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Patient Education and Counseling 54 (2004) 207–212

Patient Education and Counseling

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Validation of the EORTC QLQ-SAT32 cancer inpatient satisfaction questionnaire by self- versus interview-assessment comparison

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Received 24 January 2003; received in revised form 20 June 2003; accepted 6 July 2003

Abstract

Doubts are expressed on the validity of patient satisfaction questionnaires. High satisfaction levels are consistently reported. Within the European Organisation for Research and Treatment of Cancer (EORTC) quality of life group, we developed a cancer inpatient satisfaction questionnaire (QLQ-SAT32), adopting several precautions to overcome the ceiling effect commonly reported in satisfaction ratings. Since patients are often more critical when expressing themselves in an interview, in order to study the validity of the QLQ-SAT32, we assessed the agreement between self- and interview-administered QLQ-SAT32 responses. One hundred and twenty three patients were asked to complete the QLQ-SAT32 at home within 2 weeks of hospital discharge and were randomly allocated to participate in a telephone interview-administration of the QLQ-SAT32, either before or after self-completing the QLQ-SAT32. One hundred and four of them completed both modalities of questionnaire administration. Correlation and agreement between self- and interview-administered QLQ-SAT32 ratings were examined, for each subscale and the general satisfaction item of the QLQ-SAT32, using Spearman correlation, intra-class correlation coefficients (ICC) or weighted kappa coefficients. Agreement showed excellent for the doctors' and nurses' subscales and satisfactory for the services' subscale and the general satisfaction single item. The telephone interview-administration modality did not prove an adequate procedure to assess the validity of a patient satisfaction questionnaire.

Keywords: Patient satisfaction; Validation; Inpatient; Cancer; Questionnaire

1. Introduction

Patient satisfaction, or patient's judgement of care quality is now recognised to be essential in the definition of quality in health care. Patient satisfaction is an endpoint of health care. This measure reflects the patients' response given to their health care needs and expectations. Moreover, this evaluation can reveal aspects of care that may be improved in an institution and can be used to define priorities among the aspects in need for improvement.

Many patient satisfaction surveys have been published in the literature. However, doubts have been voiced concerning the validity of these survey results. Most of them report high satisfaction levels [1], although major unmet care needs are frequently observed. For example, in the field of oncology, the management of pain [2] or psychological, physical, social and financial problems at various phases of cancer [3–5] has been shown to be inadequate.

Conceptual and methodological difficulties in patient satisfaction assessment are both suggested to explain this contrast between responses to patient satisfaction surveys and the reality of health care. Firstly, at the conceptual level, different variables related to patients (and not exclusively to the reality of care) have been proposed as potential determinants of satisfaction with care. Among them, 'expectations' emerged as playing an essential role [6–8] although the relationship between expectations and satisfaction is not straightforward. For example, testing the 'value-expectancy' model whereby satisfaction is based on beliefs (expectations) strength and evaluations of dimensions of care, Linder-Pelz [9] found that expectations, value and perceived occurrences taken together only accounted for 10% of the explained variance in satisfaction, even if expectations appeared the strongest predictor.

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doi:10.1016/S0738-3991(03)00210-6

A number of so-called "social-psychological artefacts" (e.g. social desirability, gratitude) also determine patients' satisfaction responses. These are likely to influence an over-favourable patient assessment of care [10]. A study using a qualitative research method suggests that a "care dissatisfaction" response only occurs when the patient has had a health care experience that he/she perceives and interprets as being negligence or a serious fault in terms of the care received [11].

Still at a conceptual level, although initially considered as a global concept to be measured by a single item (e.g. "How satisfied are you with the medical care you received?") [12], patient satisfaction is now viewed as a multi-dimensional construct necessitating the use of multi-item scales [6]. There has been some evidence that patients develop distinct attitudes towards the different characteristics of providers and health care services. Moreover, considering the over-reporting of high satisfaction levels in satisfaction surveys, it has been recommended to assess detailed and specific aspects of care in order to ensure greater response variability [13].

Secondly, at the methodological level, different factors raise doubts on the credibility of most current satisfaction survey findings. Of utmost importance, many patient satisfaction instruments have not undergone appropriate testing for psychometric properties. Sitzia [1] evidenced that among 181 quantitative studies, 6% only reported content validity and criterion validity, or construct validity and reliability. Validity testing aims to determine whether the questionnaire findings reflect reality. According to Goodwin [14] one type of validity evidence is based on responses processes and is a component of construct-related evidence. It addresses the question, "To what extent does the type of responses in which examinees engage fit the intended construct?". This kind of validation includes analysing individual responses via interviews with respondents. To our knowledge, it has rarely been performed for satisfaction questionnaires.

