Oncology

Clinical Study

Oncology 2001;61:120–128

# Assessment of Quality of Care in an Oncology Institute Using Information on Patients' Satisfaction

A. Brédart[a] D. Razavi[c] C. Robertson[b] F. Didier[a] E. Scaffidi[a] D. Fonzo[a] P. Autier[b] J.C.J.M. de Haes[d]

[a]Psycho-Oncology Research Unit, [b]Division of Epidemiology and Biostatistics, European Institute of Oncology, Milan, Italy; [c]CHU Saint-Pierre, Brussels, Belgium; [d]Medical Psychology Department, Academisch Medisch Centrum, University of Amsterdam, The Netherlands

**Key Words**
Patient satisfaction survey · Oncology · Quality of care improvement

## Abstract

***Objective:*** To evaluate the feasibility of conducting a patient satisfaction survey in the oncology hospital setting, using a multidimensional patient satisfaction questionnaire to be completed at home. ***Methods:*** Sociodemographic and clinical data were collected for 133 consecutive patients. Patients were asked to complete the European Organisation for Research and Treatment of Cancer QLQ-C30 (version 2.0) just before hospital discharge and the Comprehensive Assessment of Satisfaction with Care at home 2 weeks after discharge. ***Results:*** Respondents (73% of patients approached) were younger, hospitalized for a shorter time and presented less appetite loss, nausea and vomiting and better physical and role functioning than non-responders. The aspects of care for which patients wanted the most improvement were associated with the provision of medical information. In multivariate analyses, longer hospital stay was associated with higher satisfaction with all aspects of medical and nursing care, most probably because patients discharged early were not assured of continuity of care and lacked information regarding self-care at home. Higher global quality of life was associated with higher satisfaction with all aspects of care, suggesting the potential contribution of patient satisfaction to the patients' well-being. ***Conclusions:*** Conducting a patient satisfaction survey in an oncology hospital setting proved feasible; however, further surveys should attempt to obtain the opinion of patients with more severe physical conditions. The assessment of the patients' satisfaction provided indications for improvement of care in a particular hospital. Although the results of this study are specific to one hospital, the methods could be reproduced in other hospital settings, but may possibly lead to other conclusions.

## Introduction

At a time of evolution of patients' knowledge and care expectations and more liberal access to health care services, regular information on patients' satisfaction is becoming a requisite. Assessing patients' satisfaction allows the identification of areas of unmet care needs. It leads to

KARGER
Fax +41 61 306 12 34
E-Mail karger@karger.ch
www.karger.com

© 2001 S. Karger AG, Basel
0030–2414/01/0612–0120$17.50/0

Accessible online at:
www.karger.com/journals/ocl

Anne Brédart
Psychiatry and Oncopsychology Unit
Institut Curie, Rue d'Ulm 26
F–75246 Paris Cedex 05 (France)
Tel. +33 1 4432 4033, Fax +33 1 4432 4017, E-Mail anne.bredart@curie.net

priorities for care improvement and monitoring initiatives for optimising care. Enhancing health care services contributes to the efficacy of interventions since satisfied patients are more likely to co-operate with treatment and maintain medical continuity [1].

In the cancer field, this measure is particularly relevant. Cancer patients are often confronted with lengthy treatments that substantially affect their quality of life. Provider-patient interactions are especially challenged in the face of the uncertainty underlying the disease course and the consequent informational and emotional needs of the patients. Training in psychosocial evaluation and communication skills for medical or nursing staff is now implemented in many institutions. New therapeutic approaches, adjuvant treatment and supportive care interventions are regularly proposed. How well this new management of cancer fits the patients' perceptions of their overall needs has to be examined.

Currently, available data on patients' satisfaction with care in the oncology hospital setting indicate problems with the provision of information on the diagnosis and treatment of the disease, the organisation of care, the continuity between the hospital and home care, the continuity in medical responsibility and the length of waiting time in administrative procedures or for receiving medical test results [2–7].

Generally, patient satisfaction questionnaires report high satisfaction levels. However, scrutiny of conceptual and methodological issues in satisfaction research has raised concern regarding a too literal interpretation of these ratings [8]. Over the past years, we have developed and validated a patient satisfaction questionnaire, the Comprehensive Assessment of Satisfaction with Care (CASC), adopting several initiatives to enhance understanding of patients' satisfaction ratings [9–11]. A multidimensional patient satisfaction assessment was chosen to improve response variability and to contrast satisfaction ratings for different aspects of care. An evaluation of both patients' satisfaction and desire for improvement of care was included to evidence the implication of satisfaction scores in terms of improvement of care from a patient's viewpoint.

