RESEARCH ARTICLE

Validation of EORTC IN-PATSAT 32 in Morocco: Methods and Processes

Majdouline Obtel[1,2]*, Zineb Serhier[3], Karima Bendahhou[4], Maria Bennani[5], Ahmed Zidouh[5], Abdellatif Benider[4], Hassan Errihani[6], Rachid Bekkali[5], Chakib Nejjari[7]

Abstract

Background. The EORTC IN-PATSAT32 questionnaire was developed by the EORTC Quality of Life (QL) Group to assess the satisfaction of patients affected by cancer and hospitalized in oncology centers. The aim of this study is to assess the psychometric properties of the EORTC IN-PATSAT32 administered to Moroccan patients. **Methods.** A total of 133 hospitalized patients affected by cancer in different sites completed the translated EORTC IN-PATSAT32 questionnaire in oncology hospitals. The internal consistence reliability, reproducibility and construct validity were assessed. **Results.** The homogeneity was good for all scales with Cronbach's coefficients from 0.72 to 0.95 for all scales. Reproducibility test-retest was very satisfactory and the intra-class correlations coefficients (ICCs) for the scales were all above 0.70 except for the single general satisfaction with a ICC of 0.67. All items were highly correlated with own rather than other scales. **Conclusion.** The results of this study confirm that the Moroccan Arabic version of the EORTC IN-PATSAT32 has acceptable reliability and validity, comparable to those reported for other languages.

Keywords: Reliability- validity- transcultural adaptation- satisfaction- cancer

Introduction

Measuring the satisfaction of patient aims often to provide results in order to improve the internal quality of care. It can serve as an indicator of the impact of the reorganization of healthcare practices and acceptability to patients (Cleary et al., 1998).

The measure of the satisfaction of patients is also used to assess patients' opinions related to human, technical and logistical aspects in their health care (Fitzpatrick R, 1993; Goodwin et al., 2003; Razavi et al., 2002). It reflects the patient's personal preferences, expectations and the reality of the health care (Jackson et al., 2001, Shiva et al., 2009). This measure could provide some determinant factors on attitude towards medical care (Asadi-Lari et al., 2004, Avery et al., 2006). It has been shown that a good satisfaction favors a better therapeutic adhesion (Crow et al., 2002). The measure of satisfaction seems particularly useful in the field of cancer.

Today, the evolution of certain cancers is characterized by the decrease of mortality in favor of an extension of the longevity under treatments, sometimes with sequels generated by these ones. Cancer patients are therefore often confronted with continuing dependence on health care providers (Haddad et al., 2005). Currently, the overall management of cancer patients must integrate the quality of treatments undertaken and limit the impact of the disease (Barlési et al., 2005). In this context, a measurement of the quality of care perceived by the patients can provide an appropriate information that can reflect the expectations of patients and thus determine the areas for improvement.

Satisfaction is an abstract and multidimensional concept, which is hard to be directly observed or measured, therefore should be evaluated using a variety of multi-item scales (Labarere et al., 2001). There is no consensus over a standard tool to measure satisfaction, thus the significance of results is often uncertain (Asadi-Lari et al., 2003).

In Morocco, few studies have been focused on the satisfaction of cancer patients due to the absence of a valid questionnaire. The subjective and multidimensional feature of the satisfaction imposes a rigorous methodology in the design of the questionnaires, as well as in the implementation and interpretation of the results (Blazeby et al., 2001, Leplège et al., 2001, Cull et al., 2002). Measuring the satisfaction at patients requires validated tools (Cull et

[1]Laboratory of Community Health; [2]Laboratory of Biostatistics, Clinical Research and et Epidemiology, Department of Public Health, Faculty of Medicine and Pharmacy, University Mohammed V, [5]LALLA SALMA Foundation for Prevention and Treatment of Cancer, [6]National Institute of Oncology, Rabat, [3]Laboratory of Medical Informatics, Faculty of Medicine and Pharmacy, [4]Oncology Center, IBN ROCHD University Hospital, [7]University Mohammed VI, Mohammed VI Foundation, Casablanca, Morocco. *For Correspondence: majdobtel7@yahoo.fr

al., 2002, Brédart et al., 2005). EORTC IN-PATSAT 32 is a multidimensional questionnaire, adapted to measure patient satisfaction related to physicians and hospital staff, as well as aspects of the organization of care and services (Brédart et al., 2005).

