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Original Paper

Quality of Life Assessment in Daily Clinical Oncology Practice: a Feasibility Study

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Quality of life (QL) assessments are increasingly being included in clinical trials, but their use in clinical practice is still uncommon. The objectives of this study were to investigate the feasibility of introducing individual QL assessments into the daily routine of an out-patient oncology clinic, and the potential impact of such assessments on doctor–patient communication. The study sample included six physicians and 18 of their patients from the out-patient clinic of the Netherlands Cancer Institute/ Antoni van Leeuwenhoek Hospital in Amsterdam, The Netherlands. For each patient, three follow-up consultations were observed. The first visit was employed for the purpose of a baseline measurement. At the two subsequent visits, the patients were asked to complete the EORTC QLQ-C30, a standardised cancer-specific QL questionnaire. The patients' responses were computer-scored and transformed into a graphic summary. The summary included current scores as well as those elicited at the previous visit. Both the physicians and the patients received a copy of the summary just prior to the medical consultation. Completing, scoring and printing the QL data could be done during waiting room time. The availability of the summary did not lengthen the average consultation time. A small increase was noted in the average number of QL issues discussed per consultation. However, the most notable trend was the increased responsibility taken by the physicians in raising specific QL issues for discussion. When the QL summary was available, the physicians raised three times as many topics than was the case prior to its use ($P < 0.05$). All six physicians and the majority of patients believed that the QL summary facilitated communication, and expressed interest in continued use of the procedure. The introduction of individual QL assessments in routine out-patient oncology practice is feasible and appears to stimulate physicians to inquire into specific aspects of the health and well-being of their patients. However, given the methodological limitations of this pilot study, the results should be interpreted with caution.

Key words: quality of life assessment, neoplasm, clinical practice, doctor–patient communication
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INTRODUCTION

In recent years, major strides have been made in developing brief, easy to complete, self-report questionnaires that yield valid and reliable information on patients' health status and quality of life (QL). Typically, such questionnaires address an array of topics, including recently experienced symptoms, current levels of physical, psychological and social functioning, as well as overall perceived health status and QL. The majority of work in this area has focused on QL questionnaires as tools for use in clinical research. More recently, a number of studies have investigated their potential use in daily clinical practice in monitoring disease progression or therapeutic response, screening for physical or psychosocial problems and improving the delivery of care [1–5].

The use of standardised QL information in facilitating communication between physicians and patients can be seen as a first step toward its use in the care process, in that the form, content and quality of such communication may

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influence decisions about treatment [6]. Especially in the case of cancer, a disease which has a major impact on all aspects of patients' lives, physicians need to be well-informed about the range of physical, functional and psychosocial problems confronting their patients.

Of course, QL considerations have always played a role in oncology care, albeit often implicitly and informally. The typical question asked by a doctor at the beginning of a medical visit—'How are you feeling?'—can be viewed as a global inquiry into the patient's QL. More targeted questions about the patient's symptoms and level of functioning, as well as the patient's spontaneous remarks or questions, form an integral component of doctor–patient communication. However, the available literature suggests that physicians vary widely in their ability to elicit relevant information from their patients, and patients vary in their ability to articulate their problems and concerns [7–12]. The resulting situation is one in which physicians are often inadequately informed about the nature and extent of their patients' problems [13–17]. Physicians frequently underestimate their patients' level of physical functioning and the severity of important symptoms, such as pain, yet they also tend to rate their patients as having a more compromised QL than do the patients themselves [18, 19]. Additionally, physicians often fail to recognise the presence of heightened levels of psychological distress in their patients [11, 20–22].

To structure and facilitate doctor–patient communication and increase physicians' awareness of their patients' concerns, it could be helpful to direct concrete attention to particular aspects of patients' QL. More specifically, the availability of standardised QL information might form a useful basis for identifying issues of concern to patients and thereby provide physicians with potential topics to discuss during medical consultations.