In this study, we evaluated the feasibility of conducting a patient satisfaction survey in the oncology hospital setting, using the CASC and inviting patients to complete this questionnaire at home. This approach was chosen in order to limit the social-psychological artefacts (e.g. social desirability, fear of unfavourable treatment) in the expression of satisfaction responses when patients answer the questionnaire in the place of care. The CASC is meant to determine aspects of care for which patients are less satisfied and want the most improvement. This was expected to specify goals for enhancing the quality of care in a specific institution [i.e. the European Institute of Oncology (EIO)]. We also assessed whether patients' socio-demographic or pre-discharge clinical characteristics were associated with their levels of satisfaction. This was intended to provide more valid and useful feedback for clinicians and hospital managers. Moreover, the identification of predictors for satisfaction with care might give insight into case-mix adjustment in further research into satisfaction with care.

## Patients and Methods

### *Patients*

Between January and May 1998, a consecutive series of 6 patients per week were recruited from the different departments of the EIO in Milan, Italy. The EIO is a specialised oncology centre accredited for care and treatment coverage by the Italian National Service. Its specificity consists in its being the referral cancer centre for all of Italy. Breast cancer is the most common cancer treated at the EIO. All patients were contacted within 3 days of hospital discharge. They were invited to complete the European Organisation for Research and Treatment of Cancer Core Quality of Life questionnaire (EORTC QLQ-C30, version 2.0) [12] before hospital discharge. Additionally, they were invited to complete the CASC [9–11] once they returned home, and to send it back in a pre-stamped envelope.

### *Data Collection*

The CASC is composed of 61 items describing aspects of care which are rated on a 5-level Likert scale ranging from 'poor' to 'excellent' (levels of satisfaction). In addition, for the same aspects of care, patients are asked to mention whether they want improvement. This second question was incorporated to determine the implication of satisfaction ratings in terms of patients' desire for improvement of care. The construct validity analysis of the CASC identified 9 multi-item scales and 4 single items. These scales evaluate patients' perceptions of the quality of doctors' availability, technical competence, interpersonal skills and information provision, nurses' availability, interpersonal skills, technical competence and communciation skills, care organisation and general satisfaction. The single items assess access, comfort and psychological care. Multi-trait scaling analysis indicated high internal consistency and convergent validity and acceptable discriminant validity estimates for these scales [11]. Mean scale and item scores of the CASC were transformed to a 0–100 scale. A high score represents a high level of perceived quality of care.

The EORTC QLQ-C30, version 2.0, was used to assess quality of life as a potential predictor of patient satisfaction [12]. It is a 30-item self-assessment of physical, role, social, emotional and cognitive functioning; of symptoms (nausea, fatigue, pain, dyspnoea, insomnia, appetite loss, constipation, diarrhoea, financial difficulties), and of global quality of life. Physical functioning refers to one's ability to perform self-care, mobility or physical activities. Social functioning pertains to the patient's experience of disturbance in family life and social activities. Role functioning means freedom from limitations in