In this context, a transcultural adaptation and validity of the EORTC IN-PATSAT 32 questionnaire study was conducted in Morocco to evaluate the psychometric characteristics of the translated version.

Materials and Methods

Study population

The study was carried out in a group of patients recruited between the two main centers of cancer care in Morocco (National Institute of Oncology in Rabat and the IBN ROCHD oncology center in Casablanca) between May and July 2008. The patients included were hospitalized in those oncology centers, aged 18 years and higher, diagnosed with cancer regardless the location and not suffering of any other disabling disease.

The number of subjects required was established using the Streiner curve which indicates that for a value of intra-class correlation coefficient around 0.70 and an accuracy of 0.10, the number of subjects should be at least 120 (Streiner et al., 2005).

Transcultural adaptation

The translation and transcultural adaptation of the questionnaire was carried out in four steps following the procedure of the translation guide of the EORTC questionnaires of Cull et al., (2002). The methodological process included forward and backward translation. The original version of EORTC IN-PATSAT 32 has been translated by two independent translators from English to the Moroccan Arabic dialect. Two other translators, unfamiliar with the original version, carried out a back-translation of the synthesis of the two translated versions. The translated and back-translated versions were reviewed by a committee of experts. The final Moroccan Arabic dialect version was drafted after a pre-test in about 30 patients hospitalized for cancer.

Data collection

The EORTC IN-Patsat32 is a multidimensional scale specifically designed to assess the satisfaction of care services by patients in Oncology structures. This questionnaire was developed according to the procedures recommended by the Quality of Life Group of the European Organization for Research and Treatment of Cancer (EORTC QL Group) to measure satisfaction of patients with cancer in health care facilities (Cull et al., 2002). It was validated in the context of a large multi-centric study in 2005 by Brédart et al., (2005).

The EORTC IN-PATSAT32 is composed of 32 items assessing cancer patients' perceptions of the quality of hospital doctors and nurses, as well as selected aspects of the care organization and hospital environment that are relevant across national settings. The questionnaire is organized into eleven multi-item scales, including doctors' and nurses' technical skills

(for example, knowledge, experience, assessment of physical symptoms), interpersonal skills (for example, interest, willingness to listen), information provision (for example, about the disease, medical tests, and treatment), and availability (for example, time devoted to patients); other hospital staff members' interpersonal skills; waiting time; hospital access; and three single items consisting of information exchange, hospital comfort, and overall satisfaction. A "poor", "fair", "good", "very good", or "excellent" response scale is used to rate each aspect of care.

Two translated questionnaires of the EORTC IN-PATSAT 32 were administered to patients by two different investigators, the order of their interventions was randomly selected. A third translated questionnaire was administered to the same patients after three days.

Additional socio-demographic and clinical data were collected included patients' age, sex, residency area, marital status, employment status, education level, localization of tumor and therapy.

Statistical analysis

The translated EORTC IN-PATSAT 32 questionnaire were administrated to patients who agreed to participate to the study. A descriptive analysis of the study population was carried out. Acceptability was evaluated using the ratio of questionnaire to the miss rate of each item.

Psychometric properties of the EORTC IN-PATSAT 32 questionnaire were assessed. The scores for the different dimensions of EORTC IN-PATSAT 32 were calculated separately. They were obtained by calculating the average of score of the items of each dimension. Score were linearly transformed and the standardized scores range from 0 to 100. A higher score reflected a higher level of satisfaction. The different scores were compared according to the educational level and the age groups defined according to the tertiles.

