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Determinants of patient satisfaction in oncology settings from European and Asian countries: Preliminary results based on the EORTC IN-PATSAT32 questionnaire

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ABSTRACT

The aim of this study was to identify factors associated significantly with hospitalised cancer patients' satisfaction with care.

Patients were recruited from four geographical/cultural groups, including five European countries and Taiwan. They rated their level of satisfaction by completing the EORTC IN-PATSAT32 questionnaire at home. Additionally, data were collected on the sociodemographic and clinical characteristics and the quality of life of the patients, as well as on institutional characteristics.

Of 762 patients recruited, 647 (85%) returned a completed questionnaire. The number of nurses and doctors per bed, institution size, geo-cultural origin, ward setting, teaching/non-teaching setting, treatment toxicity, global health status, participation in clinical trials and education level were all associated significantly at the multivariate level with satisfaction with doctor and nurse interpersonal skills, information provision, availability, and/or overall satisfaction.

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A number of patient-, institutional- and culture-related factors are associated with the perceived quality of cancer care. Future studies, with appropriate sampling frames and stratification procedures, are needed to better understand cross-national and cross-cultural differences in cancer patient satisfaction.

1. Introduction

In many countries, the assessment of patient satisfaction has been recognised as a key indicator of health care quality and is now required by accreditation agencies for hospital care quality monitoring and improvement programmes. The collection of patient satisfaction information may be used to compare and benchmark hospitals,[1] for identifying best-performance institutions, and for describing working processes in order to identify areas in need of improvement. Such patient satisfaction assessments may be carried out within or across nations and health care systems as a means of identifying specific health care policies, services organisation or provider behaviours that best respond to patients' expectations or needs.

The assessment of patient satisfaction in the oncology setting is particularly salient. Advances in diagnostics, treatment, supportive care and rehabilitation all necessitate continued monitoring to determine whether patients are satisfied with the increasingly complex and multidisciplinary nature of health care services that they are receiving, and to identify areas in which improvement is needed.

The European Organisation for Research and Treatment of Cancer (EORTC) Quality of Life Group has developed and validated cross-culturally a questionnaire, the EORTC IN-PATSAT32, to assess patients' perceptions of the quality of hospital-based cancer care (the EORTC IN-PATSAT32).[2]

Determining predictors of patient satisfaction can aid in the interpretation of scores, particularly in regional or international comparative studies. Specifically, by identifying background factors (e.g. patients' age, education, cultural origin, or health status) associated significantly with satisfaction levels, it is possible to adjust for such factors when comparing or benchmarking health care services.[3] Identifying these factors may also point to patient groups whose health care experience is particularly problematic and in need of additional attention (e.g. older patients, minorities).[4] By highlighting organisational factors related to patient satisfaction levels, it is possible to identify aspects of the structure and process of care that are in need of improvement (e.g. type or amount of staff, range of services provided, continuity of care, etc.).

The objective of this study was to identify patients' sociodemographic and clinical characteristics, and organisational factors associated significantly with hospitalised patients' satisfaction with doctors' and nurses' interpersonal skills, information provision and availability, and with overall satisfaction with care in an international context. The focus on the more interpersonal aspects of care was chosen because patients' needs for medical information and psychosocial support may be particularly important in the cancer field.[5] The evaluation of this aspect of care is dependent on patient feedback and their care expectations.

2. Patients and methods

The present analyses were performed on data collected for an international study designed to assess the psychometric characteristics of the EORTC IN-PATSAT32.[2] This study opened to patient recruitment in May 2002 and closed in June 2004, was coordinated at the Quality of Life Unit at the EORTC Data Centre in Brussels (Protocol 15012).

2.1. *Patients*

Seven hundred and sixty-two patients meeting the eligibility criteria (cancer diagnosis, age of 18 years or above, hospitalisation for at least 3 days and mental ability to complete a questionnaire) were recruited from collaborating hospitals drawn from European and Asian countries. Of these, 647 (85%) patients completed and returned the questionnaires. Respondents and non-respondents did not differ significantly in terms of age, gender, education level or time since diagnosis. However they differed significantly in types of current treatment, and centres.