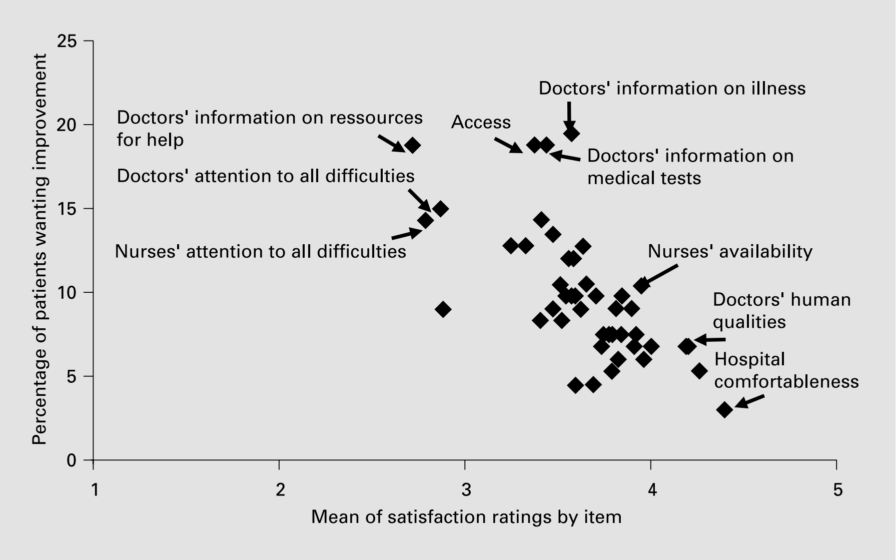

**Fig. 1.** Percentage of patients wanting improvement by satisfaction ratings for each aspect of care (n = 97).

performing professional activity or housework. Global quality of life is measured by 2 items, one a self-rating of overall health and the other of overall quality of life. All scales and single-item measures of the EORTC QLQ-C30 range from 0 to 100. A high score on the functional scales and global quality of life represents a healthy level of functioning or high quality of life whereas a high score on the symptom scales represents a high level of symptomatology. The EORTC QLQ-C30 refers to the patient's condition during the past week.

Further potential predictors included socio-demographic (age, gender, educational level, socio-economic status, marital status, distance of residence from EIO) and clinical data (diagnosis, stage of illness, time since diagnosis, being on or off treatment, length of hospital stay). They were collected from medical records.

### *Data Analysis*

Comparisons between patients who sent back and who did not send back the CASC were performed for categorical data by exact $\chi^2$ test [13] and for continuous data by independent t test [14].

The percentage of patients wanting improvement was calculated for the 19 doctors items, 17 nurses items and 9 services items of the CASC. To allow comparison, the optional sections of the CASC containing items relevant to either in- or out-patients only were excluded. Moreover, items of the general satisfaction section were not considered because these items did not include the additional scale investigating the patients' desire for improvement of care. To highlight aspects of care with which patients were less satisfied and wanted most improvement, we plotted the mean of satisfaction ratings by aspects of care against the corresponding percentage of patients wanting care improvement (fig. 1).

In univariate analyses, Pearson correlation coefficients were calculated for all CASC scales and continuous variables. t test or one-way analysis of variance were used to compare means of the CASC scales across values of nominal categorical variables. Multiple regression analysis was carried out for the different CASC scales. Given the sample size, only variables correlated at a p value below 0.10 in univariate analysis were included in multivariate models. A backward procedure was adopted to select the important predictors from this list of potential predictors. A pairwise method was applied for missing data. Calculations were performed using SPSS statistical software, version 8.0 [14].

## Results

### *Study Population*

One hundred and thirty-three patients were approached. Thirteen (10%) patients did not fill in the EORTC QLQ-C30 because they felt unwell at the time of questionnaire administration, before hospital discharge. Some of these patients were able to complete the CASC at home. The 97 (73%) patients who returned the CASC were significantly younger, had a significantly shorter hospital stay and presented significantly less problems in terms of physical and role functioning, nausea, vomiting and appetite loss than the non-responders (tables 1, 2).

The mean age of the respondents to the CASC was 53 years (standard deviation 13 years), and 62 (64%) respondents were female. Breast cancer patients represent the majority of the sample (table 1). Mean scores for the EORTC QLQ-C30 functional scales ranged from 69 (emotional functioning) to 84 (cognitive functioning), and for the symptomatology scales from 6 (diarrhoea) to 35 (insomnia). The mean for global quality of life was 61 (table 2). Compared with norms provided for breast or non-small cell lung cancer patients [15], this study sample presented a lower mean for global quality of life than the reference breast cancer sample but an equivalent global qual-