Internal reliability was measured by the Cronbach's α coefficient for each scale and single item, a value greater than 0.7 is generally considered acceptable and 0.8 for satisfactory reliability (Cronbach, 1951, Fermanian et al., 1996, Leplège et al., 2001, Streiner et al., 2005).

To assess the test-retest reliability of the EORTC In-Patsat32, a consecutive administration of the questionnaire was conducted 30 minutes after the first assessment, to complete the questionnaire for the second time by another investigator.

Inter-rater and test-retest reliabilities were assessed by the intra-class correlation coefficients (ICCs), derived from a two-way analysis of variance in a random effect model. The mostly recommended threshold is 0.6 (Streiner et al., 2005).

Multitrait scaling analysis were employed to examine item-convergent validity and item-discriminant validity. Thus, to explore convergent validity, the proportion of items with a correlation to their own dimensions greater than 0.40 (Brédart et al., 2005, Burroughs et al., 2005, Streiner et al., 2005) was determined. Discriminant validity was evaluated by the proportion of the "own-dimensional" correlations greater than the correlations with the other dimensions of EORTC IN-PATSAT32. The floor effect (a

large proportion of patients scoring at the minimum) and ceiling effect (a large proportion of patients scoring at the maximum) were adopted to assess the range of scales.

Ethical considerations

Before and during this study the main ethical considerations were taking into account to ensure patient's rights of voluntary participation and privacy.

Results

Description of the patients' characteristics

A total of 133 patients were recruited, 92 in Casablanca and 41 in Rabat oncology centers. The socio-demographic and clinical characteristics of hospitalized patients are presented in Table 1. The average of age was 46.8 years (Standard deviation (SD)=12.2 years), 64% were female. More than half (55%) were illiterate and 74% lived in urban areas. The most frequent localizations of cancer were breast (21%), colorectum (19%), cervix (12%) and lung (8%).

Transcultural adaptation

The process of translating the English-language EORTC IN-Pastsat32 questionnaire into the Moroccan Arabic dialect took place in 6 weeks, and only few cultural adaptation issues were observed. Globally, the items of the EORTC IN-Pastsat32 was comprehensible to all patients, except some few words and sentences which have been translated into two equivalents which have been put in parentheses in the final version of the questionnaire. Alternatively, the formula "Make a circle around the number that fits your situation better " has been replaced by "choose the answer that fits your situation better" because the vast majority of questionnaires will not be self-administered.

The final Moroccan Arabic dialect version of the EORTC IN-Pastsat32 questionnaire was administered to the patients by the investigators. There was no self-administration of the questionnaire.

Description of the EORTC IN-PATSAT 32 scores

The duration of the administration of the questionnaire to patients was around 10 minutes. Very few missing data were recorded for the different items, 95% of the items had no missing data and 5% had only one missing data.

The overall satisfaction of patients was good with an average score of 51 (SD=26).

The Satisfaction towards the various aspects of management were fair or low except for Doctors' Technical Competencies, Nurses' Technical Competencies and Interpersonal Competency with major scores above 50. As shown is table 2, the highest score was noted for" interpersonal competence "of nurses. A floor effect was noted for the information dimension provided by nurses (3 items) and for accessibility to various services (Table 2). In addition, no ceiling effect was noted.

A higher overall satisfaction score was observed in analphabet patients (p = 0.008). Thus, patients with a secondary level or higher were less satisfied than analphabet towards the technical and interpersonal skills

of doctors (p =0.047; p =0.020 respectively), to the interpersonal skills of nurses (p =0.042) and to comfort and hygiene (p <0.0001). Some aspects of satisfaction differed significantly by age group. Younger patients were less satisfied towards the technical and interpersonal skills of doctors (p =0.038; p =0.030 respectively), interpersonal skills of nurses (p =0.049) and waiting time (p =0.029) (Table 3).

Psychometric properties

The internal reliability of the questionnaire was satisfactory (Cronbach's α = 0.97). Cronbach's α coefficient was greater than 0.70 for all dimensions, ranging from 0.71 to 0.96 (Table 4).

