached and the study was explained to them in a face-to-face meeting. However, they were invited to complete the CASC at home and to return it in a self-addressed pre-stamped envelope. This procedure purports to minimise the social-desirability bias likely to show up in patients' responses. In addition patients had to fill in a debriefing form inquiring about the time it took to complete the questionnaire and the difficulties encountered.

Socio-demographic data (age, gender, education) and clinical data (type of diagnosis, stage of disease, time since diagnosis, out- or in-

Table 2. Factor structure and factor loadings (> 0.30) after oblimin rotation of 19 items of the comprehensive assessment of satisfaction with care doctors sub-scale in cancer patients attending an oncology institute in Italy (n = 290).

Items	Factor 1	Factor 2	Factor 3	Factor 4
Concerning doctors, how would you rate:				
The number of their visits/consultations	0.81	–	–	–
The ease of obtaining an interview with a doctor	0.78	–	–	–
The questions they asked you about your physical problems	–	–	0.73	–
The questions they asked you about your difficulties in general	–	0.66	(0.35)	–
Their willingness to listen to all of your concerns	(0.48)	0.50	–	–
The information they gave you concerning your illness	–	–	–	0.91
The information they gave you concerning your medical tests	–	–	–	0.98
The information they gave you concerning your treatment	–	–	–	0.85
The information they gave you concerning resources for help	–	(0.44)	–	0.46
The coordination between doctors	0.78	–	–	–
The coordination between doctors and nurses	0.76	–	–	–
The interest they showed in you personally and not just in your illness	0.48	0.48	–	–
The comfort and support they gave you	0.67	(0.35)	–	–
Their human qualities (politeness, respect, sensitivity, kindness, patience,...)	0.71	–	–	–
The way they carried out your physical examination	–	–	0.80	–
The attention they paid to your previous state of health	–	–	0.89	–
The understanding they have of your illness	–	–	0.60	–
The treatment and follow-up they have planned	–	–	0.65	–
The time they devoted to you during their visit	0.75	–	–	–
Eigenvalue before rotation	11.45	1.08	0.90	0.82
% of variance	60%	6%	5%	4%

patient status) were recorded from medical records. Patients were assured of the confidentiality of all information collected.

Statistical analysis

Factor analysis

To investigate the pattern underlying patients' responses to the CASC, scores were subjected to principal component analyses. Separate analyses were performed for physician, nurse and service sub-scales of the CASC. These analyses permit the detection of independent dimensions (factors) in a set of items on the basis of their inter-relations. The factor solution chosen for the analysis was based on the eigenvalues and the interpretability of the factors [11]. Direct oblimin rotation was planned because there was no theoretical reason to assume orthogonal factors. A pairwise method was used for treating missing data. All analyses were made using the statistical package for the social sciences [12].

Multitrait scaling

Multitrait scaling analysis was used to examine the extent to which the items of the questionnaire could be combined into the multi-item scales determined by factor analysis. This technique is based on an examination of item-scale correlations [13]. Evidence of item convergent validity was defined as a correlation of ≥ 0.40 between an item and its own scale (having excluded the item from its own scale to

correct for overlap). Item discriminant validity was supported and a scaling success counted whenever the correlation between an item and its hypothesized scale (corrected for overlap) was more than two standard errors higher than its correlation with other scales.

Reliability

The internal consistency of the multi-item questionnaire scales was assessed by Cronbach's alpha coefficient [14].

Results

We approached 395 consecutive patients. Seven patients (2%) refused to participate because they felt it would be a burden or feared that their responses to the CASC could impact on their treatment. Ninety-eight patients (25%) failed to return the questionnaire. Of the 290 remaining patients, the median age was 54 years (range 21–96) and 204 (70%) were female. The frequency of specific malignancies and disease stages reflected the typical activities of the oncology institute where this study took place. Non-respondents did not differ from respondents with respect to baseline socio-demographic and clinical characteristics (Table 1).

Among the 290 patients who returned their questionnaire, the rate of omission by individual items is less than 5%. However, 13% of patients on average did not answer questions about overall difficulties and the information they had received about resources for help. Fifty-four percent of the patients took more than 15 minutes to respond to the questionnaire.