Taking into account the number of patients enrolled in each country, four patient groups were constituted based on geographical and cultural origins: France with 348 (54% of all responding patients) patients from five oncology settings; Southern Europe with 53 (8%) patients from two cancer centres in Italy, and 24 (4%) patients from one cancer centre in Spain; Northern Europe with 34 (5%) patients from two cancer centres in Germany and 49 (8%) patients from one cancer centre in Sweden; and Taiwan, with 87 patients (13%) from one cancer centre. From the original sample, patients recruited from Belgium (five patients), England (34 patients) and Poland (13 patients) were not included because of their sample size, missing information or discrepancy with the cultural or health care system characteristics of the defined groups.

2.2. *Study procedures and measures*

As described in a previous paper,[2] patients were contacted for recruitment before their discharge from hospital, and were invited to complete the EORTC IN-PATSAT32 and the EORTC core quality of life questionnaire, the QLQ-C30 (version 3.0)[6] at home within 6 weeks of hospital discharge. Completed questionnaires were mailed back to the participating centre coordinator using a pre-stamped/addressed envelope. Mailed reminders were sent if the questionnaires were not returned, followed when necessary by a telephone reminder.

The EORTC IN-PATSAT32 is a 32-item questionnaire organised into eleven multi-item scales and three single items. Included are measures of: doctors' and nurses' technical skills (e.g. knowledge, experience, assessment of physical symptoms), interpersonal skills (e.g. interest, willingness to listen) information provision (about the disease, medical tests and treatment), and availability (e.g. time devoted to the patient); satisfaction with other hospital staff (receptionists, laboratory assistants, technicians); interpersonal skills and information provision; exchange of information within the care team; waiting-time ; hospital access; hospital comfort; and overall satisfaction with care.

Additional data collected included patients' age, gender, educational level, marital status, time since diagnosis of most recent cancer, disease stage (non-metastatic versus metastatic), ward setting (medical versus surgery ward), treatment-related toxicity (major versus minor surgical, chemotherapy or radiotherapy complications), participation in a clinical trial, Karnofsky performance status, type of hospital (academic/teaching versus non-academic), doctors and nurses workload (number of full-time doctors and nurses per ward bed), and hospital size (total number of hospital beds).

2.3. *Statistical analyses*

The IN-PATSAT32 data were scored according to the available validated scale structure.[2] The resulting scales range from 0 to 100, with higher scores reflecting a higher level of satisfaction.

Patient and institutional characteristics were compared between the four different geo-cultural groups using the Pearson Chi-square statistic for categorical data and the Kruskal–Wallis rank-sum test for continuous data. Differences in IN-PATSAT32 outcomes as a function of the range of patient, institutional variables and the four geo-cultural groups were assessed by means of univariate Kruskal–Wallis rank-sum tests. Separate analyses were performed for doctor and nurse interpersonal skills, information provision and availability, and for overall satisfaction with care. The sample size did not allow control for all possible confounding factors. Thus, a univariate screening was performed to select a practical subset of covariates among socio-demographic, clinical and institutional variables based on their relationship with the doctor and nurse information provision, interpersonal skills or availability scales, or satisfaction with overall care scales of the IN-PATSAT32, with a significance level chosen empirically at a starting level of 5%. The variables, retained at the univariate screening, were used as additional covariates to the geo-cultural grouping in a MANOVA model with the selected IN-PATSAT32 scales as dependent variables. In order to correct for multiplicity, a Hochberg rank order statistic[7] for geo-cultural grouping was applied to avoid 'spending' high significance levels on all the scales while avoiding the generality of an omnibus test.

3. Results

3.1. *Patient characteristics*

Table 1 displays the sociodemographic and clinical characteristics of the four patient groups. The median age varied from 51 years (range: 23–80) in Taiwan to 61 years (range: 30–79) in Italy and Spain. The gender distribution was 108 (31%), 41 (53%), 37 (45%) and 44 (51%) males in the French, Italian and Spanish, German and Swedish, and Taiwanese samples, respectively. The percentage of patients with less than compulsory education ranged from 3% in the Taiwanese sample to 21% in the Southern European sample.

Significant differences ($p < 0.001$) were found between the geo-cultural groups for age, education level, gender, ward setting, treatment toxicity, global health status, number of nurses per bed, number of doctors per bed, and hospital size.