Test-retest reliability was assessed using (ICCs). Inter-ratter reliability was good with ICCs ranging from 0.60 in the dimension "kindness, helpfulness and

Table1. Sociodemographic and Clinical Characteristics of Patients in the Study (N=133)

	Number of patient	Percentage
Center		
Casablanca	92	69.2
Rabat	41	30.8
Primitive cancer Localization		
Breast	28	21.4
Colorectal	25	19.1
Cervix	16	12.2
Lung	11	8.4
Stomach	7	5.3
Nasopharyngeal	6	4.6
Others	38	29.0
Gender		
Female	85	63.9
Male	48	36.1
Marital status		
Single	24	18.0
Married	93	69.9
Widowed	5	3.8
Divorced	11	8.3
Professional activity		
Active	35	26.3
Retired	4	3.0
Unemployed	17	12.8
Housewife	77	57.9
Educational level		
Illiterate	73	54.9
Primary	33	24.8
Secondary	21	15.8
University	6	4.5
Residency area		
Urban	98	74.2
Rural	34	25.8

Table 2. Description of the Scores of the EORTC IN-PATSAT 32

Dimensions (items)	Number of items	Mean Score	Standard deviation	Floor effect (%)	Ceiling effect (%)
Doctors					
Interpersonal skills	3	48.99	26.95	5.6	12.37
Technical skills	3	51.75	22.59	11.27	13.6
Information provision	3	39.35	27.93	26.37	7.7
Availability	2	43.8	28.02	20	11.25
Nurses					
Interpersonal skills	3	54.2	23.25	8.63	13.33
Technical skills	3	50.31	23.65	5.13	14.47
Information provision	3	19.61	23.51	57.53	3.03
Availability	2	48.78	25.23	10.5	11.55
Information exchange	1	49.62	26.75	12.7	13.4
Other hospital staff members' interpersonal skills	3	40.79	25.73	20.8	10.06
Wait times	2	42.76	29.44	20	15.8
Hospital access	2	28.95	24.88	39.7	3.85
Hospital comfort	1	43.23	27.72	15.4	7.7
Overall Satisfaction	1	51.13	25.9	5.6	12.6

information given by other hospital staff" to 0.85 in the dimension "information given by doctors".

Test-retest reliability (ICCs) ranged from 0.64 in "Doctors' Availability" to 0.91 in "Interpersonal Competency" and "Information provided by doctors" (Table 4).

A good convergent validity was noted; All items had a correlation with their own dimensions greater than 0.40 (Table 5).

Discriminant validity was satisfactory. The proportion of item-own-dimensional correlations were significantly higher than those with other dimensions ranged from 79.3% to 100% of the various dimensions (Table 5).

Discussion

The validation of the EORTC IN PATSAT32 has been conducted in several countries (Arraras et al., 2009, Hjorleifsdottir et al., 2010, Pishkuhi et al., 2014, Jishui et al., 2014). The EORTC INPATSAT 32 tool have been translated into Moroccan Arabic dialect according to procedures documented elsewhere (Guillemin et al., 1993, Beaton et al., 2000). This study is an attempt to address the need for a reliable, valid, and acceptable

Table 3. Comparison of Scale Scores for Patients with Different Ages and Educational Levels in the EORTC IN-PATSAT 32

