Measuring Satisfaction in Breast Cancer Patients Receiving Ambulatory Care: A Validation Study

Tabassum Wadasadawala[1]   Akshay Mangaj[2]   Smruti Mokal[3]   Rima Pathak[2]   Rajiv Sarin[2]
Mithila Gaikar[3]   Nita Nair[4]   Jyoti Bajpai[5]   Shalaka Joshi[4]   Seema Gulia[5]

[1] Department of Radiation Oncology, ACTREC, Tata Memorial Centre, Homi Bhabha National Institute, Navi Mumbai, Maharashtra, India
[2] Department of Radiation Oncology, Tata Memorial Hospital, Homi Bhabha National Institute, Mumbai, Maharashtra, India
[3] Department of Clinical Research, Tata Memorial Hospital, Homi Bhabha National Institute, Mumbai, Maharashtra, India
[4] Department of Surgical Oncology, Tata Memorial Hospital, Homi Bhabha National Institute, Mumbai, Maharashtra, India
[5] Department of Medical Oncology, Tata Memorial Hospital, Homi Bhabha National Institute, Mumbai, Maharashtra, India

Address for correspondence Tabassum Wadasadawala, MD, DNB, Department of Radiation Oncology, ACTREC, Tata Memorial Centre, Homi Bhabha National Institute, Kharghar, Navi Mumbai, Maharashtra 410210, India (e-mail: drtabassum2004@rediffmail.com).

Abstract

Introduction Patient satisfaction constitutes a vital service quality indicator. It provides a measure of the gap in health-care requirements and patients' expectations.

Objective The aim of this study was to perform linguistic validation of the questionnaire assessing satisfaction with outpatient care.

Materials and Methods A tool for measuring patient satisfaction was developed and validated at our institute in the English language. This tool was translated into Hindi and Marathi. Subsequently, 339 patients diagnosed with breast cancer consulting in the outpatient department from the different parts of India and having diverse linguistic and socioeconomic backgrounds were enrolled. Patients were asked to complete the satisfaction tool after consultation at a single point of time in a prospective manner.

Results All patients completed the questionnaire. The questionnaire was filled by 120, 116, and 103 patients in Hindi, Marathi, and English, respectively. Both convergent validity and discriminant validity were supported as the correlation coefficient was >0.4 for all items within a scale and <0.7 between different scales. Factor analysis was valid for all except for open-end questions. The internal consistency was >0.9 for all the questions. The mean overall satisfaction score was 88.35 (standard deviation: 19.63). Patients were satisfied in all the aspects of the consultation process, including appointment scheduling, assistant medical staff and faculty, and treating physician. However, some expressed dissatisfaction toward long-waiting times.

Conclusion The translated tool is reliable and valid and effectively measures the satisfaction of patients receiving ambulatory care.

Keywords
► breast cancer
► outpatient
► patient satisfaction
► satisfaction survey

Introduction

Nowadays, a lot of attention is paid toward the patient's perception of the services provided, especially in oncology. Patient satisfaction measures the gap in the quality of service delivered and patients' expectations.[1] There are various definitions of patient satisfaction.[1–12] It measures the patient's contentment with health-care services.[13] Heath states that a truly satisfied patient can be recognized if he leaves the physician's clinic with a happy feeling.[14] Assessment of satisfaction levels provides a patient-centered dimension of assessing health systems.[15] It is important to assess patient satisfaction with the services at multiple levels as medical care is provided by a team of physicians, nurse, and other ancillary staff. It also forms a vital measure of quality tracking and is usually employed by the hospital administrators as a performance indicator.[16]