**Table 1.** Patients' characteristics

| | | Respondents to CASC | Non-respondents to CASC |
|---|---|---|---|
| Patients, n (%) | | 97 (73) | 36 (27) |
| Age, years[a] | mean (SD) | 53 (13) | 58 (12) |
| Gender | male | 35 | 9 |
| | female | 62 | 27 |
| Level of education | elementary | 26 | 12 |
| | high school | 56 | 23 |
| | graduate | 15 | 1 |
| Hollingshead index | mean (SD) | 38 (14) | 38 (15) |
| Geographical origin | Milan | 21 | 10 |
| | northern Italy (except Milan) | 39 | 12 |
| | central/southern Italy | 36 | 14 |
| | foreign countries | 1 | – |
| Marital status | married | 71 | 30 |
| | divorced | 7 | – |
| | widowed | 5 | 3 |
| | separated | 5 | – |
| | never married | 9 | 3 |
| Diagnosis | not yet established | 6 | – |
| | breast cancer | 42 | 9 |
| | gastric cancer | 7 | 5 |
| | lung cancer | 11 | 2 |
| | colon cancer | 6 | 7 |
| | head and neck cancer | 4 | 2 |
| | leukaemia/lymphoma | 3 | 2 |
| | gynaecological cancer | 8 | 5 |
| | urological cancer | 2 | 1 |
| | others | 8 | 3 |
| Disease stage | not yet established | 17 | 3 |
| | solid tumour | | |
| | local | 28 | 6 |
| | loco-regional | 13 | 8 |
| | metastasis | 36 | 17 |
| | non-solid tumour | 1 | 2 |
| | no information | 2 | – |
| Time since diagnosis | less than or equal to 3 months | 49 | 22 |
| | more than 3 months | 48 | 14 |
| Treatment status | on treatment | 88 | 34 |
| | off treatment | 9 | 2 |
| Length of hospital stay[b] | less than or equal to 5 days | 53 | 13 |
| | more than 5 days | 33 | 21 |
| | out-patients | 11 | 2 |

[a] $p < 0.05$ (independent-sample t test), [b] $p < 0.05$ (exact $\chi^2$ test). SD = Standard deviation.

ity of life to the norm figure for non-small cell lung cancer patients. It evidenced more nausea, vomiting, constipation, insomnia and financial problems but better physical functioning and less pain than the two reference populations.

### *Need for Improvement by Satisfaction Ratings*

Figure 1 displays, for each aspect of care, the percentage of patients wanting improvement in an aspect of care according to the perceived satisfaction with that aspect of care. It highlights a higher proportion of patients wanting

**Table 2.** Mean (standard deviation) of the EORTC QLQ-C30 scales[1]

| | Respondents to CASC | Non-respondents to CASC |
|---|---|---|
| Physical functioning[2, b] | 78 (23) | 67 (28) |
| Role functioning[2, b] | 72 (29) | 54 (37) |
| Emotional functioning[2] | 69 (22) | 62 (27) |
| Cognitive functioning[2] | 84 (16) | 75 (25) |
| Social functioning[2] | 77 (27) | 72 (26) |
| Global QOL[2] | 61 (22) | 58 (23) |
| Fatigue[3] | 34 (27) | 40 (24) |
| Nausea/vomiting[3, b] | 12 (21) | 27 (32) |
| Pain[3] | 24 (29) | 34 (30) |
| Dyspnoea[3] | 19 (25) | 19 (27) |
| Insomnia[3] | 35 (33) | 37 (37) |
| Appetite loss[3, a] | 19 (28) | 42 (37) |
| Constipation[3] | 24 (29) | 31 (36) |
| Diarrhoea[3] | 6 (16) | 9 (22) |
| Financial difficulties[3] | 21 (29) | 14 (23) |

QOL = Quality of life. [a] $p < 0.01$; [b] $p < 0.05$ (independent-sample t test).

[1] Raw scores have been lineraly transformed to a 0–100 scale.

[2] A high score represents a high/healthy level of functioning or a high quality of life.

[3] A high score for a symptom scale represents a high level of symptoms/problems.

improvement in aspects of care pertaining to doctors' provision of information, i.e. 'information on illness' (20%), 'information on resources for help' (19%) and 'information on medical tests' (19%), whereas a lower proportion of patients wanted improvement in aspects of care relating to nurses' availability (7%), nurses' or doctors' human quality (5 and 7%, respectively) and hospital comfortableness (4%).

*Predictors of Satisfaction*

Table 3 indicates the variables which were correlated at a p value equal to 0.10 or below and selected for inclusion in the multiple regression models.

A small proportion of variance in the different CASC scales was explained by the selected predictors ($R^2$ ranging from 0.13 to 0.32) (table 4). A higher global score for quality of life predicted higher satisfaction with all aspects of care; longer hospital stay predicted higher satisfaction with the different aspects of medical and nursing care. More severe appetite loss (i.e. the EORTC QLQ-C30 single item 'appetite loss') predicted higher satisfaction with the technical skills of doctors, and more severe constipation (i.e. the EORTC QLQ-C30 single item 'constipation') predicted higher overall satisfaction. Lower physical functioning (i.e. the EORTC QLQ-C30 physical functioning scale) predicted higher satisfaction with the availability of doctors and their provision of information, as well as the availability and interpersonal and communication skills of nurses. Lower emotional functioning (i.e. the EORTC QLQ-C30 emotional functioning scale) predicted higher satisfaction with the technical and interpersonal skills of doctors and their provision of information, as well as the organisation of care and overall satisfaction. For some aspects of care, age and education were additional independent predictors.