	Age				Educational level			
	18-43	44-51	> 51	P	Illiterate	Primary	Secondary and high	P-value
SATDTS	44.2 (19.3)	56.4 (23.1)	52.2 (23.1)	0.038	55.2 (21.0)	44.1 (24.3)	47.8 (21.7)	0.047
SATDIS	39.5 (24.1)	54.2 (27.1)	50.6 (27.0)	0.03	54.0 (25.9)	39.5 (24.7)	42.6 (27.9)	0.02
SATDIP	34.3 (26.0)	43.8 (29.3)	35.5 (26.1)	0.218	41.2 (28.1)	35.8 (26.4)	31.7 (25.8)	0.283
SATDAV	37.5 (26.3)	46.8 (28.8)	43.2 (27.5)	0.267	45.0 (29.5)	39.9 (23.4)	38.9 (27.2)	0.532
SATNTS	43.5 (20.6)	54.1 (24.4)	504 (23.8)	0.102	52.7 (24.4)	45.2 (19.8)	45.2 (23.4)	0.191
SATNIS	46.8 (22.5)	58.9 (20.0)	54.4 (25.2)	0.049	58.0 (24.3)	46.8 (18.8)	49.0 (21.8)	0.042
SATNIP	14.9 (17.6)	20.2 (23.3)	20.0 (24.4)	0.455	19.5 (24.0)	17.7 (19.2)	16.0 (19.6)	0.775
SATNAV	44.6 (23.0)	51.7 (26.7)	46.7 (24.9)	0.403	51.4 (26.8)	40.7 (23.5)	46.2 (19.3)	0.128
SATEXE	40.9 (27.8)	54.7 (26.3)	50.0 (24.1)	0.052	51.1 (27.6)	42.7 (22.5)	49.0 (27.8)	0.34
SATOTH	34.1 (24.6)	44.4 (27.5)	41.1 (21.5)	0.153	41.9 (28.4)	39.8 (20.6)	34.6 (18.4)	0.446
SATWAI	33.9 (26.1)	50.3 (31.5)	45.2 (27.6)	0.029	46.4 (32.2)	38.3 (23.5)	40.4 (26.1)	0.375
SATACC	28.0 (25.9)	27.6 (26.4)	31.3 (23.8)	0.77	28.8 (27.1)	31.0 (21.1)	26.9 (25.2)	0.827
SATCOM	38.1 (28.3)	47.7 (24.9)	41.7 (29.6)	0.27	51.1 (26.4)	29,0 (21.5)	35.6 (30.1)	<0.0001
SATGEN	47.6 (29.1)	53.5 (23.5)	49.4 (24.4)	0.56	56.4 (24.3)	41.1 (22.9)	44.2 (28.6)	0.008

SATDTS, doctors' technical skills; SATDIS, doctors' interpersonal skills; SATDIP, doctors' information provision; SATDAV, doctors' availability; SATNTS, nurses' technical skills; SATNIS, nurses' interpersonal skills; SATNIP, nurses' information provision; SATNAV, nurses' availability; SATEXE, information exchange; SATOTH, other hospital staff members' interpersonal skills; SATWAI, wait times; SATACC, hospital access; SATCOM, hospital comfort; SATGEN, overall satisfaction.

Table 4. Internal Reliability (Cronbach's α Coefficient) and Reproducibility for EORTC IN-PATSAT32

Dimensions IN-PATSAT32	Number of items	Internal reliability (α de Cronbach)	Intra-ratter Reliability CCI (95% CI)	Test-retest Reliability CCI (95% CI)
SATDTS	3	0.9	0.80 [0.73-0.85]	0.88 [0.80-0.93]
SATDIS	3	0.96	0.85 [0.80-0.89]	0.91 [0.85-0.95]
SATDIP	3	0.93	0.76 [0.68-0.82]	0.91 [0.85-0.95]
SATDAV	2	0.92	0.84 [0.63-0.79]	0.64 [0.45-0.77]
SATNTS	3	0.9	0.80 [0.73-0.85]	0.89 [0.83-0.94]
SATNIS	3	0.93	0.80 [0.74-0.86]	0.73 [0.58-0.83]
SATNIP	3	0.85	0.69 [0.60-0.77]	0.86 [0.77-0.91]
SATNAV	2	0.92	0,71 [0,62-0,78]	0.87 [0.79-0.92]
SATEXE	1	0.85	0.75 [0.67-0.82]	0.84 [0.74-0.90]
SATOTH	3	0.88	0.60 [0.48-0.69]	0.82 [0.72-0.89]
SATWAI	2	0.84	0.83 [0.77-0.88]	0.70 [0.54-0.81]
SATACC	2	0.71	0.73 [0.64-0.79]	0.75 [0.61-0.85]
SATCOM	1	0.84	0.73 [0.64-0.80]	0.73 [0.57-0.83]
SATGEN	1	0.85	0.71 [0.62-0.78]	0.67 [0.49-0.79]