The five-level Likert scale going from 'poor' to 'excellent' was transformed into a scale going from 1 (poor) to 5 (excellent). Mean of satisfaction scores by items vary from 2.7 ("doctors' information on resources for help") to 4.7 ("intention to recommend hospital"). The general satisfaction items exhibited the highest means and the smallest standard deviations. The mean percentage of patients scoring 'excellent' is 27.

Factor analysis

Factor analysis was first carried out on the overall 50 items of the CASC. The optional sections of the CASC were excluded. This analysis indicated that patients manifest different attitudes towards doctors, nurses and aspects of care organisation, hospital environment and general satisfaction (data not shown). Further factor analyses were thus undertaken on the 19 doctors' items, the 17 nurses' items and the 14 services/general satisfaction items separately, in order to discriminate among more specific dimensions of care.

The two-factor solution obtained for the doctors' and nurses' items, using eigenvalue > 1.0 identified one dimension for availability/co-ordination/technical skills, information provision and human quality, and a second dimension for interpersonal skills. This solution was found difficult to interpret and too crude for the purpose of this questionnaire, i.e., to highlight aspects of care

Table 3. Factor structure and factor loadings (> 0.30) after oblimin rotation of 17 items of the comprehensive assessment of satisfaction with care nurses sub-scale in cancer patients attending an oncology institute in Italy (*n* = 290).

Items	Factor 1	Factor 2	Factor 3	Factor 4
Concerning nurses, how would you rate:				
The prompness with which they answered your calls	0.99	-	-	-
The questions they asked you about your physical problems	-	-	0.51	-
The questions they asked about your difficulties in general	-	0.88	-	-
Their willingness to listen to all your concerns	-	0.32	-	(0.31)
The information they gave you concerning your care	-	-	-	0.84
The information they gave you concerning your medical tests	-	-	-	0.82
The information they gave you concerning your treatment	-	-	-	0.79
The information they gave you concerning resources for help	-	0.80	-	-
The coordination between nurses	0.73	-	-	-
The attention they paid to your comfort	0.45	-	(0.37)	-
The interest they showed in you personally and not just in your illness	0.37	-	-	-
The comfort and support they gave you	0.41	-	-	(0.37)
Their human qualities (politeness, respect, sensitivity, kindness, patience,...)	0.75	-	-	-
The way they carried out your physical examination	-	-	0.92	-
The understanding they have of your illness	-	-	0.84	-
The nursing care they provided	(0.31)	-	(0.38)	0.42
The time they devoted to you	0.77	-	-	-
Eigenvalue before rotation	11.53	1.21	0.65	0.49
% of variance	68%	7%	4%	3%

Table 4. Factor structure and factor loadings (> 0.30) after oblimin rotation of 14 items of the comprehensive assessment of satisfaction with care hospital services and general satisfaction sub-scale in a sample of cancer patients attending an oncology institute in Italy (*n* = 290).

Items	Factor 1	Factor 2	Factor 3
Concerning hospital services, how would you rate:			
The ease of access (parking, means of transportation...)	-	-	0.78
The ease of finding one's way to the different departments	-	-	0.85
The comfort of the building (cleanness, spaciousness, calmness,...)	-	-	0.73
The information provided on your admission to and/or discharge from the hospital	0.80	-	-
The information provided on the cost and reimbursment of care	0.79	-	-
The kindness and helpfulness of the technical, reception, laboratory personnel,...	0.63	-	-
The waiting time for obtaining a medical appointment	0.73	-	-
The speed of implementing medical tests and/or treatments	0.78	-	-
The waiting time for obtaining results of medical tests	0.72	-	-
In general,			
I am fully satisfied with the care received	-	0.89	-
I understand the information provided about my treatment	-	0.44	-
I feel reassured and confident in being treated in this hospital	-	0.72	-
I received sufficient psychological support	-	0.85	-
I would recommand this hospital to my relatives	-	0.68	-
Eigenvalue before rotation	5.88	1.74	1.04
% of variance	42%	12%	7%

to be improved. A four-factor solution for doctors' (eigenvalues > 0.8) and nurses' items (eigenvalues > 0.5) was then chosen because of their provision of more specific and conceptually coherent dimensions. These explained 75% and 82% of their variance, respectively, disclosing groups of items pertaining to doctors' availability, co-ordination and human quality (explaining 60% of the variance), psychosocial care (6%), technical skills (5%) and information provision (4%), and to nurses' availability, human quality, co-ordination (68%), psychosocial care (7%), technical skills (4%) and information provision (3%). The factor loadings of the CASC doctor and nurse sub-scales are displayed in Tables 2 and 3. The dimension labelled 'psychosocial care' encompasses items that reflect specific interpersonal aptitudes which often need to be learned, e.g., 'eliciting information on overall difficulties'.