3.2. *Factors associated significantly with IN-PATSAT32 scores*

The univariate screening identified educational level, ward setting, treatment toxicity, global health status, participation in clinical trials, academic/non academic hospital, number of nurses per bed, number of doctors per bed, and institution size as variables associated significantly ($p < 0.05$) with one or more of the IN-PATSAT32 (Table 2): patients with a higher level than compulsory education or with a lower than a university education level reported lower overall satisfaction; patients reporting lower overall satisfaction were treated in a medical ward and had major compared to minor treatment toxicity; patients treated in a clinical trial were less satisfied with doctors' interpersonal skills than patients who were not; patients with a relatively higher level of global health status reported higher level of satisfaction with doctors' and nurses' interpersonal skills, information provision and availability, and of satisfaction with care overall; patients treated in non-academic settings reported higher overall satisfaction compared to patients treated in academic/teaching settings; patients were less satisfied with doctors' availability and more satisfied with nurses' information provision in settings composed of more nurses per bed; patients were less satisfied with nurses' interpersonal skills and availability, and less satisfied with the care overall in institutions of larger size and with a higher number of doctors per bed.

Significant differences in satisfaction ratings were also found between the four broadly defined geo-cultural groups for nurses' interpersonal skills, information provision and availability, and the overall perceived care quality but no differences were evidenced regarding satisfaction with doctors ratings (Table 3). Patients from the Southern European group were less satisfied with nurses' interpersonal skills, information provision, and availability compared to the other groups. Patients from Taiwan were less satisfied with the overall care compared to patients from France. Variables such as age or gender differed between the geo-cultural groups; however, these were not associated with the IN-PATSAT32 scores, and hence do not appear to be confounding variables.

A MANOVA model (Table 4) was fitted using as dependent variables the IN-PATSAT32 doctors' and nurses' interpersonal skills, information provision and availability, and the overall perceived quality of care scale, and as independent variables, the covariates selected from the univariate screening analysis: educational level, ward setting, treatment related toxicity, global health status, participation in clinical trial, type of hospital, number of nurses per bed, number of doctors per bed, hospital size and geo-cultural group.

Table 1 – Socio-demographic and clinical characteristics of the sample ($n = 595$)

	France ($n = 348$) n (%)	Southern-Europe ($n = 77$) n (%)	Northern-Europe ($n = 83$) n (%)	Taiwan ($n = 87$) n (%)
Age[a]				
Median	56	61	61	51
Range	19–91	30–79	19–85	23–80
Gender[a]				
Male	108 (31)	41 (53)	37 (45)	44 (51)
Female	240 (69)	36 (47)	46 (55)	43 (49)
Marital status				
Single	44 (13)	9 (12)	13 (16)	15 (17)
Married, cohabitant	246 (71)	59 (77)	58 (70)	70 (81)
Separated, divorced, Widow(er)	56 (16)	9 (12)	12 (15)	2 (2)
Unknown	2 (1)	0	0	0
Highest level of education[a]				
Less than compulsory	37 (11)	16 (21)	6 (7)	3 (3)
Compulsory	134 (39)	30 (39)	37 (45)	16 (18)
Post-compulsory	100 (29)	25 (33)	20 (24)	38 (44)
University level	70 (20)	6 (8)	20 (24)	30 (35)
Unknown	7 (2)	0	0	0
Time since diagnosis (weeks)				
Median	14	11	18	21
Range	0.1–1298	–1–754	–1–567	1–405
Stage of disease				
Local/loco-regional	278 (80)	56 (73)	61 (74)	61 (70)
Metastatic	70 (20)	21 (27)	22 (27)	26 (30)
Setting[a]				
Surgical ward	264 (76)	24 (31)	14 (17)	36 (41)
Medical ward	84 (24)	53 (69)	69 (83)	51 (59)
Treatment toxicity[a]				
No	328 (94)	71 (92)	70 (84)	55 (63)
Yes	20 (6)	6 (8)	13 (16)	32 (37)
Participation in clinical trials				
No	323 (93)	76 (99)	77 (93)	84 (97)
Yes	25 (7)	1 (1)	6 (7)	3 (3)
Nurses per bed[a]				
Median	1	1	1.8	1
Range	0.2–1	1–1	1–1.8	1–1
Doctors per bed[a]				
Median	0.2	2	0.5	0.6
Range	0.1–0.2	0.4–2	0.2–1	0.6–0.6
Hospital size[a]				
Median	184	450	1700	2044
Range	163–220	70–490	600–1700	2044–2044

a Kruskall–Wallis test: $p < 0.001$.

Of the seven selected IN-PATSAT32 scales, the doctors' interpersonal skills and information provision did not fit the model well. The percentage of variance explained for these two scales was less than 5%, whereas it was greater than 10% for the other scales (i.e. the doctors' availability scale, the nurses' interpersonal skills, information provision, availability, and the overall satisfaction scales).