A number of studies have reported positive effects of standardised QL information on physicians' perceived awareness of their patients' problems and concerns [23–26]. To our knowledge, however, only one study has investigated the impact of such information on physicians' actual behaviour during medical consultations. Street and colleagues [27] found that the standard provision of QL information had little effect on the communication between obstetricians and their (pregnant) patients. However, the authors suggested that this may have been due to the specific patient and physician sample under study. The patients were healthy, pregnant women, 50% of whom expressed little or no desire for their doctor to inquire specifically about psychosocial issues. The physicians were residents in obstetrics and gynaecology with relatively little experience in routine prenatal care.

In the pilot study reported here, the focus is on patients with more serious medical conditions, and on medical specialists with extensive clinical experience. The primary objectives of the study were: (1) to determine the feasibility, in a practical sense, of administering a brief, self-report QL questionnaire to patients in the course of routine daily practice in an out-patient oncology clinic; (2) to investigate whether the information generated by such a questionnaire increases physicians' awareness of the physical and psychosocial problems of their patients, and facilitates doctor–patient communication regarding these problems; and (3) to evaluate patients' and physicians' attitudes toward incorporating such standardised QL information into routine out-patient oncology care.

PATIENTS AND METHODS

Study sample

The study was carried out at the Antoni van Leeuwenhoek Hospital, a specialised cancer treatment centre located in Amsterdam. The physician sample included six medical specialists; two from each of the three major disciplines involved in the care of patients with cancer: medical oncology, surgery and radiotherapy. 20 out-patients participated in the study; 10 under the care of the medical oncologists, 5 surgical patients and 5 radiotherapy patients. These patients were selected consecutively from the out-patient clinic caseload of the participating physicians. All patients had seen their physician previously (the median number of previous contacts was 8.4, with a range of 2–30 contacts). The only exclusion criteria were: (1) a frequency of scheduled out-patient visits lower than once per 2 months; and (2) lack of literacy in the Dutch language. All patients asked to participate in the study agreed to do so. The study was approved by the institutional review board of the hospital.

Study procedures

For each patient, three successive follow-up visits were observed. The first visit was employed as a baseline assessment. At the subsequent two visits, the patients were asked to complete a QL questionnaire, the EORTC QLQ-C30 [28], during waiting room time. Immediately upon completing the questionnaire, the patient's responses were computer-scored and converted into a graphic summary (i.e. a series of bar charts). The QL summary generated at the third visit included both the patient's current scores, as well as those generated at the previous visit. Figure 1 provides an example of such a QL summary.

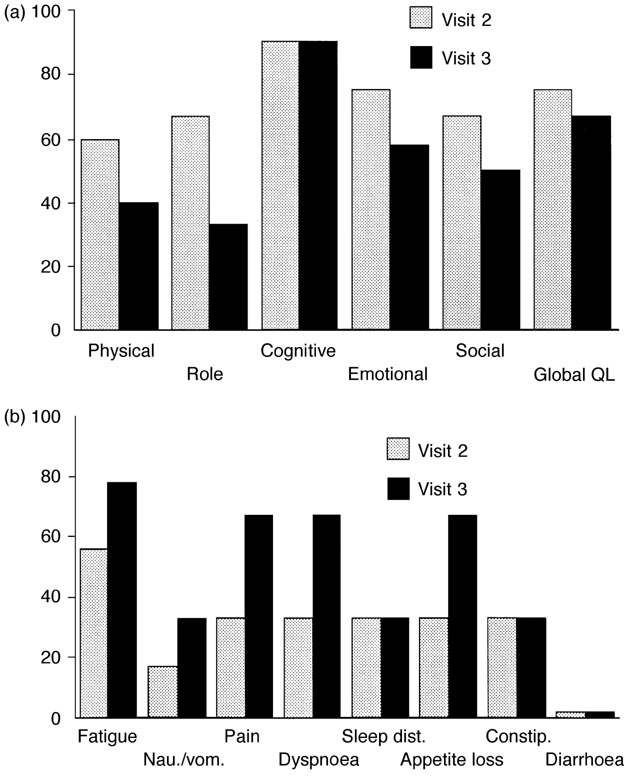

Figure 1. Example of the QL summary. (a) Functioning scales. (b) Symptom scales. Higher scores represent higher levels of functioning or higher levels of symptomatology. dist., disturbed; constip., constipation; nau./vom., nausia and vomiting.