Determining a multi-dimensional structure of the CASC may be useful for a comparative assessment of different aspects of care and for identifying priorities of care improvement. However, results of factor analysis revealed some overlap among dimensions. For example, the items 'willingness to listen' and 'support' weighted on the availability and psychosocial care dimensions for doctors and on the psychosocial care and information dimension for nurses. "Nurses' attention to comfort", "nursing care" also loaded on more than one dimension.

A three-factor solution was obtained for the services/ general satisfaction items (eigenvalue > 1.0). It explained 62% of score variance and identified dimensions for waiting time/other hospital personnel interactions (42%), general satisfaction (12%) and access/comfort (7%) (Table 4).

Multi-trait scaling analysis and internal consistency

Factor analyses demonstrated the existence of four factors for the doctor or nurse sub-scales and of three factors for the services/general satisfaction sub-scale. Based on these results, the overall 50 items of the CASC were grouped into 11 scales, i.e., 4 for doctors' items, 4 for nurses' items, 1 for the access/comfort items, 1 for the care organisation items and 1 for the general satisfaction items.

Multi-trait scaling analyses were performed on this item-grouping. These results led to amendment of the initial item-grouping. For example, the "doctors' human quality" item was found to be more closely correlated with the second scale, which was then labelled doctors' interpersonal skills because it encompassed all items referring to that concept; the "nurses' willingness to listen" item was found to be more correlated to the technical skills scale than to the initial group of items.

The best scaling results were obtained for the scales

Table 5. Item convergent validity, item discriminant validity, item discriminant validity test, and descriptive statistics and scale reliability of the CASC (n = 244).[d]

Scales/items	Convergent[a]	Discriminant[b]	Test[c]	Mean[e]	SD[e]	Range	Cronbach's α
Doctors' availability	0.77–0.82	0.32–0.74	80%	3.7	0.9	1–5	0.92
Frequency of visits							
Ease obtaining an interview							
Coordination between doctors							
Coordination doctors/nurses							
Time spent with patient							
Doctors' interpersonal skills	0.69–0.82	0.28–0.74	70%	3.5	1.0	1.2–5	0.91
Questions on all difficulties							
Listening							
Interest to the person							
Support							
Human qualities							
Information on resources							
Doctors' technical skills	0.71–0.78	0.38–0.72	76%	3.8	0.8	1.4–5	0.90
Questions on physical problems							
Physical examination							
Attention to previous health							
Understanding of illness							
Treatment/follow-up							
Doctors' information	0.81–0.83	0.34–0.70	80%	3.6	1.0	1–5	0.91
Information on illness							
Information on treatment							
Information on medical tests							
Nurses' availability	0.81–0.86	0.30–0.81	84%	3.9	0.9	1.3–5	0.95
Interest in the person							
Support							
Human qualities							
Promptness to call							
Time spent with patient							
Coordination between nurses							
Nursing care							
Nurses psychosocial care	0.85–0.85	0.19–0.74	90%	2.8	1.2	1–5	0.92
Questions on all difficulties							
Information on resources							
Nurses' technical skills	0.79–0.85	0.29–0.85	74%	3.7	0.9	1.2–5	0.93
Physical assessment							
Listening							
Physical examination							
Understanding of illness							
Attention to comfort							
Nurses' information	0.84–0.87	0.27–0.78	73%	3.5	1.1	1–5	0.93
Information on care							
Information on medical tests							
Information on treatment							
Access/comfort	0.51–0.62	0.19–0.55	53%	3.9	0.8	2–5	0.71
Ease of access							
Ease to find one's way							
Comfort of building							
Care organisation	0.60–0.80	0.32–0.67	78%	3.7	0.8	1.7–5	0.89
Waiting for medical appointment							
Waiting for tests results							
Waiting for having treatment							
Helpfulness other personnel							
Information on admission							
Information on cost							
General satisfaction	0.47–0.67	0.23–0.55	82%	4.4	0.5	2.4–5	0.79
Satisfaction with care							
Understanding information							
Reassurance/Confidence							
Psychological support							
Recommendation							

[a] Range of item-scale correlations (corrected for overlap).