The strongest predictors of one or more of the IN-PATSAT32 scales studied were treatment toxicity, number of nurses per bed, geo-cultural grouping, global health status, number of doctors per bed, institution size, and participation in clinical trials. Mean scores of IN-PATSAT32 scales per covariate categories (Table 5) indicate that patients reported lower overall satisfaction when they had major compared to minor treatment toxicity, or reported a relatively poor global health status; patients were less satisfied with doctors' availability and more satisfied with nurses' information provision in settings where there were more nurses per bed; they were less satisfied with care overall in institutions of larger size or with a higher number of doctors per bed; patients treated in a clinical trial were less satisfied with the doctors' interpersonal skills than patients who were not.

Table 2 – *P* values for univariate ANOVA screening for socio-demographic, clinical and institutional factors and IN-PATSAT32 doctors' and nurses' interpersonal skills, information provision and availability, and overall perceived quality scale (*n* = 595)

	Doctors			Nurses			General
	Interpersonal skills	Information provision	Availability	Interpersonal skills	Information provision	Availability	Overall satisfaction
Age	0.291	0.056	0.077	0.617	0.903	0.474	0.329
Gender	0.310	0.174	0.222	0.616	0.382	0.743	0.869
Marital status	0.531	0.569	0.449	0.693	0.893	0.174	0.587
Education level	0.406	0.772	0.882	0.050	0.145	0.074	0.002
Time since diagnosis	0.222	0.539	0.188	0.203	0.074	0.339	0.441
Disease stage	0.299	0.649	0.192	0.210	0.927	0.105	0.472
Ward setting	0.526	0.089	0.106	0.389	0.972	0.086	0.0004
Treatment toxicity	0.228	0.210	0.542	0.071	0.373	0.053	0.0001
Karnofsky performance status	0.083	0.188	0.176	0.367	0.786	0.407	0.167
Participation in trial	0.042	0.432	0.096	0.247	0.179	0.263	0.192
Global health status	0.002	0.001	0.001	0.002	0.000	0.000	<.0001
Academic/non academic setting	0.052	0.302	0.019	0.213	0.301	0.527	0.044
Nurses per bed	0.899	0.691	0.003	0.151	0.032	0.051	0.506
Doctors per bed	0.343	0.668	0.721	0.001	0.082	0.0002	<.0001
Institution size	0.525	0.729	0.752	0.001	0.099	<.0001	<.0001

Table 3 – EORTC IN-PATSTA32 scale scores per geo-cultural group

	France (*n* = 348)	Southern-Europe (*n* = 77)	Northern-Europe (*n* = 83)	Taiwan (*n* = 87)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Doctors				
Technical skills	77 (19)	69 (19)	72 (19)	75 (20)
Interpersonal skills	68 (26)	68 (23)	68 (23)	72 (23)
Information provision	64 (27)	63 (21)	67 (24)	65 (26)
Availability	64 (26)	63 (22)	60 (25)	67 (25)
Nurses				
Technical skills[a]	78 (20)	62 (23)	78 (17)	78 (21)
Interpersonal skills[a]	78 (21)	62 (24)	76 (19)	75 (22)
Information provision[a]	68 (24)	52 (23)	69 (22)	68 (27)
Availability[a]	74 (22)	57 (24)	73 (19)	70 (25)
General satisfaction[a]	79 (20)	70 (22)	76 (19)	69 (21)

a Kruskal–Wallis test: $p < 0.001$.

Table 4 – Full MANOVA model for the IN-PATSAT32 doctors' and nurses' interpersonal, information provision and availability, and overall satisfaction with care scales (*n* = 595)

Covariate	P-values		Effect size						
	MANOVA	Hochberg adjusted	satdis	satdip	satdav	satnis	satnip	satnav	satgen
Nurses per bed	<.0001	<.001	0.019	0.059	0.455	0.214	0.323	0.294	0.100
Doctors per bed	<.0001	<.001	0.080	0.036	0.030	0.282	0.148	0.306	0.366
Institution size	<.0001	<.001	0.054	0.029	0.027	0.292	0.141	0.333	0.366
Cultural grouping	<.0001	<.001	0.087	0.075	0.138	0.369	0.335	0.390	0.295
Ward setting	0.001	0.003	0.053	0.142	0.135	0.072	0.003	0.143	0.294
Academic setting	0.001	0.003	0.174	0.094	0.209	0.114	0.096	0.058	0.184
Treatment related toxicity	0.001	0.005	0.153	0.159	0.077	0.229	0.113	0.245	0.485
QLQ-C30 global health	0.010	0.022	0.256	0.269	0.280	0.260	0.316	0.316	0.388
Participation in clinical trial	0.011	0.022	0.354	0.137	0.290	0.202	0.238	0.195	0.231
Education level	0.028	0.028	0.101	0.065	0.040	0.187	0.153	0.148	0.282