Both the patient and the physician received a copy of the QL summary just prior to the medical consultation, and both were given a brief explanation of how the scores should be interpreted. After the consultation, one copy of the QL summary was filed in the patient's medical chart.

QL assessment

The patient's QL was assessed with the EORTC QLQ-C30, a 30 item, cancer-specific questionnaire designed for patient self-completion. It is organised into five functional scales (physical, role, cognitive, emotional and social), three symptom scales (fatigue, pain and nausea and vomiting), and a global QL scale. The remaining single items assess additional symptoms commonly reported by cancer patients (dyspnoea, appetite loss, sleep disturbance, constipation and diarrhoea), as well as the perceived financial impact of the disease and treatment. For the majority of items, a 4-point Likert-type response scale is used. For ease of presentation and interpretation, all subscale and individual item responses are linearly converted to a 0–100 scale. For the functional and global QL scales, a higher score represents a better level of functioning. For the symptom scales and items, a higher score reflects a greater degree of symptomatology. The time-frame of the questionnaire encompasses the previous week.

Process and outcome measures

A research assistant monitored the patients as they completed the questionnaire, noting whether the patients were able to complete the questionnaire without assistance, the time required to complete it, and the time required to score and print the results.

The research assistant was present during the medical consultation. A checklist was employed to note which topics were discussed, and who took the initiative (the doctor or the patient) to raise a particular topic for discussion. This checklist of topics was designed to parallel the content areas of the QLQ-C30, and only those topics covered by the questionnaire were rated. The total duration of each medical consultation was also recorded.

Prior to the first (baseline) out-patient visit, the patients were asked to rate how important it was to them that their physician be well-informed about their level of both physical and psychosocial functioning. Following both the baseline and the third out-patient visit, both patients and physicians were asked to rate, on a 5-point scale, their overall satisfaction with their communication during the consultation. They were also asked to rate the physician's awareness of the patient's QL (i.e. three questions about awareness of physical functioning, emotional functioning and functioning in daily life).

Additionally, after the third visit, the physicians and patients were asked whether: (1) the QL summary had had any effect on their communication and, if so, whether that effect was positive or negative; and (2) whether specific topics had been discussed as a direct consequence of the QL summary and, if so, which topics. Finally, during a brief interview conducted at the end of the study, they were asked to provide an overall rating of the value of the QL summary as an aid in facilitating doctor–patient communication.

Statistics

Student's *t*-test was employed to test for changes over time in the frequency with which various QL topics were discussed, and the frequency with which the doctor versus the patient initiated such discussions. The Mann–Whitney test was employed to compare baseline versus follow-up ratings of the physicians' awareness levels, and of satisfaction with the quality of the communication during the consultations.

RESULTS

Patient sample characteristics

During the study period, 2 of the 20 patients discontinued their participation (one changed to another physician; the other was admitted to the hospital on an in-patient basis). The mean age of the participating patients was 58 years (range 29–85 years). 11 of the 18 patients were female. 10 of the patients had breast cancer, 5 head and neck cancer, and 3 cancer of the lymphatic system. 9 of the patients were receiving chemotherapy or hormonal therapy; 4 patients were undergoing radiotherapy and 5 patients were in follow-up.

Feasibility of the procedures

As planned, all 18 participating patients completed the QLQ-C30 at the second and third out-patient visits. The mean time elapsed between administrations was 5 weeks. All but 1 patient completed the questionnaires without assistance. This patient required help because of poor eyesight. Completion of the questionnaire required, on average, 5.5 min (range 2.5–13 min), and could always be accomplished during the available waiting room time. Scoring and printing of the QL summary required approximately 3 min.