[b] Range of correlations between an items and other scales.

[c] Percentage of cases in which an item correlates significantly higher with its own scale (corrected for overlap) than with other scales.

[d] Missing data are replaced by mean if respondents answer at least half of the items in each scale, 18% of subjects were omitted because of missing data.

[e] The five-level Likert scale from 'poor' to 'excellent' was transformed into a scale ranging from 1 (poor) to 5 (excellent). On the strength of the multi-trait analysis results, scale scores were calculated by computing the simple algebraic sum of the items in the scale, after grouping as shown in this table, and dividing by the number of items by scale.

as listed in Table 5. For all scales item-scale correlation (corrected for overlap) exceeded the 0.40 criterion for item-convergent validity. Five hundred tests (50 items X [11-1] scales) of item-discriminant validity were performed. Overall scaling successes were noted in 77% of the cases. In 22% of the cases, the item was more highly correlated with its own scale but not significantly. In the last instance (1% of the cases), the item was less correlated with its own scale than with others; this was found true of the item 'I received sufficient psychological support' which was more correlated with the doctors' availability and all nurses' scales. This again indicated some inter-dependency between scales. For example, items "doctors' support", "doctors' human qualities" were also highly correlated to the doctors' availability scale whereas "nurses' willingness to listen", "nurses' attention to comfort" were also highly correlated to the nurses' availability scale. This last scale indeed encompassed several interpersonal skill items.

The reliability of the CASC scales proved good to excellent with Cronbach's alpha coefficients ranging from 0.71 to 0.95 (Table 5).

Discussion

As a first step in a large-scale psychometric testing, the CASC was analysed from ratings provided by patients treated at an oncology institute in Italy. This study was intended to test whether the CASC items could be summarised into fewer independent dimensions and whether these dimensions could demonstrate adequate internal consistency and convergent-discriminant validity estimates. It would also yield information on the inter-relationship between aspects of care and their importance or specificity with regard to the overall perception of care quality for patients under active treatment in an oncology hospital.

Patients' judgment of care quality at times reflects their perceived care needs, their actual experience of care, and their expectations or knowledge of what they may receive from health care providers or services [1]. Cancer patients experience continually shifting physical and psychological needs in parallel with the course of their disease. The importance of and inter-relationships among aspects of care may change during the course of their illness and treatment. Our results are thus expected to differ from previous similar research on advanced cancer care [15, 16].

The high response rate in this study resulted in a large amount of information. Although it generally required more than 15 minutes to fill in the CASC, only 25% of patients did not respond, which is far better than the levels of response reported in the literature [17]. Although patients were individually recruited and motivated to give their opinion on the care received, this may also reflect the promptness of their feed-back on the care they received in the context of oncology.

An average of 13% of the patients did not fill in items concerned with questions about overall difficulties and provision of information on resources for help. This may reflect in that small proportion of patients a lesser need or expectation regarding this type of help.

Factor analysis reported dimensions for doctors' and nurses' availability/co-ordination/human quality, psychosocial care, technical competence and information provision. Care organisation, access/comfort, general satisfaction comprised further independent care dimensions.

Ware et al. [18] suggested that "several different characteristics of providers and medical care services influence patient satisfaction, and that patients develop distinct attitudes toward each of these". The dimensions of care referred to are interpersonal manner, technical quality, accessibility/convenience, continuity, finances, efficacy/outcome, physical environment and availability.

Initial conceptual item-grouping of the CASC distinguished between doctors' and nurses' technical, interpersonal and communication skills along with availability and co-ordination.

Communication skills encompassed items referring to eliciting or providing information on physical and psychosocial aspects of care. Such item-grouping was approximately confirmed on an empirical basis, although with some overlap, namely with regard to interpersonal skills items. Items belonging initially to communication skills led to either an 'eliciting psychosocial information' or a 'medical information provision' dimension.

Availability, co-ordination showed the highest loadings on doctors' and nurses' primary factor which underlines the importance of this aspect of care for this kind of patient. An independent information provision dimension could be highlighted for doctors and nurses. But for nurses, this dimension presented some interdependency with other factors. This suggests the relevance of doctors' (in particular) information provision. Attention to overall difficulties and information on resources for help showed the highest loadings on the second medical and nursing factors. These items also presented the lowest scores. This dimension may thus reflect a specific area of unmet care need in that sample.