Satdis = doctors' interpersonal skills scale, satdip = doctors' information provision scale, satdav = doctors' availability scale, satnis = nurses' interpersonal skills scale, satnip = nurses' information provision scale, satnav = nurses' availability scale, satgen = overall satisfaction with care.

4. Discussion

Among cancer inpatients approached in oncology hospitals from France, Italy and Spain, Germany and Sweden, and Taiwan, satisfaction with doctors' or nurses' interpersonal skills, information provision, availability, and overall satisfaction with care were significantly predicted by the number of nurses per bed, the number of doctors per bed, the institution size, the geo-cultural setting, the type of ward setting, the type of hospital (academic/teaching or not), the treatment toxicity (minor or major), the level of global health status, participation in clinical trials, and patients' education level. Disease variables (e.g. disease stage, time since diagnosis) were not related significantly to these satisfaction scale ratings.

Major treatment toxicity and poorer perceived health status significantly predicted lower levels of satisfaction with care. The relationship between health status and satisfaction with care has evidenced contradictory results.[8,9] No relationship,[10] or opposite results depending on whether global or physical health status was considered,[11] have also been demonstrated. Quality of life is an important target of care provision in oncology (e.g. relieving disease or treatment-related symptoms); thus, it is important to assess whether patients are satisfied with interventions aimed at attenuating the burden of illness or treatment on quality of life. A cross-sectional study design does not allow determining the relationship between satisfaction with care and health status, underlining the need for future research with repeated measures of quality of life to ascertain whether higher levels of satisfaction result from a medical intervention that improves quality of life.

Dissatisfaction has been proposed to reflect a discrepancy between care expectations and the perception of care received.[12] In this study, major treatment toxicity may have produced lower satisfaction with care as severe treatment side effects may not be expected, pointing to the importance of either helping patients anticipate known side effects, or support them facing critical events.

An increasing number of nurses per bed was related to higher satisfaction with nursing care but to lower satisfaction with doctors' availability (i.e. the frequency and duration of their medical visits). When nurses are in charge of fewer patients, they may devote more time to patients, appear more supportive and deliver information more adequately; however, with an increasing number of nurses per bed, holding the number of doctors per bed constant, patients perceive doctors as dedicating less time to them.

An increasing number of doctors per bed and a larger hospital size, independent of the number of nurses per bed, were associated with lower levels of satisfaction with nurses' availability, and to overall satisfaction with care. Similar findings have been reported in the literature, where a greater hospital size consistently had a significant negative association with patient satisfaction.[13] It may be suggested that larger hospitals with more medical or nursing personnel may evidence raising difficulty in ensuring continuity in the interpersonal relationship between patients and carers.

In previous studies,[13,14] patients treated in a teaching hospital were less satisfied with care overall. In this study, we found that patients participating in a clinical trial were less satisfied with the doctors' interpersonal skills (e.g. doctors' willingness to listen to the patient, support provided). Although, in treatment trials, participants undergo close monitoring of their physical condition,[15] these results underscore the need to also attend to patients' psychosocial needs.

Table 5 – IN-PATSAT32 doctors' and nurses' interpersonal skills, information provision, availability and overall satisfaction scale mean scores per strongest predictors' category