While there are numerous methods of evaluating patient satisfaction, satisfaction surveys are widely employed because they are easier to perform. There are numerous validated surveys available to measure patient satisfaction like the European Organization for Research and Treatment of Cancer inpatient and outpatient satisfaction questionnaire (EORTC QLQ-OUTPATSAT35, INPATSAT 32),[17,18] Patient Satisfaction and Quality in Oncological Care,[19] Long form Patient Satisfaction Questionnaire (PSQ-III),[20] and Princess Margaret Hospital Satisfaction with Doctor Questionnaire (PMH-PSQ-MD)[21] are a few of them. They are developed to test the satisfaction of inpatients and also have restricted questions for differential evaluation of various members of the medical team (resident, physician, or nurse). As the needs of developing nations are far different from a developed nation,[22,23] these above questionnaires need to be validated in the Indian setting. Unfortunately, none of these tools were found to be validated in the Indian population till the time of reporting of this study. Hence, we decided to develop an indigenous questionnaire that will be suitable for the Indian population and can be used in an outpatient department (OPD). It was developed in the English language in phase I and pilot tested in 50 patients who were fluent in English and attending the outpatient breast clinic at our institute.[24] This tool was subsequently translated in local languages, that is, Hindi and Marathi. In this study, we intend to perform linguistic validation of the tool in patients with varied linguistic and socioeconomic background as well as test the validity and reliability of this translated questionnaire in a larger cohort of patients.

Materials and Methods

The development process and the initial pilot testing of the patient satisfaction survey (PSS) questionnaire have been published earlier.[24] The results of pilot testing supported convergent validity showing high internal consistency and high reliability. The PSS tool consisted of 28 questions; six questions related to administrative services; one question on waiting time; eight questions on ancillary members of the medical team comprising of resident doctors, nurses, and other staff; and ten questions about the treating consultant. The participants could choose any one of the options on a numerical scale of 1 (very dissatisfied) to 5 (very satisfied) depending upon their experience after OPD consultations. The last three questions were open-ended, and the responses were to be scored as Yes or No. The respondents at the end had to rate their overall satisfaction on the same scale ranging from 1 to 5. Our previous publication describes the details of scoring and conversion of raw scores to final scores that were used for the analysis. The initial tool was developed only in the English language; further, the tool was translated into Hindi and Marathi language each by two independent translators. The draft Hindi and Marathi tools were back-translated by two different independent translators, and a final tool was generated. These final versions of Hindi and Marathi tools along with the English tool were served to the patients as per their preferred language at their first consultation in a prospective manner. Patients from all over India with different socioeconomic backgrounds who were diagnosed with breast cancer and attending outpatient clinics for consultation in our hospital were screened and consequently enrolled. Patients with metastatic disease and poor performance status were excluded from the study.

Patients who had histologically confirmed the diagnosis of breast cancer, planned to receive multimodality cancer-directed therapy (surgery, chemotherapy, and radiation therapy) and who were able to understand either of the three languages were screened for the study and consented. Unfit patients with poor performance status and those unable to read and comprehend the questionnaire were excluded.

To reduce bias, the translated tool was served after the patient had OPD consultation by a clinical research staff not involved in patient care. Patients were asked to fill the tool waiting in the clinic area, and it was anonymous. Three hundred and thirty-nine patients diagnosed with breast cancer consulting in an outpatient clinic in our hospital were enrolled.

Statistical Analysis

The analysis was done using the Statistical Package for the Social Sciences software version 23.0. A pilot study conducted in Tata Memorial Hospital with the PSS questionnaire has shown that ~70% of the patients are satisfied with the health-care services. Assuming that the proportion of patients satisfied with the health services, when assessed by Hindi and Marathi PSS questionnaire, would be ± 5% of 70% (between 65% to 75%), a sample size of 340 would be needed to produce a two-sided 95% confidence interval (CI), which was determined by using CIs Formula-Clopper-Pearson method. Data were summarized using the standard measures of central tendency based on the normality distribution of the variables. The item scale and scale–scale correlations were studied for measuring the discriminant and convergent validity. Convergent validity was performed by using the Spearman rank correlation. If individual items within a scale showed moderate or high correlation within their scale (>0.40) convergent validity would be proven. For

discriminant validity, to indicate that the two scales are different in construct, scale to scale correlation coefficient of ≤0.70 was required. Discriminant validity for each item was tested by counting the number of times that the item correlated higher with items of other domains than with items of its own domain. Campbell and Fiske suggest that the count should be <1½ the potential comparisons.[25] The Kaiser-Meyer-Olkin (KMO),[26] a measure of sampling adequacy and Bartlett's test of Sphericity,[27] which are standard tools for exploratory factor analysis, were used for inferring construct validity. A value of KMO ≥0.5 and $p \leq 0.05$ for Bartlett's test is supposed to support construct validity. Similarly, internal consistency and reliability of the questionnaire were assessed by Cronbach's α coefficient. A value of Cronbach's α coefficient ≥0.70 supports internal consistency.