Table 5. Convergent Validity and Discriminant Validity of Items in the EORTC IN-PAT-SAT 32

	Extent correlation item-own dimension	Convergent validity succesa	discriminant validity succesb
SATDTS	[0.77-0.89]	3/3 (100)	29/29 (100)
SATDIS	[0.80-0.90]	3/3 (100)	28/29 (96.7)
SATDIP	[0.93-0.95]	3/3 (100)	29/29 (100)
SATDAV	[0.96-0.97]	2/2 (100)	29/29 (100)
SATNTS	[0.67-0.88]	3/3 (100)	23/29 (79.3)
SATNIS	[0.74-0.86]	3/3 (100)	26/29 (89.7)
SATNIP	[0.86-0.91]	3/3 (100)	29/29 (100)
SATNAV	[0.97-0.97]	2/2 (100)	29/29 (100)
SATOTH	[0.82-0.94]	3/3 (100)	29/29 (100)
SATWAI	[0.93-0.93]	2/2 (100)	29/29 (100)
SATACC	[0.89-0.89]	2/2 (100)	29/29 (100)

a, number of item-specific correlations dimension greater than 0.40 / total number of correlations item-own dimension; b, number of correlations of the items with their own dimensions significantly greater than the correlations with the other dimensions / total number of correlations.

instrument to assess inpatient satisfaction. The overall results emerging from the transcultural adaptation and the psychometric tests of the EORTC IN-PATSAT32 from the Arabic version provide support for the reliability, validity, and acceptability of the questionnaire when applied to Moroccan inpatients affected by cancers.

Globally, few difficulties were encountered during our study. The questionnaire was globally simple and the majority of the items could be adapted to the Moroccan context without any necessity of being modified. Very small number of missing data were observed and that indicates a good acceptability of the scale. Coinciding with previous studies, the EORTC IN-PATSAT32 revealed a favorable level of acceptability (Arraras et al., 2009, Brédart et al., 2005).

Regarding the patients' satisfaction, it was noticed that high scores were obtained in each scale, revealing generally favorable patient satisfaction. Meanwhile, satisfaction with doctors' technical skills and with nurses' technical skills possessed the highest scores,

suggesting that Moroccan patients tend to recognize doctors and nurses for their general ability, rather than other hospital staff members. Conversely, satisfaction with nurses' interpersonal skills and nurses' availability owned the highest scores, rather than doctors. As it was shown in some research, patients usually displayed a high level of satisfaction toward nurses instead of doctors (Hjorleifsdottir et al., 2010).

The descriptive study of the items indicates, on the whole, a good ability to discriminate them. A floor effect was noted in the nursing information dimension (3 items). Generally, this information is provided by doctors, in fact, nurses do not have all the information needed to answer all patients' questions about their care. The floor effect was also observed for item 29 corresponding to accessibility (parking, means of transport, etc.), 65.8% of the patients in care were not residing in Rabat either Casablanca, which could explain the high frequency of the lowest response rate to this item.

There was a significant association between the

satisfaction and both the age groups and the level of education. Satisfaction with some aspects was lower for younger subjects and those with secondary or higher level of education, indicating that these categories of patients are the most demanding in terms of quality of care. charge. This result is in line with that found in Europe (Brédart et al., 2007), patients under 57 years of age and those with a high level of education were less satisfied with certain aspects than those aged 57 years or older or with a Low level of study.

The results of the psychometric analysis were satisfactory. The internal consistency coefficients of most scales in the EORTC INPATSAT 32 were satisfactory and it was confirmed by the Cronbach's alpha values that exceeded 0.70 for all scales. The intra-observer reproducibility and the inter-observer reproducibility of the EORTC INPATSAT 32 were also high in most scale/single items. The ICCs ranged from 0.60 to 0.85 and 0.64 to 0.91, respectively. These results were similar to that reported by other studies (Brédart et al., 2005).