## Discussion

This study aimed to assess the feasibility of conducting a patient satisfaction survey in an oncology hospital setting, using a multidimensional patient satisfaction questionnaire (CASC). It also tested the performance of the CASC in highlighting aspects of care perceived as less satisfactory compared to others and requiring improvement as a priority, according to the patients' viewpoint. A consecutive series of patients recruited prior to hospital discharge were asked to complete the CASC once back at home. This instrument was designed to assess the patients' perceptions of the quality of the medical and nursing care and services of the hospital and to determine their priorities for improvement of care. It demonstrated acceptable to good psychometric properties in a previous testing [11]. In order to be able to make precise recommendations to clinicians or hospital managers, this study also evaluated whether patients' socio-demographic or pre-discharge clinical characteristics were associated with their satisfaction ratings.

Concerning the identification of predictors for satisfaction with care, the small size of the sample relative to the number of potential predictors evaluated limits the implications of the results. The large number of variables included in the analyses does not allow the determination of stable estimates for predictors of satisfaction scores. So, in this repect, the results of this study must be considered cautiously.

However, the small size of the sample does not affect the validity of the information gathered on patient satisfaction in that particular institution for a given period of time. Regarding the interpretation of the CASC responses, since the goal of the CASC is to evidence clear contrasts between satisfaction levels for different aspects

**Table 3.** Pearson correlation (p value) between the CASC scales and continuous variables for patient characteristics and treatment-related variables (n = 97)[1]

| | D/Avai | D/Rel | D/Tech | D/Info | N/Rel | N/Tech | N/Com | C/Org | G/Sat |
|---|---|---|---|---|---|---|---|---|---|
| Age | 0.29<br>(0.00) | 0.30<br>(0.00) | 0.32<br>(0.00) | 0.26<br>(0.01) | 0.19<br>(0.07) | 0.27<br>(0.01) | 0.24<br>(0.02) | 0.36<br>(0.00) | – |
| Education[2] | –0.18<br>(0.08) | –0.22<br>(0.03) | –0.21<br>(0.04) | –0.21<br>(0.04) | –0.22<br>(0.04) | – | –0.21<br>(0.05) | – | – |
| Financial status | – | – | – | – | – | – | – | – | – |
| Length of hospital stay | 0.35<br>(0.00) | 0.28<br>(0.01) | 0.27<br>(0.01) | 0.28<br>(0.01) | 0.24<br>(0.03) | 0.24<br>(0.03) | 0.29<br>0.01 | – | – |
| Physical functioning[3] | – | – | –0.17<br>(0.01) | –0.22<br>(0.04) | –0.17<br>(0.10) | – | –0.26<br>(0.01) | – | – |
| Role functioning[3] | – | – | – | – | – | – | – | – | – |
| Emotional functioning[3] | – | – | –0.19<br>(0.07) | – | – | – | – | – | – |
| Cognitive functioning[3] | – | – | – | – | – | – | – | – | – |
| Global QOL[3] | 0.20<br>(0.05) | – | – | – | – | – | – | – | 0.19<br>(0.07) |
| Fatigue[4] | – | – | – | – | – | – | – | – | – |
| Nausea/vomiting[4] | – | – | – | – | – | – | – | – | – |
| Pain[4] | – | – | – | – | – | – | – | – | – |
| Dyspnoea[4] | – | – | – | – | – | – | – | – | – |
| Sleep troubles[4] | – | – | – | – | – | – | – | – | – |
| Appetite loss[4] | – | – | 0.22<br>(0.04) | – | – | – | – | – | – |
| Constipation[4] | – | – | – | – | – | – | – | – | 0.18<br>(0.08) |
| Diarrhoea[4] | – | – | – | – | – | – | – | – | – |
| Financial difficulties[4] | – | – | – | – | – | – | – | – | – |

D/Avai = Doctors' availability; D/Rel = doctors' interpersonal skills; D/Tech = doctors' technical skills; D/Info = doctors' provision of information; N/Rel = nurses' availability and interpersonal skills; N/Tech = nurses' technical skills; N/Com = nurses' provision of information; C/Org = organisation of care; G/Sat = general satisfaction; QOL = quality of life.

[1] Only correlations at $p < 0.10$ are reported.