Quantitative aspects of doctor–patient communication

Introduction of the QL summary as part of the medical consultation had no impact on the duration of contact between doctor and patient. At the baseline visit, where no QL summary was available, the mean duration of the consultations was 7.7 min (standard deviation (S.D.) 3.8 min). The mean duration of the second and third visits, at which time the QL summary was provided, was 7.9 min (S.D. 4.1 min) and 7.7 min (S.D. 3.9 min), respectively.

The frequency with which various QL topics were discussed, and the initiator of these discussions (doctor or patient) are presented in Table 1. As the pattern of results for the second and third visits (during which the QL summary was available) was very similar, the comparisons presented are between the baseline visit and the third visit.

There were no statistically significant differences observed in the frequency with which the functioning of the patient, in either physical or psychosocial terms, was addressed at the baseline versus the third visit (17 times versus 19 times). Similarly, although a slight trend was observed towards increased discussion of physical symptoms at the third visit (39 times) as compared with the baseline visit (31 times), this difference did not reach conventional levels of statistical significance. At both the baseline and the third visit, an approximate ratio of 2:1 was observed in the frequency with which symptoms were discussed, as compared with the patient's level of functioning.

A significant shift was noted over time in the frequency with which the patient versus the physician initiated discussion of various issues relating to the patient's functioning and symptom experience. At baseline, it was primarily the patient who took the initiative to discuss these topics (in approximately 70% of the cases). At the third visit, this pattern was reversed, with the physician taking the initiative in

Table 1. *Total number of topics discussed and initiated by physician and patient at baseline and second follow-up visit*

	Baseline (first visit; $n = 18$)			Follow-up (third visit; $n = 18$)		
	No of topics discussed	Initiator		No of topics discussed	Initiator	
		Physician	Patient		Physician	Patient
Functioning						
Physical	5	2	3	8	7	1
Emotional	4	0	4	3	1	2
Role	4	1	3	4	3	1
Social	3	1	2	4	3	1
Cognitive	1	0	1	0	0	0
Total (function)	17	4	13	19	14	5
Symptoms						
Fatigue	7	2	5	6	4	2
Pain	7	2	5	9	5	4
Nausea	4	0	4	4	3	1
Gastrointestinal	3	1	2	5	4	1
Appetite loss	7	4	3	9	8	1
Insomnia	3	1	2	3	3	0
Dyspnoea	0	0	0	3	3	0
Total (symptom)	31	10	21	39	30	9
Total	48	14	34	58	44	14

approximately 75% of the cases ($P < 0.05$). This trend was observed across virtually all topics discussed.

Physicians' awareness of patients' QL

At the baseline visit, 16 of the 18 patients reported that they considered it important that their physician be aware of not only the physical aspects of their disease and its treatment, but also of the consequences for daily life and psychosocial functioning (data not shown in tabular form). As can be seen in Table 2, at baseline, the majority of patients rated their physician as being well-informed about their symptom experience, but not about their level of psychosocial functioning or activities of daily living. At the third visit, an increase was observed in the number of patients who perceived their physician as being well-informed about these latter issues, although the differences were not statistically significant. Parallel ratings provided by the physicians themselves indicated a statistically significant increase in the perceived awareness from the baseline to the third visit of the patients' activities of daily living ($P = 0.028$).

Perceived impact and value of the QL summary

Half of the patients believed that the QL summary had a positive influence on their communication with their doctor; that it made explicit the specific effects of the disease and treatment on their physical and psychosocial well-being. The other 9 patients did not perceive any change in the nature or quality of their communication as a result of the QL summary. 4 of these latter patients expressed some disappointment that not all of the issues raised in the QL summary were actually discussed during the medical visit. All of the patients stated that they would be willing to complete the QLQ-C30 as a regular part of their out-patient clinic care, and all but 1 patient believed that the QL summary could be useful in facilitating communication with their doctor.

The physicians reported that the QL summary had a positive impact on communication in 13 of the 18 cases. In the remaining 5 cases, the summary was rated as having had no impact, either positive or negative. All six of the participating physicians believed that the QL summary provided a useful, overall impression of their patients' functional health and symptom experience. None of the physicians found the summary to be disruptive of their 'normal' pattern of communication with their patients. Three of the physicians mentioned spontaneously that the QL summary increased the efficiency with which they were able to elicit relevant information from their patients. All physicians expressed interest in continued use of this procedure.