Results

All 339 female patients who gave consent for the study responded to the entire questionnaire that showed a high compliance of 100%. The demographic details of the study cohort are shown in ►Table 1. The paid and subsidized categories were equally distributed. Majority of the patients were literate 314 (94.6%), homemakers 261 (77.0%), and had good family support 310 (91.4%). Local patients comprised 20% of the entire cohort. The questionnaire was filled in Hindi, Marathi, and English by 120, 116, and 103 patients, respectively.

Convergent Validity
The interitem correlation for items (1–6) under appointments and secretarial assistance ranged from 0.62 to 0.78; $p < 0.001$; for assisting medical staff and facilities (items: 9–16), the interitem correlation ranged between 0.7 and 0.85; $p \leq 0.001$. For items (17–26) that assessed the satisfaction related to treating physician (consultant), the interitem correlation ranged from 0.67 to 0.86; $p < 0.001$. Since all the items have correlation >0.4, convergent validity was supported (►Table 2).

Discriminant Validity
►Table 2 describes the result of discriminant validity in detail. In this analysis, potential correlations are studied between each item of one domain with the items of other domains. The correlation coefficient is recorded for all comparisons. The result of comparisons is recorded as a violation

Table 1 The demographic profile of the patients

Characteristics	Numbers (percentages)
Age	Median 49 years (range: 25–80 years)
Stage (%)	Stage I—38 (11.2)
	Stage II—88 (26.1)
	Stage III—213 (62.7)
Laterality (%)	Left—180 (53.0)
	Right—156 (46.1)
	Bilateral—3 (0.9)
Category (%)	Fully paid—172 (50.7)
	Subsidized—167 (49.3)
Family/social support (%)	Yes—310 (91.4)
	No—29 (8.6)
Education level (%)	Nil—12 (3.5)
	Primary—66 (19.5)
	Secondary—92 (27.1)
	Graduate—151 (44.5)
	Postgraduate—5 (1.5)
	Not mentioned—13 (3.8)
Occupation (%)	Homemaker—261 (77)
	Student—1 (0.3)
	Employed—61 (18)
	Retired—7 (2.1)
	Not mentioned—3 (0.9)
Place of residence (%)	Mumbai—81 (20.3)
	Outside Mumbai—258 (79.7)

if the correlation coefficient is >0.7. If such violations are <50%, then it is concluded that the discriminant validity is supported. For items (1–6) under appointment and secretarial assistance, of the 108 potential comparisons, there were no violations. Similarly, for items (9–16) under assisting medical staff and facilities, there was only one violation out of 128 comparisons. For items (17–26) under treating physician (consultant), also there was one only violation out of 140 comparisons. As shown in ►Table 2, as all the values for scale-scale correlation are ≤0.7, discriminant validity is supported for all the domains.

Table 2 Construct validity and internal consistency of scores for patient satisfaction survey scale

Questions	Cronbach's α	Interitem correlation	Interitem correlation significance value	Scale–scale discriminant validity
Items (1–6) appointment and secretarial assistance	0.93	0.62–0.78	<0.001	0.41–0.65
Items (9–16) assisting medical staff and facilities	0.96	0.70–0.85	<0.001	0.42–0.70
Items (17–26) treating physician (consultant)	0.97	0.67–0.86	<0.001	0.40–0.70

Table 3 Factor analysis and loadings per item using varimax rotation

Scales	Bartlett's sphericity	KMO	Factor loading	Variance explained (%)
Items related to your appointment and secretarial assistance				
Ease of scheduling your appointment	<0.001	0.902	0.702	74.84
Courtesy			0.761	
Efficiency			0.758	
Communication skill			0.779	
Availability of the physician			0.702	
Overall satisfaction			0.788	
Items related to the assisting medical staff and facilities				
Thoroughness about case	<0.001	0.943	0.765	79.20
Courtesy			0.847	
Efficiency			0.815	
Communication skill			0.784	
Clarity in explanation			0.765	
Ability to resolve your queries			0.797	
Privacy of consultation			0.742	
Overall satisfaction			0.821	
Items related to your treating physician (consultant)				
Time spent	<0.001	0.945	0.713	80.01
Willingness to listen			0.821	
Ability to explain			0.823	
Explanation of tests			0.805	
Your involvement			0.741	
Ability to diagnose problems			0.818	
Skill in treating condition			0.798	
Responsiveness to questions			0.817	
Gave comfort and support			0.822	
Overall satisfaction			0.857	

Abbreviation: KMO, Kaiser-Meyer-Olkin.