Furthermore, satisfactory convergent and discriminant validity of items was confirmed, which was similar to the findings of previous studies (Arraras et al., 2009, Brédart et al., 2005).

All items were well correlated to their dimensions with a success rate of 100% for all dimensions (good converging validity) and this correlation was stronger than that with other dimensions, with a success rate ranging from 79% to 100%. Good discriminating validity).

This result for multitrait scaling confirmed the hypothesized scale structure, implying that the translation of the items and the response choices are appropriate and that scale scores derived from the Moroccan Arabic version could contribute to cross-cultural comparisons.

The current study presents some limitations. On one hand, the criterion validity of the EORTC IN-Patsat32 has not been tested, due to the unavailability, at the period of the study, of a tool of measurement of the satisfaction of the care already recognized by the scientific community and adapted to the Moroccan context. On the other hand, sensitivity to change (responsiveness) over time has not been assessed, as it requires follow-up of at least 6 months. We would recommend that longitudinal studies be carried out to document the responsiveness.

Because of the high frequency of illiteracy among participants, an interviewer had administered the questionnaire for most patients. Unlike northern countries, the questionnaire could not be used as an auto-administered questionnaire except for a minority of Moroccan population.

Despite the fact that Moroccan Arabic dialect language is commonly spoken across the country, there are some other local languages such as "Amazight" that are more popular in some Moroccan regions. But, the majority of these people speak also Arabic. Further validation should be specifically performed in these regions because inclusion in these patient groups in local or national clinical studies is essential.

The results of this study confirm that the Moroccan Arabic Dialect version of the EORTC IN-PATSAT32 has an acceptable reliability and validity which are comparable to those reported in other languages. This version of EORTC IN-PATSAT32 is an acceptable instrument for evaluating patients with cancer, and it is also appropriate for measuring patient's satisfaction among Moroccan patients affected by cancer.

Abbreviations

EORTC INPATSAT3: The European Organization for Research and Treatment of Inpatients' Satisfaction 32; ICC: Intra-class correlation coefficient; SD: Standard deviation.

Acknowledgements

References

Arraras JI, Vera R, Martínez M, et al (2009). The EORTC cancer in-patient satisfaction with care questionnaire: EORTC IN-PATSAT32 Validation study for Spanish patients. *Clin Transl Oncol*, **11**, 237–42.

Asadi-Lari M, Tamburini M, Gray D (2004). Patients' Needs, satisfaction, and health related quality of life: towards a comprehensive model. *Health Qual Life Outcomes*, **2**, 32.

Asadi-Lari M, Packham C, Gray D (2003). Patients' satisfaction and quality of life in coronary artery disease. *Health Qual Life Outcomes*, **1**, 57.

Avery KNL, Metcalfe C, Nicklin J, et al (2006). Satisfaction with care: An independent outcome measure in surgical oncology. *Ann Surg Oncol*, **13**, 817-22.

Barlési F, Boyer L, Doddoli C, et al (2005). The place of patients satisfaction in the quality assessment of lung cancer thoracic surgery. *Chest*, **128**, 3475-81.

Beaton D, Bombardier C, Guillemin F, Ferraz MB (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *SPINE*, **25**, 3186–91.

Blazeby J, Cull A, Groenvold M, et al (2001). Guidelines for developping quality of life questionnaire. 3rd edn. EORTC Publications, Brussels. ISBN 2-930064-24-2.

Bredart A, Bottomleyb A, Blazebyc JM, et al (2005). An international prospective study of the EORTC cancer in-patient satisfaction with care measure (EORTC IN-PATSAT32). *Eur J Cancer*, **41**, 2120-31.

Brédart A, Coens C, Aaronson N, et al (2007). Determinants of patient satisfaction in oncology settings from European and Asian contries: Preliminary results based on the EORTC IN-PATSAT32 questionnaire. *Eur J Cancer*, **43**, 323-30.