Table 2. *Patients'* ($n = 18$) *and physicians' ratings of the physicians' awareness of the patients' health status*

	Physician judged as well-informed by patient		Physician judged as well-informed by physician	
Health status	Baseline	Follow-up	Baseline	Follow-up
Physical symptoms	17	18	14	13
Activities daily living	6	9	1	9*
Emotional functioning	2	7	6	5

*$P = 0.028$.

DISCUSSION

The results of this small study support the feasibility of introducing standardised QL assessments into the daily routine of an out-patient oncology clinic. The QL questionnaire employed in this study could be completed by the large majority of patients quickly and without assistance, and the results were available in a matter of minutes. Administration and scoring of the questionnaire could always be accomplished during the time that the patients were waiting to see their doctor.

One of the concerns raised by the participating physicians prior to the start of the study was that the introduction of the QL summary might lengthen the time required per patient, and thus would result in longer waiting times at the out-patient clinic. This did not prove to be the case. No increase was observed in the average time spent per patient after the introduction of the procedure. On the contrary, some of the physicians indicated that the availability of the QL summary had increased their efficiency; that it enabled them to focus quickly on issues that required further discussion with their patients.

While a small increase in the average number of QL issues discussed was noted after the introduction of the questionnaire, the most notable trend observed was the increased responsibility taken by the physicians in raising specific QL issues for discussion. When the QL summary was available, the physicians raised three times as many topics than was the case prior to its use.

A significant increase over time was observed in the physicians' perceived awareness of their patients' problems in daily living. In part, this might simply reflect the passage of time (i.e. the more often a physician has contact with a patient, the better he gets to know him). However, we should point out that all consultations, including the baseline consultation, were follow-up visits, and thus the physician–patient pairs had already had at least several previous contacts. Thus, it seems unlikely that the observed change in perceived awareness reflects a time effect only, but rather is also due to the availability of the QL summary.

We recognise that a simple count of the number of topics raised and by whom is insufficient for evaluating the nature and quality of doctor–patient communication. It would have been desirable to audiotape or videotape the medical consultations in order to analyse more thoroughly the effect of the QL summary information on both the content and style of communication (e.g. the use of open-ended versus closed-ended questions). We chose not to do so in this pilot study because a primary aim of the study was to determine whether the introduction of the QL summary disrupts the 'natural' interaction between physicians and their patients. We were concerned that the use of audiotaping or videotaping would, in and of itself, have had a disruptive effect. Although the presence of a research assistant might also have influenced the behaviour of the physicians and patients, we considered this influence to be of a lesser magnitude. The physicians and patients were accustomed to having another person (e.g. a nurse or a resident) present during their consultations, and neither was aware of the fact that the research assistant was noting the frequency with which QL topics were discussed.

The extant literature on doctor–patient communication suggests that the observed increase in initiative taken by the physicians in raising QL issues for discussion with their patients can be viewed in a positive light. In the absence of such prompting, patients may hesitate to 'burden' their doctor with their problems and, thus, will often leave things unsaid or will tend to raise psychosocial concerns at the end of the visit when there is little time left to discuss them [7, 29, 30]. The research literature also suggests that increased initiative on the part of physicians in addressing the concerns and problems of their patients can have a salutary effect on patient and physician satisfaction with medical encounters. Patient satisfaction with office visits has been found to be associated significantly with the perception that the doctor is interested and concerned about their problems [31, 32]. Similarly, patients appear to be most satisfied with interactions in which their point of view is actively elicited by their doctor [33, 34]. The potential value of the QL summary as used in the current study is that it signals to the patient that his or her doctor is interested in and prepared to talk about a wide range of health-related issues. Importantly, physicians also appear to be more satisfied with medical encounters when they are successful in eliciting important information from their patients [35, 36]. Of course, such a QL summary can never substitute for the natural dynamics of doctor–patient communication and interaction. It can, however, be viewed as a valuable tool for structuring the information-gathering process.