Factor Analysis

The KMO values as well as Bartlett's test for Sphericity strongly support construct validity for most of the domains, as shown in ►**Table 3**. Thus, after varimax rotation, items 1 to 6 appointment and secretarial assistance account for 74.84% of the variance; assisting medical staff and facilities account for 79.2% of the variance; and treating physician (consultant) accounts for 80.01% of the variance. However, the open-end items have KMO coefficient 0.492; hence, factor analysis for these questions was not valid.

Internal Consistency

For appointment and secretarial assistance domain, the Cronbach's α was calculated as 0.93, Cronbach's α was 0.96 for assisting medical staff and facilities, and 0.97 for treating physician (consultant) domain. The overall reliability for the 25 items was 0.974, as shown in ►**Table 2**.

Patients' Satisfaction

There were a total 246 (72.6% [95% CI: 68–77%]) patients out of 339 patients, who were estimated to be satisfied. The mean overall satisfaction score of the patient was 88.35 with standard deviation (SD) of 19.63. Patients were satisfied in most of the aspect of OPD consultation process including appointment scheduling process with a mean score (SD) of 86.87 (22.78), assistant medical staff and faculty with a mean score (SD) of 88.79 (20.79), and treating physician with a mean score (SD) of 90.19 (19.37); however, some expressed dissatisfaction toward the long-waiting times with a mean score (SD) of 67.48 (33.1), as shown in ►**Tables 4**, **5**, **6**.

Discussion

The main objective of this survey study was to perform linguistic validation of the PSS questionnaire in a larger

Table 4 The mean satisfaction scores of patients with items related to your appointment and secretarial assistance

Items related to your appointment and secretarial assistance	Mean (SD) patients satisfaction score
Ease of scheduling appointment	83.11 (25.45)
Courtesy	85.69 (23.51)
Efficiency	87.09 (23.89)
Communication skill	86.50 (23.09)
Availability of the physician	87.39 (23.19)
Overall satisfaction	86.87 (22.78)

Abbreviation: SD, standard deviation.

Table 5 The mean satisfaction scores of patients with items related to the assisting medical staff and facilities

Items related to the assisting medical staff and facilities	Mean (SD) patients satisfaction score
Waiting time	67.48 (33.01)
Thoroughness about case	88.35 (20.46)
Courtesy	87.68 (20.83)
Efficiency	88.50 (20.99)
Communication skill	87.32 (23.35)
Clarity in explanation	88.57 (21.25)
Ability to resolve your queries	87.68 (22.21)
Privacy of consultation	89.75 (20.71)
Overall satisfaction	88.79 (20.79)

Abbreviation: SD, standard deviation.

Table 6 The mean satisfaction scores of patients with items related to your treating physician

Items related to your treating physician	Mean (SD) patients satisfaction score
Time spent	85.77 (22.47)
Willingness to listen	88.20 (21.86)
Ability to explain	88.72 (22.09)
Explanation of tests	88.86 (20.97)
Your involvement	88.13 (21.26)
Ability to diagnose problems	90.78 (19.56)
Skill in treating a condition	90.86 (19.07)
Responsiveness to questions	88.72 (20.71)
Gave comfort and support	89.68 (20.18)
Overall satisfaction	90.19 (19.37)
Overall satisfaction	88.35 (19.63)

Abbreviation: SD, standard deviation.