[2] A higher score represents a higher level of education.

[3] A higher score represents a higher/healthy level of functioning or global health status.

[4] A higher score for a symptom scale represents a higher level of (i.e. more) symptoms/problems.

of care, the critical factor for sample gathering is rather the representativeness than the size. The sample for assessing satisfaction with care must be derived from a randomly selected collection of patients attending an institution during a given period of time. Particular attention should be paid to the analysis of non-respondents. An acceptable response rate in this study [16] and information on non-respondents' characteristics allow us to draw valid conclusions of practical interest on patient satisfaction in this particular institution for a given period of time. However, these results must not be generalised unless a much larger study assessing patients' perception of quality of care at multiple sites is undertaken.

Figure 1 highlights aspects of care for which patients expressed lower levels of satisfaction and for which an increased number of patients wanted improvement. Points displayed in the upper part of the plot represent aspects of care which should be prioritised for improvement.

Among responding patients, lower levels of satisfaction and desire for improvement of care were expressed with regard to the provision of information by doctors, compared to aspects of care such as doctors' or nurses' human quality and the environment of the hospital building. Thanks to the assessment of multiple aspects of care, the CASC allowed for contrasting ratings of satisfaction pro-

**Table 4.** Regression coefficients for variables associated with the CASC scales (n = 97)

| | | β coefficient | SE | p value |
|---|---|---|---|---|
| D/Availability | age | 0.465 | 0.169 | 0.008 |
| | length of hospital stay[a] | 1.196 | 0.340 | 0.001 |
| | global QOL[b] | 0.368 | 0.107 | 0.001 |
| | physical functioning[e] | –0.188 | 0.100 | 0.063 |
| | $R^2$ | 0.301 | | |
| D/Interpersonal skills | age | 0.541 | 0.183 | 0.004 |
| | length of hospital stay[a] | 0.997 | 0.369 | 0.008 |
| | global QOL[b] | 0.367 | 0.121 | 0.003 |
| | emotional functioning[e] | –0.228 | 0.114 | 0.048 |
| | $R^2$ | 0.249 | | |
| D/Technical skills | age | 0.477 | 0.150 | 0.002 |
| | length of hospital stay[a] | 0.751 | 0.305 | 0.016 |
| | appetite loss[c] | 0.135 | 0.067 | 0.048 |
| | emotional functioning[e] | –0.212 | 0.096 | 0.031 |
| | global QOL[b] | 0.378 | 0.101 | 0.000 |
| | $R^2$ | 0.315 | | |
| D/Information | age | 0.409 | 0.203 | 0.047 |
| | length of hospital stay[a] | 0.997 | 0.406 | 0.016 |
| | emotional functioning[e] | –0.226 | 0.125 | 0.075 |
| | physical functioning[e] | –0.223 | 0.121 | 0.069 |
| | global QOL[b] | 0.430 | 0.138 | 0.003 |
| | $R^2$ | 0.248 | | |
| N/Availability/Interpersonal skills | education[d] | –3.849 | 1.946 | 0.051 |
| | length of hospital stay[a] | 0.618 | 0.359 | 0.089 |
| | physical functioning[e] | –0.209 | 0.102 | 0.045 |
| | global health status[b] | 0.317 | 0.114 | 0.007 |
| | $R^2$ | 0.175 | | |
| N/Technical skills | age | 0.436 | 0.166 | 0.010 |
| | length of hospital stay[a] | 0.795 | 0.334 | 0.020 |
| | global QOL[b] | 0.170 | 0.097 | 0.084 |
| | $R^2$ | 0.153 | | |
| N/Communication skills | age | 0.388 | 0.219 | 0.080 |
| | length of hospital stay[a] | 1.039 | 0.439 | 0.020 |
| | physical functioning[e] | –0.315 | 0.129 | 0.017 |
| | global QOL[b] | 0.310 | 0.138 | 0.028 |
| | $R^2$ | 0.212 | | |
| Care organisation | age | 0.557 | 0.154 | 0.001 |
| | emotional functioning[e] | –0.202 | 0.096 | 0.038 |
| | global QOL[b] | 0.274 | 0.101 | 0.008 |
| | $R^2$ | 0.207 | | |
| General satisfaction | constipation[c] | $9.171 \times 10^{-2}$ | 0.044 | 0.039 |
| | emotional functioning[e] | –0.142 | 0.065 | 0.032 |
| | global QOL[b] | 0.204 | 0.070 | 0.005 |
| | $R^2$ | 0.134 | | |

All dependent variable scores range from 0 to 100. D = Doctors; N = nurses; QOL = quality of life; SE = standard error.