The European Organisation for Research and Treatment of Cancer (EORTC) inpatient satisfaction questionnaire (QLQ-SAT32) was elaborated in the context of the European Organisation for Research and Treatment of Cancer quality of life group according to a four-phase procedure: (1) selection of questions based on the literature and interviews of patients and oncology specialists; (2) formalization of the questionnaire in line with EORTC QOL questionnaires [15]; (3) pilot tests on patient samples in various socio-cultural contexts [16,17]; (4) international validation study on a large sample (underway).

The EORTC QLQ-SAT32 is designed to evaluate the cancer inpatient's perception of the quality of medical and nursing care, and the organisation of care and services received during admission to an oncology unit. Several precautions have been adopted to improve the variability in satisfaction responses. Firstly, a multi-dimensional questionnaire on specific aspects that are important to the patient was chosen. As mentioned above, greater response variability is found with regard to specific aspects of care [13]. The EORTC QLQ-SAT32 is comprised 32 questions divided into three subscales evaluating: (1) the medical team; (2) the nursing team; (3) organisation of care and services; and includes (4) a question evaluating general patient satisfaction (Table 1). These subscales assess doctors' and nurses' technical and interpersonal skills, information provision and availability. It also evaluates the perception of other members of the hospital staff, their kindness, helpfulness, the information they provide; exchange of information between caregivers; waiting time (to implement medical tests and/or treatments; to obtain results of medical tests); accessibility of the hospital; its level of cleanliness, calmness, spaciousness.

Table 1
The subscales and dimensions of EORTC QLQ-SAT32

The EORTC QLQ-SAT32 (32 aspects of care)
Doctors
Technical skills (3)
Information (3)
Interpersonal qualities (3)
Availability (2)
Nurses
Technical skills (3)
Information (3)
Interpersonal qualities (3)
Availability (2)
Services
Interpersonal quality/information (3)
Exchange of information (1)
Waiting time (2)
Accessibility (2)
Comfort (1)
General satisfaction
Global evaluation of care (1)

The values in parenthesis represent number of items.

Secondly, the EORTC QLQ-SAT32 comprises a response scale providing more favourable than unfavourable options on the quality of care. This is a Likert type of response scale with five modalities of response: "poor", "fair", "good", "very good", "excellent", which, according to the literature, offers a greater variability of satisfaction scores and therefore a greater clinical usefulness [18].

1.1. Study objective

The present study is aimed at providing evidence of the validity of the EORTC QLQ-SAT32, by analysing patients' self-report responses via interview-administration of this questionnaire [14]. We assessed whether responses given by patients to the EORTC QLQ-SAT32 self-administered at home agreed with those provided to the same questionnaire issues, but administered in the context of a telephone interview. It has been noted that "patients often display a more critical nature when given the opportunity, through more open-ended questions to express themselves in their own terms" [19,20]. In a recent study assessing patient

satisfaction in the context of anaesthesia, questions were answered consistently in a more critical manner during the face-to-face interview than through the self-reported questionnaire [21].

2. Methods

2.1. Development of the interview protocol

A semi-structured interview procedure focusing on patients' hospital stay experience was developed, as described by Ware et al. [6]. This interview was designed: (1) to encourage the patient to describe positive or negative experiences concerning various aspects of care evaluated by the EORTC QLQ-SAT32 (e.g. technical skills, information about the disease); (2) to ask the patient to give an evaluation of this experience according to the EORTC QLQ-SAT32 response scale; (3) to confront any discrepancies between this evaluation and the patient's experience description.

This interview had to be conducted according to the order of topics assessed by the EORTC QLQ-SAT-32 questionnaire, proceeding from a general question to a more specific question (Table 2).

2.2. Interview procedure

As for self-administration, the interview-administration of the EORTC QLQ-SAT32 was performed, after hospital discharge, the patient being at home. This place of assessment, away from the place at which care is provided, appears to allow a more critical patient assessment, probably because of emotional distancing from the experience of care. Interviews were carried out by telephone. It has not been feasible to interview patients at home rather than by telephone although this condition could have created a more trusting atmosphere.