The EORTC IN-PATSAT32 is a multidimensional scale specifically designed to assess the satisfaction of care services by patients in oncology setups and was validated in the context of a large multicentric study in 2004. The EORTC INPATSAT 32 that has been validated in different populations has shown strong psychometric properties.[28] The PMH-PSQ-MD is validated for outpatients with Cronbach's α value of 0.97.[29] The most commonly used tool worldwide is EORTC OUTPATSAT35[18] and EORTC INPATSAT32.[17] However, these questionnaires are not validated in the Indian population, and our questionnaire is a novel one in this regard. At the time when the pilot study with PSS was undertaken, the EORTC OUTPATSAT 35 questionnaire was not validated in Indian patients. Hence, the PSS tool was formed to suit the local clinical environment. Moreover, it is now known that the EORTC has revised the OUTPATSAT 35 questionnaire and made a new one EORTC PATSAT 33 core questionnaire and EORTC OUTPAT 7 for the outpatient setting.[18] It comprises of seven questions related to medical professionals, waiting time, and information provided by caregivers. This questionnaire is yet to undergo cross-cultural validation including India.

PSS questionnaire is unique from other tools in various aspects. It has items separately for care provided by resident doctors that no other tools have assessed so far. It has included all the items about a patient's visit in an OPD from the appointment process to decision-making, giving it a holistic value. The items for physicians, nurses, and secretary have been segregated. The majority of the tools are too lengthy (32–60 items), and this restricts its practical use in a busy outpatient clinic. Hence, we developed this questionnaire that is an abbreviated 28 item tool, which will facilitate its use in the clinical practice to evaluate the quality of service.

The present findings support that PSS tool is highly reliable and valid and suitable for use in the Indian population in the outpatient clinic. Patients have certain

cohort of Indian patients compared with the earlier pilot study. In our previous study, in 50 English-speaking patients, the PSS questionnaire supported convergent and discriminant validity and the overall reliability of the PSS was 0.96.[24] In our study, we included women from all over India with different linguistic and socioeconomic backgrounds to represent the true population visiting the daily OPDs. The likelihood of generalizability of the results if supported by the narrow CI (95% CI: 68–77%) of the proportion of satisfied patients as the CI is <10% that is acceptable in terms that the true population estimate will fall between these intervals. In this study, the PSS supported convergent and discriminant validity with the reliability of 0.96 and good internal consistency. Furthermore, scores on each domain of the questionnaire correlated significantly with an overall satisfaction score of the patients, suggesting that each question in domain measured some aspect of patient's satisfaction. It also revealed that the items chosen in each domain were related and hence resulted in good internal reliability. Moreover, there was a concurrence between the score of each domain with the overall satisfaction score, implying that all questions impacted patients' overall satisfaction.

expectations from the health-care provider, and their satisfaction or dissatisfaction is an outcome of their experience.[3] Patients' perception of care is also a reflection of the doctor–patient relationship. Psychologists say that satisfied patients tend to follow medical advice with diligence as they trust their physician.[8] Patient satisfaction should be given due importance and efforts must be taken to evaluate and improve it. This PSS tool can be used to assess the satisfaction levels of patients routinely and can guide us to provide patients their unmet needs. It will also be worthwhile to assess the satisfaction levels longitudinally at multiple time points as this will give an opportunity to test–retest the psychometric properties of the PSS questionnaire to study consistency in its performance. This we intend to undertake in the future wherein we would evaluate the satisfaction of the patients at three time points over their treatment course, as we expect that their needs will differ in different phases. Nonetheless, the PSS questionnaire has turned out to be a robust tool which can be considered for routine use and which can also serve as a measure of performance indicator. This tool can be used in other nononcological outpatient clinics as well.

Conclusion

The PSS tool has shown high reliability and validity when tested in the larger cohort of breast cancer patients and can be used in routine clinical practice. The robustness of the tool suggests its potential for wider dissemination across the country in nononcological outpatient clinics as well. Further studies can be considered to evaluate the temporal trends in patient satisfaction over the course of their treatment.

Ethics

This study was approved by the Tata Memorial Centre Ethics Committee on March 22, 2017 and project number 1835 was assigned. Patients were given consent forms in their preferred language and written consent was obtained. The procedures followed were in accordance with the ethical standards of the institutional committee on human experimentation and with the Helsinki Declaration of 1964, as revised in 2013.

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Conflict of Interest
None declared.

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