The item-grouping obtained from factor analysis was improved, accounting for multi-trait scaling analysis results. The resultant 11 scales demonstrated good internal consistency and convergent validity estimates. With regard to discriminant validity, most scales presented over 75% of successes among all discriminant validity tests. However, some items also showed high correlation with other scales. The doctors' availability and interpersonal skills, and the nurses' technical skills and information provision scales showed overlap. Physicians' availability may be perceived by patients as depending on interpersonal qualities which may explain the relationship between these items. Besides it is interesting to underline the link between nurses' information provision and nursing care, suggesting the importance of this aspect to perception of nurses' technical competence in these patients.

Ratings of technical and interpersonal skills have been found to be highly intercorrelated in the context of assessing resident physicians; one reason proposed for this has been that a variety of skills are required for effective medical care [19]. It may also justify the high degree of correlation among doctors or nurses items of the CASC.

On the basis of results of multi-trait scaling analysis on satisfaction with long-term and terminal care scales, McCusker [15] concluded that items measuring general satisfaction and satisfaction with physician availability performed adequately, but items in three physician behaviour scales (technical care, interpersonal care, and communication) could not be distinguished from one another. She therefore also underlined the salience of physician availability in the context of long-term and terminal care. In contrast, we could identify specific technical, psychosocial and information provision scales. This points to the relevance of these aspects in cancer patients under active treatment in an oncology hospital.

Interpretation of satisfaction with care scales may refer to mean scores [6, 20] or to percentage of patients scoring 'excellent' [21]. The latter is proposed because current theories of quality management and improvement recommend comparisons to best practices rather than to minimal standards [22]. A 'poor' to 'excellent' response scale was chosen for the CASC because it offered greater response variability compared to a 'very satisfied' to 'very dissatisfied' response scale [9]. Compared with the studies just mentioned, patients in this sample provided lower mean scores (ranging from 3 to 4) and there was a lower percentage of patients scoring 'excellent' (25% on average) for the different perceived care quality scales.

The doctors' interpersonal skills and information provision scales, and the nurses' psychosocial care and information provision scales presented the lowest mean scores. The variation in score levels across the different scales of the CASC provides relevant information with respect to care improvement.

In conclusion, these preliminary psychometric analyses of the CASC showed that its scores may be validly interpreted by summary scales. This questionnaire raised patient opinion with regard to the quality of doctors' and nurses' availability, technical, interpersonal skills, information provision as well as to hospital access, comfort, care organisation and general satisfaction. The high response rate to the CASC obtained in this study may be partly explained by patients having been individually contacted for recruitment. Considering the time it takes to complete this questionnaire and the overlap among factors, the CASC may have to be simplified to allow for more acceptable and feasible use in systematic assessment. A shortening of the CASC is planned, and data obtained in the settings of other countries participating in the overall research project will be taken into account.

On the strength of appropriate psychometric properties and adequate length, the CASC could serve different

objectives. First, it may be used in patient satisfaction surveys for institutional purpose. In that context, interpretation of the data may be performed by comparing scores across aspects of care and prioritising areas for improvement. Scores may also be compared across departments to establish the desired level of satisfaction, with the level in a given department then checked against the mean level of satisfaction within the hospital at large. Still at the institutional level, recording satisfaction with care scores over time allows for assessing the impact of initiatives to stimulate improvement. Second, in cross-setting clinical research, an assessment of patient satisfaction with care may convey useful information about a specific quality-of-life issue (i.e., satisfaction with treatment regimens that vary in terms of length, location or mode of delivery). In that context, an evaluation of satisfaction with care is a further endpoint for judging the efficacy of treatment. This measure may also provide indications on factors that influence patients' willingness to undergo or sustain treatment. For example, across cultural contexts health care providers' attitude with regard to patients' information vary, which in turn may influence trial compliance. Analysis of data by sub-group of institutions characterised by cultural background or health system may avert identification of a specific centre performance. Thus, in the context of both routine delivery of care and controlled clinical trial, the CASC would ultimately enhance the quality of care in oncology.

Acknowledgements

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