Three interviewers extensively trained participated in the study. Interviewer training was designed to ensure that interviews be conducted as homogeneously as possible between the participating centres and from one patient to the next.

Table 2
Examples of questions asked during the interview

Interview protocol
(1) *Very general question at the beginning of the interview*: How would you describe the way in which the care that you received during your last hospital stay was provided?
(2) *Open-ended questions*: How would you describe the knowledge and experience of the doctors caring for you in this hospital? Do you remember any particular, positive or negative events, concerning the knowledge and experience of the doctors caring for you in this hospital? If yes, describe these events? What is your opinion of these events?
(3) *Closed question*: If you had to give a score of "poor", "fair", "good", "very good", "excellent" to the knowledge and experience of the doctors caring for you in this hospital, what score would you give?

2.3. Study population

Patients' recruitment took place between January and March 2002 in the surgery and medical wards of Institut Curie (IC) in Paris and Centre Alexis Vautrin (CAV) in Nancy, France. There was no age nor gender exclusion criteria for patients' inclusion. The only condition was the psychological or physical ability to answer the two questionnaires (evaluated by the psychology and nursing staff).

Patients were invited to participate in the study before hospital discharge. Upon agreement, they were provided an information and consent form. They were assured of the confidentiality of the information collected. One hundred and twenty three patients were randomised according to the order of the modality of questionnaire administration, defining two groups: (1) one in which the interview was performed before self-completing the EORTC QLQ-SAT32; (2) the other in which the interview was performed after having self-completed and returned the EORTC QLQ-SAT32.

Upon hospital discharge, patients were given a closed envelope containing the EORTC QLQ-SAT32 for self-administration at home. They were asked to return it while completed, to IC or CAV by means of a pre-stamped, self-addressed envelope. Patients from the first group of randomisation were explicitly instructed not to open the envelope containing the self-reported questionnaire before the interview had taken place.

A telephone appointment was made with each patient for an interview. Responses to the interview-administered EORTC QLQ-SAT32 were collected by the interviewer on a specific form. The interviewers were blinded to the answers to the self-administered EORTC QLQ-SAT32. Both modalities of questionnaire administration had to be carried out within 2 weeks of hospital discharge. If the self-administered questionnaire was not sent back within 2 weeks of hospital discharge, a reminder telephone call was made.

2.4. Statistical analysis

2.4.1. Description of population

Comparisons between continuous variables were performed using Student's *t*-test and between qualitative variables using Pearson chi-square test or Fisher exact test if the conditions for use was not fulfilled.

2.4.2. Analysis of EORTC QLQ-SAT32 scores

A score per patient was calculated for each of the EORTC QLQ-SAT32 subscales and for the general satisfaction question. This score was the mean of the responses to the items of each subscale and ranged between 1 and 5. The score was only calculated when more than one-half of the questions of the same subscale were answered. Isolated missing

values were not replaced [22]. The general satisfaction question was scored on a scale of 1–5. Each score was analysed separately. The number of subjects in the analysis for each score could vary due to the presence of isolated missing values.

Because the study was based on a cross-over design, a potential effect of the order of questionnaire administration modality was checked by comparing the mean difference of scores between the two modalities in each group of randomisation [23]. The correlation between scores of the two modalities of questionnaire administration was assessed to check the expected link between them. Considering the distribution of scores, non-parametric Spearman's correlation statistic was performed. Agreement between responses of both modalities was assessed for the first three scores calculating intra-class correlation coefficients (ICC) [24]. Agreement for the single general satisfaction item was assessed using weighted kappa coefficient [25]. Intra-class correlation or weighted kappa coefficients indicate the degree to which scores are similar between both modalities. An ICC or a weighted kappa coefficients greater than or equal to 0.7 was considered to be excellent. All statistical analyses were performed using S-plus 2000 software.

3. Results

3.1. Description of the population

Seventy patients in IC and 53 in CAV, 31 male and 92 female, aged 17–93 years, agreed to participate in the study. Patients did not differ between the two groups of randomisation in terms of age, gender, educational level and presence of a metastatic disease. The time lapse between hospital discharge and completion of the questionnaire in the modality required by randomisation was respected in 88 (84.6%) patients. For patients randomised to carrying out the interview modality first, the mean time between hospital discharge and interview was 4.9 days (range = 1–12) and between hospital discharge and self-completion, 5.5 days (range = 1–18). For patients randomised to self-complete first the questionnaire, the mean time between hospital discharge and the interview was 6.9 days (range = 3–15) and between hospital discharge and self-completion, 3.1 days (range = 0–15).