In summary, the results of this pilot study indicate that the introduction of individual QL assessments into an out-patient oncology clinic is feasible, and appears to facilitate communication between patients and their physicians. At the same time, the methodological limitations of this study (small sample size, short follow-up period, absence of a control group, and the lack of more qualitative data on doctor–patient interactions) emphasise the need for cautious interpretation of the results. Nevertheless, the findings are sufficiently encouraging to warrant further research. Toward this end, we have recently initiated a prospective, randomised study to investigate in a more rigorous manner the value of standardised QL information in daily clinical practice. The study sample includes 10 medical oncologists and 200 of their patients who are receiving out-patient palliative treatment. The two primary outcomes are: (1) the content and quality of doctor–patient communication, and (2) the physicians' awareness of their patients' levels of physical and psychosocial functioning. To evaluate doctor–patient communication, audiotapes are made of all medical visits. The taped consultations will be submitted to an in-depth analysis, using the Roter Interaction Analysis System (RIAS) [37]. To evaluate physicians' awareness, comparisons will be made between physicians' and patients' ratings on the COOP/WONCA Functional Health Assessment Charts [26]. Additional outcome parameters include patients' and physicians' satisfaction with their medical interactions, physicians' medical chart notations and patients' QL over time. If demonstrated to be effective, the relative simplicity of the intervention would recommend its use in a wide range of treatment settings, including both academic and community-based practice settings.

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1. Deyo RA, Carter WB. Strategies for improving and expanding the application of health status measures in clinical settings. A researcher–developer viewpoint [Review]. *Med Care* 1992, **30**, MS176–MS186.
2. Greenfield S, Nelson EC. Recent developments and future issues in the use of health status assessment measures in clinical settings [Review]. *Med Care* 1992, **30**, MS23–MS41.
3. Thier SO. Forces motivating the use of health status assessment measures in clinical settings and related clinical research. *Med Care* 1992, **30**, MS15–MS22.
4. Lohr KN. Applications of health status assessment measures in clinical practice. Overview of the third conference on advances in health status assessment. *Med Care* 1992, **30**, MS1–MS14.
5. Wasson J, Keller A, Rubenstein L, Hays R, Nelson E, Johnson D. Benefits and obstacles of health status assessment in ambulatory settings. The clinician's point of view. The Dartmouth Primary Care COOP Project. *Med Care* 1992, **30**, MS42–MS49.
6. Tsevat J, Weeks JC, Guadagnoli E, *et al.* Using health-related quality-of-life information: clinical encounters, clinical trials, and health policy. *J Gen Intern Med* 1994, **9**, 576–582.
7. Beckman HB, Frankel RM. The effect of physician behavior on the collection of data. *Ann Intern Med* 1984, **101**, 692–696.