	Doctors			Nurses			General
	Interpersonal skills	Information provision	Availability	Interpersonal skills	Information provision	Availability	Overall satisfaction
Treatment toxicity							
Minor (*n* = 524)	68.9 (25.0)	64.8 (25.5)	63.9 (25.5)	75.8 (22.0)	66.2 (24.9)	71.8 (23.1)	76.9 (20.1)
Major (*n* = 71)	65.1 (22.3)	60.7 (26.5)	62.0 (24.2)	70.8 (19.5)	63.4 (23.0)	66.2 (21.7)	67.0 (20.3)
Participation in trial							
No (*n* = 560)	69.0 (24.2)	64.5 (25.2)	64.1 (25.0)	74.9 (21.7)	65.5 (24.7)	70.9 (23.1)	75.5 (20.3)
Yes (*n* = 35)	60.2 (31.3)	61.0 (31.0)	56.8 (29.1)	79.3 (22.3)	71.3 (23.0)	75.4 (20.5)	80.2 (21.1)
Global health status							
⩽50 (*n* = 348)	65.9 (24.4)	61.4 (24.9)	60.8 (25.1)	72.8 (22.7)	62.6 (24.3)	68.1 (23.5)	72.4 (19.9)
>50 (*n* = 247)	72.2 (24.8)	68.3 (26.1)	67.9 (25.1)	78.5 (20.0)	70.4 (24.5)	75.4 (21.6)	80.3 (20.1)
Nurses per bed							
⩽1 (*n* = 546)	68.5 (24.8)	64.1 (25.7)	64.6 (25.2)	74.8 (21.9)	65.2 (24.7)	70.6 (23.2)	75.6 (20.6)
>1 (*n* = 49)	68.0 (23.7)	65.7 (24.9)	53.1 (24.8)	79.4 (20.3)	73.1 (23.1)	77.3 (19.6)	77.6 (18.0)
Doctors per bed							
⩽0.17 (*n* = 355)	67.7 (25.8)	63.9 (26.6)	64.0 (26.2)	77.6 (20.6)	67.3 (24.0)	74.0 (21.8)	78.7 (19.6)
>0.17 (*n* = 240)	69.6 (23.2)	64.8 (24.1)	63.2 (24.0)	71.5 (22.9)	63.7 (25.4)	67.0 (24.0)	71.3 (20.7)
Institution size							
⩽220 (*n* = 355)	67.9 (25.8)	64.0 (26.6)	64.0 (26.0)	77.7 (20.6)	67.2 (24.2)	74.3 (21.9)	78.7 (19.5)
>220 (*n* = 240)	69.2 (23.1)	64.7 (24.2)	63.3 (24.3)	71.4 (22.9)	63.8 (25.2)	66.6 (23.8)	71.3 (20.9)

Geographical/cultural origin was also identified as a strong predictor of patient satisfaction. We note that the four groups of countries were constituted on the basis of a limited number of centres, and those centres may not be representative of the country or region in which they are located. Thus, the current results need to be viewed with some caution, and further research is needed, with a well defined sampling frame, balanced within and across countries, in order to better understand the influence of country (e.g. health care system characteristics) and culture on patient satisfaction with care.

Nonetheless, the association between geography and culture and satisfaction ratings observed in the current study is in line with the literature. A number of studies[16–20] have highlighted cross-cultural differences in the care of cancer patients, namely with regard to information disclosure and the use of a patient-centred approach. Since the late 1970s, important changes have occurred in the countries of the European Union with regard to the directness and openness with which cancer and its treatment are discussed with patients and their families. However, until quite recently, many clinicians in the south of Europe maintained a paternalistic attitude, refraining from information disclosure in order to avoid reduced hope.[16,20] In Asia, there is still a tendency to 'protect' patients and thus not to fully disclose information about diagnosis, treatment and prognosis.[19] However, there is evidence that, internationally, patients' desire for and expectations about medical information have increased steadily over time.[19–22] The gap between patients' evolving needs and expectations on one hand, and the more paternalistic approaches to health care on the other, may be reflected in lower levels of patient satisfaction with care.

Although we were able to identify a relatively large set of variables associated significantly with patient satisfaction, the total amount of variance explained in satisfaction scores was small. In part, this may be due to the characteristics of the questionnaire itself. The IN-PATSAT32 response scales are discrete in nature and have limited variability due to ceiling effect (a large proportion of patients scoring at the maximum). This problem of limited score variability has been reported in other studies of patient satisfaction, using a variety of instruments.[13,14,23,24]

In summary, this large international study identified a number of treatment and institutional factors associated significantly with hospitalised cancer patients' satisfaction with doctors' and nurses' interpersonal care, information provision, availability and overall satisfaction with care. Sociodemographic variables, with the exception of education, and disease characteristics did not contribute meaningfully to predicting satisfaction levels. Future studies, with a more robust sampling frame to ensure optimal representation of geographic regions and cultures, and of health care systems and structures are needed to further clarify the relationship between patient, clinical and structural factors and patient satisfaction, and to better understand cross-national and cross-cultural differences in those relationships.

Conflict of interest statement

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