Burroughs TE, Waterman BM, Gilin D,et al (2005). Do on-site patient satisfaction surveys biais results?. *JT Comm Qual Patient Saf*, **31**, 158-66.

Cleary PD, Mcneil BJ (1988). Patient satisfaction as an indicator of quality care. *Inquiry*, **25**, 25-36.

Cronbach LJ (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, **16**, 297–334.

Crow R, Gage H, Hampson S, et al (2002). The measurement of satisfaction with healthcare: implications for practice from a systematic review of the literature. *Health Technol Assess*, **6**, 1-244.

Cull A, Sprangers M, Bjordal K, et al (2002). Guidelines for translatings EORTC Questionnaires. Quality of life study group publications. EORTC Publication, Brussels, ISBN 2-930064-28-5.

Fermanian J (1996). Evaluer correctement la validité d'une échelle: les nombreux pièges à éviter. *Rev Epidém et Santé Publ*, **44**, 278-86.

Fitzpatrick R (1993). Scope and measurement of patient satisfaction. In: Fitzpatrick R HA, ed. Measurement of patients' satisfaction with their care ed: Royal college of physicians of London. pp 1-17.

Goodwin PJ, Black JT, Bordeleau LJ, Ganz P A (2003). Health-related quality-of-life measurement in randomized clinical trials in breast cancer-taking stock. *J Natl Cancer Inst*, **95**, 263-81.

Guillemin F, Bombardier C, Beaton D (1993). Cross-cultural adaptation of health-related quality of life measures: Literature review and proposed guidelines. *J Clin Epidemiol*, **46**, 1417-32.

Haddad S, Potvin L, Roberge D, Pineault R, Remondin M (2000). Patient perception of quality following a visit to a doctor in a primary care unit. *Family Pract*, **17**, 21-9.

Hermann RC, Enttner SL, Dowart RA (1998). The influence of psychiatric disorders on patients' ratings of satisfaction with health care. *Med Care*, **36**, 720-7.

Hjorleifsdottir E, Hallberg IR, Gunnarsdottir ED (2010). Satisfaction with care in oncology outpatient clinics: psychometric characteristics of the Icelandic EORTC INPATSAT32 version. *J Clin Nurs*, **19**, 1784-94.

Jackson JL, Chamberlin J, Kroenke K (2001). Predictors of patient satisfaction. *Soc Sci Med*, **52**, 609-20.

Labarere J, Francois P, Auquier P, Robert C, Fourny M (2001). Development of a french inpatient satisfaction questionnaire. *Int J Qual Health Care*, **13**, 99-108.

Leplège A, Coste J (2001). Mesure de la santé perceptuelle et qualité de vie : méthodes et applications. Editions ESTEM. ISBN 2-84371-136-3.

Phi L, Nguyen T, Briançon S, Empereur F, Guillemin F (2002). Factors determining inpatient satisfaction with care. *Soc Sci Med*, **54**, 493-504.

Pishkuhi MA, Salmaniyan S, Nedjat S, Zendedel K, Lari MA(2014). Psychometric properties of the persian version of satisfaction with Care EORTC-in-patsat32 Questionnaire among Iranian cancer patients. *Asian Pac J Cancer Prev*, **15**, 10121-8.

Razavi D, Delvaux N (2002). Interventions psycho-oncologiques : la prise en charge du patient cancéreux. Médecine et psychothérapie. Pris : Masson, 2e éd. ISBN : 2-294-00801-4 (br.).

Shiva A, Haden SC, Brooks J (2009). Psychiatric civil and forensic inpatient satisfaction with care: the impact of provider and recipient characteristics. *Soc Psychiatry Psychiatr Epidemiol*, **44**, 979-87.

Streiner DL, Geoffrey RN (2005). Health measurement scales. A pratical guide to their development and use. 3d edition. ISBN 978-0-19-968521-9.

Zhang J, Xie S, Liu J, et al (2014). Validation of EORTC IN-PATSAT32 for Chinese patients with gastrointestinal cancer. *Patient Prefer Adherence*, **8**, 1285–92.