8. Funch DP. Predictors and consequences of symptom reporting behaviors in colorectal cancer patients. *Med Care* 1988, **26**, 1000–1008.
9. Ley P. Satisfaction, compliance and communication. *Br J Clin Psychol* 1982, **21**, 241–254.
10. Penman DT, Holland JC, Bahna GF, *et al.* Informed consent for investigational chemotherapy: patients' and physicians' perceptions. *J Clin Oncol* 1984, **2**, 849–855.
11. Maguire P, Faulkner A, Booth K, Elliott C, Hillier V. Helping cancer patients disclose their concerns. *Eur J Cancer* 1996, **32A**, 78–81.
12. Siminoff LA, Fetting JH, Abeloff MD. Doctor–patient communication about breast cancer adjuvant therapy. *J Clin Oncol* 1989, **7**, 1192–2000.
13. Calkins DR, Rubenstein LV, Cleary PD, *et al.* Failure of physicians to recognize functional disability in ambulatory patients [see comments]. *Ann Intern Med* 1991, **114**, 451–454.
14. Goldberg R, Guadagnoli E, Silliman RA, Glicksman A. Cancer patients' concerns: congruence between patients and primary care physicians. *J Cancer Educ* 1990, **5**, 193–199.
15. Nelson E, Conger B, Douglass R, *et al.* Functional health status levels of primary care patients. *J Am Med Assoc* 1983, **249**, 3331–3338.
16. Pearlman RA, Uhlmann RF. Quality of life in chronic diseases: perceptions of elderly patients. *J Gerontol* 1988, **43**, M25–M30.
17. Sensky T, Dennehy M, Gilbert A, *et al.* Physicians' perceptions of anxiety and depression among their outpatients: relationships with patients and doctors' satisfaction with their interviews [Review]. *J R Coll Physicians Lond* 1989, **23**, 33–38.
18. Sprangers MA, Aaronson NK. The role of health care providers and significant others in evaluating the quality of life of patients with chronic disease: a review. *J Clin Epidemiol* 1992, **45**, 743–760.
19. Slevin ML, Plant H, Lynch D, Drinkwater J, Gregory WM. Who should measure quality of life, the doctor or the patient? *Br J Cancer* 1988, **57**, 109–112.
20. Cull A, Stewart M, Altman DG. Assessment of and intervention for psychosocial problems in routine oncology practice. *Br J Cancer* 1995, **72**, 229–235.
21. Ford S, Fallowfield L, Lewis S. Can oncologists detect distress in their out-patients and how satisfied are they with their performance during bad news consultations?. *Br J Cancer* 1994, **70**, 767–770.
22. Paykel ES, Priest RG. Recognition and management of depression in general practice: consensus statement [see comments] [Review]. *Br Med J* 1992, **305**, 1198–1202.
23. Kazis LE, Callahan LF, Meenan RF, Pincus T. Health status reports in the care of patients with rheumatoid arthritis. *J Clin Epidemiol* 1990, **43**, 1243–1253.
24. Goldsmith G, Brodwick M. Assessing the functional status of older patients with chronic illness. *Fam Med* 1989, **21**, 38–41.
25. Rubenstein LV, Calkins DR, Young RT, *et al.* Improving patient function: a randomized trial of functional disability screening. *Ann Intern Med* 1989, **111**, 836–842.
26. Nelson E, Wasson J, Kirk J, *et al.* Assessment of function in routine clinical practice: description of the COOP Chart method and preliminary findings. *J Chron Dis* 1987, **40**(Suppl. 1), 55S–69S.
27. Street RL Jr, Gold WR, McDowell T. Using health status surveys in medical consultations. *Med Care* 1994, **32**, 732–744.
28. 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.
29. White J, Levinson W, Roter D. "Oh, by the way ...": the closing moments of the medical visit. *J Gen Intern Med* 1994, **9**, 24–28.
30. Barsky AJ. Hidden reasons some patients visit doctors. *Ann Intern Med* 1981, **94**, 492–498.
31. Blanchard CG, Ruckdeschel JC, Blanchard EB, Arena JG, Saunders NL, Malloy ED. Interactions between oncologists and patients during rounds. *Ann Intern Med* 1983, **99**, 694–699.
32. Bensing J, Schreurs K, Rijk A de. The role of the general practitioner's affective behavior in medical encounters. *Psychol Health* 1996, **11**, 825–838.
33. Stewart MA. What is a successful doctor–patient interview? A study of interactions and outcomes. *Soc Sci Med* 1984, **19**, 167–175.
34. Bertakis KD, Roter D, Putnam SM. The relationship of physician medical interview style to patient satisfaction [see comments]. *J Fam Pract* 1991, **32**, 175–181.
35. Arborelius E, Timpka T. General practitioners' comments on video recorded consultations as an aid to understanding the doctor–patient relationship. *Fam Pract* 1990, **7**, 84–90.
36. Inui TS, Carter WB. Problems and prospects for health services research on provider–patient communication. *Med Care* 1985, **23**, 521–538.
37. Roter DL. The influence of patient characteristics on communication between the doctor and the patient. *Huisarts Wet* 1991, **34**, 295–301.