One hundred and four patients responded to both modalities of questionnaire administration (response rate = 84.5%). Eight of the 123 randomised patients did not complete any of the two questionnaires and 11 participated in only one modality (10 only completed the self-administered questionnaire and 1 only participated in the interview). There were significantly more non-respondents in IC than in CAV (18 versus 1, $P < 0.001$). No difference in terms of age, level of education, or presence or absence of metastatic disease, was observed between the patients who completed both modalities of administration of the questionnaire and those who failed to complete one or both modalities (Table 3).

Table 3
Comparison between responders ($n = 104$) and non-responders ($n = 19$) characteristics

		Responders	Non-responders	*P*-value
Center	Paris	74.3% (52)	25.7% (18)	<0.001[a]
	Nancy	98.1% (52)	1.9% (1)	
University studies	Yes	7.8% (6)	13.5% (5)	ns[b]
	No	92.2% (71)	86.5% (32)	
Metastatic disease	Yes	32.7% (34)	26.% (5)	ns[a]
	No	67.3% (70)	73.4% (14)	
Age (years)		Mean = 60.6 (S.D. = 14.1)	Mean = 54.7 (S.D. = 13.7)	ns[c]

ns: non-significant.
[a] Chi-square test.
[b] Fisher's exact test.
[c] Student's *t*-test.

Among the 104 patients who completed both modalities of EORTC QLQ-SAT32 administration, a significantly higher rate of isolated missing values was obtained for the interview-administration (5%; range = 0–34%) than for the self-administration (3%; range = 0–15%) (chi-square test = 15.91, d.f. = 1, $P < 0.001$).

3.2. Spearman coefficients

Scores description is shown in Table 4. No effect of the order of questionnaire administration modality was observed. The following analyses could thus be performed on the grouped data. Spearman's correlation coefficients were all significant ($P < 0.0001$) (Table 5). For the Doctors', Nurses', Services' subscales and for the general satisfaction

Table 4
Description of the three EORTC QLQ-SAT32 subscales and the general satisfaction question according to the two modes of administration (interview (I)/self-administration (SA)) ($n = 104$)

	Modality	Mean ± S.D. (minimum–maximum)
During your hospital stay, how would you rate doctors in terms of the medical care received?	I	3.49 ± 0.83 (1.27–5)
	SA	3.65 ± 0.87 (1.45–5)
During your hospital stay, how would you rate nurses in terms of the nursing care received?	I	3.86 ± 0.62 (2.11–5)
	SA	3.92 ± 0.65 (2.27–5)
During your hospital stay, how would you rate the services and care organisation?	I	3.49 ± 0.54 (2–5)
	SA	3.54 ± 0.61 (2–5)
Overall, how would you evaluate the quality of care received during your hospital stay?	I	3.98 ± 0.76 (2–5)
	SA	4.07 ± 0.72 (1–5)

Table 5
Intra-class correlation coefficient, weighted kappa coefficient and Spearman's correlation coefficient for the three subscales and the global satisfaction question of the EORTC QLQ-SAT32 ($n = 104$)

	Intra-class correlation/weighted kappa coefficient	Spearman's correlation coefficient
During your hospital stay, how would you rate doctors in terms of the medical care received?	0.86	0.87*
During your hospital stay, how would you rate nurses in terms of nursing care received?	0.78	0.74*
During your hospital stay, how would you rate the services and care organisation?	0.67	0.67*
Overall, how would you rate the quality of care received during your hospital stay?	0.58	0.65*

* $P < 0.0001$.

item, Spearman's correlation coefficients were 0.87, 0.74, 0.67 and 0.65, respectively.

3.3. Intra-class correlation and kappa coefficients

The concordance between scores according to the two modalities of EORTC QLQ-SAT32 administration was excellent for Doctors' and Nurses' subscales (Table 5). The values for intra-class correlation coefficients were 0.86 and 0.78, respectively. A satisfactory concordance was observed for the Services' subscale and the general satisfaction question; the intra-class correlation and weighted kappa coefficients were 0.67 and 0.58, respectively.