[a] Length of hospital stay is number of days.

[b] A higher score represents a higher (better) health status.

[c] A high score means a higher level of symptoms/problems.

[d] A higher score corresponds to a higher level of education.

[e] A higher score represents a higher (better) level of functioning.

vided by patients to a comprehensive list of care aspects relevant to the oncology hospital context. It also evidenced the implications of these ratings in terms of patients' desire for care improvement. This may allow the setting of priorities for enhancing care in a particular setting and given period of care.

The proportion of patients who sent back the CASC was in agreement with the mean response rate to satisfaction surveys reported in the literature [16]. At the same time, the collection of respondents' and non-respondents' socio-demographic and quality of life data evidenced that satisfaction scores originated from 73% of patients attending this hospital during the survey period who were younger and less ill. The conclusions of the analyses of the CASC responses are thus biased towards patients attending this hospital who were in better physical condition in the week prior to discharge. Further studies should attempt to obtain the opinion of patients in poorer physical condition by other survey methods.

The length of hospital stay predicted responses to the different doctors and nurses scales (higher satisfaction with longer hospital stay). At first sight, this result may appear surprising, since accelerated hospital discharge has been argued to present physical and psychological advantages [17]. In two recent studies, early discharge after breast cancer surgery appeared to be safe and well received in the months following surgery [18, 19]. However, this policy was accompanied by ample structured oral and written information before discharge, and by either daily telephone calls or visits by nurses or referral to community health nurses and provision of an emergency telephone number. In the present hospital setting, there was no specific care co-ordinator responsible for assuring continuity of care and the provision of sufficient information for self-care at home. The implication of this result is the necessity of enhancing patients' information and education regarding medical and nursing care at home before discharge.

A higher level of global quality of life was associated with higher satisfaction with the different aspects of care evaluated. The design of this study does not allow determination of the direction of the relationship between these variables. Since care providers may react differently according to patients' personality or behaviour, it may be hypothesised that care providers felt more at ease with patients who showed a more positive outlook and thus provided them with better care. Information on doctors' perception of patients could help in clarifying this point. However, it may also be that patients' perception of increased quality of care resulted in a better sense of well-being, suggesting that patients' quality of life is not only related to the effect of the disease and treatment, but also to the process of care delivery.

Only a small proportion of variance in satisfaction ratings was explained by the global score for quality of life. This implies that the CASC and the EORTC QLQ-C30 provided specific independent information on patients' subjective experience of care and illness. Both quality of life and patient satisfaction should be considered in order to monitor the quality of health care.

Satisfaction with care appeared to be related rather to subjective (patients' quality of life) than objective (e.g. disease stage) factors, suggesting that self-reported physical and mental health status are more important than clinical status variables in understanding patient satisfaction with care.

Patients with more severe appetite loss found the doctors' technical skills of better quality. Patients with more severe constipation were more satisfied overall. The same relationship was found for lower physical or emotional functioning and the perception of better availability and technical, interpersonal or communicational skills of doctors or nurses. The following interpretative hypotheses may be formulated: because of more severe symptoms or problems, patients felt more grateful for providers' interventions or experienced a more thorough and efficient medical care response, or because of more imperative care needs, they felt more dependent and thus were less likely to criticise the care they received.

The association of age, education level and satisfaction scores reflects data in the literature [20]. In this survey, this association was also present, evidencing evolving expectations regarding care provision relative to those in the past. Younger patients are less likely to compare present with past ('less advanced') care experience. Patients with a higher level of education generally present higher expectations with regard to the quality of care. For example, younger and more educated patients are generally more demanding of information on their health condition and possible treatments. Gender, financial status, geographic origin and disease stage were not associated with the CASC scales. This suggests that the medical and nursing care and services received in this hospital were equivalent regardless of these characteristics.

In conclusion, this study showed the feasibility of conducting a patient satisfaction survey in the oncology hospital setting, using a multidimensional patient satisfaction questionnaire to be completed at home. Information provision by doctors was highlighted as a primary source of dissatisfaction. This was evidenced particularly in patients undergoing a short hospital stay. Further satisfaction surveys in this oncology institute should strive to ascertain the opinion of patients with more severe physical conditions.

The procedures for data analyses exemplified in this study are simple (fig. 1) and may be easily applied in other health care settings, in order to evidence aspects that could contribute to improving the quality of care and services provided to patients. Regular monitoring of patient satisfaction using the same procedure for data collection could help to measure the effects of initiatives implemented to remedy the identified problems.

## Acknowledgements

This work was supported by grants from the American-Italian Cancer Foundation and the European Institute of Oncology Foundation.

## References

1 Fitzpatrick R: Scope and measurement of patient satisfaction; in Fitzpatrick R, Hopkins A (eds): Measurement of Patients' Satisfaction with Their Care. London, Royal College of Physicians of London, 1993, pp 1–17.

2 Wiggers JH, Donovan KO, Redman S, Sanson-Fisher RW: Cancer patient satisfaction with care. Cancer 1990;66:610–616.

3 Burton MV, Parker RW: Satisfaction of breast cancer patients with their medical and psychological care. J Psychosoc Oncol 1994;12:41–63.

4 Hutchinson G, Addington-Hall J, Bower M, Austen M, Coombes C: Evaluation de la satisfaction des patients quant aux soins dispensés par une équipe pluri-disciplinaire en oncologie. Eur J Cancer Care (Engl) 1991;1:16–20.

5 Liberati A, Confalonieri C, Martino G, Talamini R, Tamburini M, Viola P, Tognoni G: Patients' assessment of quality of care: A survey of a group of breast cancer patients in Italy. Tumori 1985;71:491–497.

6 Talamini R, Boz G, Franceschi S, Franchin G, Trovo MG: Evaluation of hospital care in a radiotherapy department of north-eastern Italy. Eur J Cancer 1991;27:1253–1258.

7 Thomas S, Glynne-Jones R, Chait I: Is it worth the wait? A survey of patients' satisfaction with an oncology outpatient clinic. Eur J Cancer Care (Engl) 1997;6:50–58.

8 Sitzia J: How valid and reliable are patient satisfaction data? An analysis of 195 studies. Int J Qual Health Care 1999;4:319–328.

9 Brédart A, Razavi D, Delvaux N, Goodman V, Farvacques C, Van Heer C: A comprehensive assessment of satisfaction with care for cancer patients. Support Care Cancer 1998;6:518–523.

10 Brédart A, Razavi D, Robertson C, Didier F, Scaffidi E, de Haes JCJM: A comprehensive assessment of satisfaction with care: Preliminary psychometric analysis of an oncology institute in Italy. Ann Oncol 1999;10:839–846.

11 Brédart A, Razavi D, Robertson C, Batel-Copel L, Larsson G, Lichosik D, Meyza J, Schraub S, von Essen L, de Haes JCJM: A comprehensive assessment of satisfaction with care: Preliminary psychometric analysis in French, Polish, Swedish and Italian oncology patients. Pat Educ Counsel 2001;43:243–252.

12 Aaronson NK, Ahmedzai S, Bergman B, et al: The European Organization for Research and Treatment of Cancer QLQ-C30: A quality-of-life instrument for use in international clinical trials in oncology. J Natl Cancer Inst 1993;85:365–376.

13 Statexact 4.0. Cambridge, Cytel Software Corporation, 1989–1999.

14 SPSS Base 7.5. Chicago, SPSS, 1997.

15 Fayers P, Weeden S, Curran D: EORTC QLQ-C30 Reference values. Brussels, European Organisation for Research and Treatment of Cancer Quality of Life Study Group, 1998.

16 Sitzia J, Wood N: Response rate in patients satisfaction research: An analysis of 210 published studies. Int J Qual Health Care 1998;10:311–317.

17 Kambouris A: Physical, psychological, and economic advantages of accelerated discharge after surgical treatment for breast cancer. Am Surg 1996;62:123–127.

18 Bonnema J, van Wersch AMEA, van Geel AN, Pruyn JFA, Schmitz PIM, Paul MA, Wiggers T: Medical and psychosocial effects of early discharge after surgery for breast cancer: Randomised trial. BMJ 1998;316:1267–1270.

19 Bundred N, Maguire P, Reynolds J, Brimshaw J, Morris J, Thompson L, Barr L, Baildam A: Randomised controlled trial of effects of early discharge after surgery for breast cancer. BMJ 1998;317:1275–1279.

20 Hall JA, Dornan MC: Patient sociodemographic characteristics as predictors of satisfaction with medical care: A meta-analysis. Soc Sci Med 1990;30:811–818.