4. Discussion and conclusion

A strong relationship was found between responses given to the self- and interview-administered EORTC QLQ-SAT32. Moreover, the degree to which scores were similar between both modalities was found excellent for the Doctors' and Nurses' subscale and satisfactory for the Services' subscale and the general satisfaction question. These results indicate that the modality of administration did not influence patients' responses.

4.1. Discussion

This study presents methodological strength as well as limitations. A strong point consists in the randomisation of the patients according to the order of questionnaire administration modality, which ascertained control of the influence of the order of the modality on patients' responses. The self-administration modality could therefore be compared to the interview modality regardless of the order in which these modalities were attributed to the patient.

A limitation of this study includes the fact that the same patients completed the EORTC QLQ-SAT32 according to the self- and interview-administration modalities, the patient being his/her own control to compare the scores. Considering that some patients were administered both modalities the same day, it is possible that, to some extent, agreement between responses be affected by a learning effect.

Different response rates appeared between the two hospital centres participating in this study. The study sample size did not allow to test for the homogeneity of interviewers' attitude. However, considering that interviewers were different in both centres (one at CAV and two performing interviews together at IC), this difference in response rate may suggest variation in interviewers' attitude and patients' reaction to it.

II was needed to also obtain in the interview, a score for each EORTC QLQ-SAT32 aspect of care, as quantifiable data of patient satisfaction were required for statistical analysis. It seemed preferable for this score to be established by the patient him/herself rather than by the interviewer, or another investigator, based on analysis of the content of the patient's comments during the interview. In the context of the interview, we may have induced responses similar to those provided by self-administration. Williams [20] reported that patients are more critical in relation to care when they can freely express themselves about the care received in their own terms (p. 514). The need to attribute a score may have interfered with the patient's spontaneous and critical evaluation.

We assumed that an interview-administration would allow expression of the patient's "true" opinion about the quality of care received and therefore their "satisfaction with care". However, certain aspects of the interview modality adopted, such as the presence of an interviewer or use of the telephone, may have influenced patients' responses, as a higher rate of isolated missing values was observed for interview-administration of the EORTC QLQ-SAT32 compared to self-administration. Various patients were unable to express an opinion on certain aspects of care in this context. The reasons given by these patients concerning their inability to express an opinion suggests the influence of social desirability (e.g. "Doctors do not have time to provide information"; "It's not the nurse's job to provide information"). The answers given by the patients to interview-administration of the EORTC QLQ-SAT32 can therefore not be considered to represent the "gold standard" of patient satisfaction.

Despite these study limitations, it should be noted that the mean score of the EORTC QLQ-SAT32 subscales (3–4) reflect moderate levels of satisfaction (see Table 4), rather than the excellent levels usually observed in patient satisfaction surveys [16] and that the range of scores (from 1 or 2 to 5) demonstrates a certain variability of the responses. Although the concordance between the responses to the EORTC QLQ-SAT32 on self-administration

and interview-administration does not demonstrate that self-administration of the EORTC QLQ-SAT32 reflects the patient's opinion about quality of care, the scores obtained reveal the capacity of the EORTC QLQ-SAT32 to elicit more nuance in judgements about health care than usually obtained. An ongoing further validation study of the EORTC QLQ-SAT32 includes a comparison of this questionnaire with other satisfaction scales; this should check this proposition.

In conclusion, the interview-administration modality did not appear an adequate procedure for assessing the validity of the EORTC QLQ-SAT32. What we did is only compare patients' satisfaction responses according to two modalities of questionnaire administration. However, the description of scores obtained using this questionnaire for assessing patient satisfaction highlights a fair degree of variation, whatever the administration modality.

4.2. Practice implications

Evaluation of cancer inpatient satisfaction, using the multi-dimensional EORTC QLQ-SAT32 questionnaire appears to improve the variability of assessments on the quality of health care received. Provided the psychometric performance of this questionnaire is confirmed in the context of the ongoing international study, the EORTC QLQ-SAT32 could be systematically used by self-administration at home to record the opinion of cancer patients on the quality of care received in oncology units.

Acknowledgements

This study was made possible thanks to a grant from the *Agence Nationale d'Accréditation et d'Evaluation en Santé* (ANAES, Paris, France). We gratefully thank the EORTC quality of life group members for their comments on an initial version of the study protocol. We are indebted to all patients who kindly agreed to participate in this study.

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