

Research

Validation of Patient Satisfaction Survey (PSS) for Outpatient Care Carried out in Multi-Disciplinary Breast Clinic

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Abstract

Purpose

Patient satisfaction primarily assesses the effectiveness of primary health care delivery. We have developed a Patient Satisfaction Survey (PSS) questionnaire to evaluate the overall level of patient satisfaction which can be helpful to improve patient care delivery.

Methods

Sixty five English speaking breast cancer patients receiving active cancer directed treatment in outpatient clinic were consecutively screened for the pilot study from March to June 2016 and 50 patients were enrolled. Each patient had to complete 3 surveys: one each for surgical, medical and radiation oncology professionals. Patients perception of the questionnaire was also recorded using the QQ 10 questionnaire.

Results

The convergent and discriminant validity was supported for the items of PSS. The overall reliability of the PSS was 0.96. The mean (SD) overall satisfaction scores for surgical, medical and radiation professionals were 84 (16), 85 (17) and 88 (17) with $p=0.09$. The median waiting period was 3 hours for surgical & medical teams and 1 hour for radiation oncology team ($p=0.02$). There was no difference among the groups in the items pertaining to appointment and secretarial assistance, medical staff, facilities and treating physician. The PSS was found to have high mean value (85, SD 10.6) and low mean burden (41, SD 17) based on QQ-10 items.

Conclusion

The PSS is a valid and reliable tool and showed a high satisfaction among the patients receiving outpatient care. This study forms the basis for a validation study on larger cohort of patients with diverse linguistic and economic background.

Keywords: Cancer; Oncology; Patient Satisfaction; Satisfaction Survey; Breast Cancer

Introduction

Patient satisfaction primarily assesses the quality of care delivered, as assessed from the patients' perspective. Delivering patient oriented care remains paramount, perhaps more so in the modern era of medicine characterized by its reliance on modern technology. The technical aspects of care often take a front seat for the physician during communication, and attention to individual patient suffers [1,2]. Patient satisfaction denotes the extent to which the health care needs and expectations of patients are met [3]. Susie Linder-Pelz has defined patient satisfaction as "positive evaluations of distinct dimensions of health care" [4]. Patients have a certain expectation from the health care provider and their satisfaction or dissatisfaction is an outcome of their experience [5].

Cancer care does differ significantly from care provided for other illness [6]. Cancer is one of the leading causes of morbidity and mortality worldwide [7,8]. It is a source of immense physical, mental and emotional distress for patients and drives them to

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reprioritize their life needs [9]. Hence patient satisfaction should be prioritized when aiming to provide a holistic cancer care.

There are various ways to evaluate patient satisfaction in oncology, which includes individual interviews, discussion groups, panels, consultation of voluntary groups, analyses of complaints and surveys. Amongst these, satisfaction surveys are the most widely used method [10]. There are various questionnaires available to measure satisfaction like European Organization for Research and Treatment of Cancer inpatient and outpatient satisfaction questionnaire (EORTC QLQ-INPATSAT32, OUTPATSAT 35), Patient Satisfaction and Quality in Oncological Care (PASQOC), Long form Patient Satisfaction Questionnaire (PSQ-III) and Princess Margaret Hospital Satisfaction with Doctor Questionnaire (PMH-PSQ-MD) [11]. However these questionnaires are either under development or are lengthy, have limited items for assessment of different health care professionals like doctors (resident or consultant) or nurse and majority are limited to the inpatients alone. Moreover they have been developed for patients of developed nations where expectations and resources for health care delivery are different from the less developed nations.

Breast cancer patients undergoing cancer directed treatment may be dissatisfied with the various elements of care provided. Hence we developed a Patient Satisfaction Survey (PSS) questionnaire to evaluate the overall level of patient satisfaction in the outpatient clinic inclusive of their satisfaction at various encounters in the multi-disciplinary breast clinic which can be helpful to improve various aspects of patient care delivery. While this questionnaire can be used across all cancer sites, only breast cancer patients were accrued in this study as the investigator's area of practice is limited to breast. The objective of the current study is to report the validation of this PSS questionnaire and its psychometric properties.

Material and methods

Research setting

The study was conducted in a tertiary cancer hospital in India, which caters to patients from diverse socioeconomic backgrounds. The breast cancer multidisciplinary services include the surgical, medical and radiation oncologists who jointly decide the optimal management for the patients. The study was specifically carried out among the breast cancer patients attending the outpatient clinics. The current study was also limited to patients who were proficient in English so as to complete the linguistic validation of questionnaire. This is an Institutional Review Board (IRB) approved prospective, cross sectional, pilot study conducted over a period of 4 months.

Participants

Histologically confirmed breast cancer patients who were also fluent in English and were undergoing curative intent multi-

modality treatment were eligible for the study. The patients who were aware of their diagnosis and treatment plan and consented to participate in the study were included. Patients should have undergone separate consultations in the surgical, medical and radiation oncology outpatient clinics and preferably be taking all the components of treatment (surgery, chemotherapy and radiation) at our centre prior to inclusion in the study. Only patients within one month of the last consultation were invited to participate. Patients with poor performance status (ECOG 4) and metastatic disease were excluded from the study. The study was conducted at one time point and patients were consecutively screened for this pilot study from March to June 2016. Patients who fulfilled the eligibility criteria were asked to participate in the study after signing the informed consent form (ICF). Patients were administered PSS questionnaire. (Supplementary material Table 1) It was served to patients while they were waiting for outpatient consultation or radiotherapy services or day care services. The PSS was administered anonymously. Each patient had to complete 3 surveys: one each for the surgical, medical and radiation oncology consultations that the patient had. Patients perception of the questionnaire was also recorded using the QQ 10 questionnaire. (Supplementary material Table 2)

Instruments

Patient Satisfaction Survey (PSS) questionnaire

Development of the tool: The item bank for the development of the questionnaire was constructed based on literature review. These items were presented and discussed amongst the physicians (from surgical, medical and radiation oncology) in the multi-disciplinary tumor board academic meeting for their relevance and inclusion in the PSS tool. The generated tool items and the item bank were then shown to 10 patients attending the outpatient breast clinic who were asked to comment whether there was any need to add any items from the bank to the questionnaire. As all the patients felt that the generated tool captured most of the items important for different professionals and encounters, it was adopted as the final tool. The items in the generated tool were converted into questions with Likert responses. This was followed by pre-testing in 50 breast cancer patients who were served the PSS tool along with the QQ-10 which measures the value and burden of the developed tool.

The final PSS tool contains 28-items pertaining to appointment and secretarial assistance (Item 1 a-f), waiting time (Item 2), medical staff and facilities (Item 3 a-h), related to treating physician (Item 4 a-j), 2 items regarding recommending the consultant physician to others and continuing the care with same consultant and 1 item on overall satisfaction. The response formats included 5- point and 3-point Likert items. There were 26 items (Items 1-4) of the 5-point Likert ratings of "Very dissatisfied," "somewhat dissatisfied," "Neutral," "somewhat satisfied," or "Very satisfied." A 3-point

Likert type rating was used for two items with ratings of ‘‘yes,’’ ‘‘no’’ and ‘‘not applicable’’. For each of the rated 25 items, a score of 1-5 was assigned. This gave a maximum score of 125 and a minimum score of 25. These raw scores were converted on to a scale of 0-100. A score of 75 or above indicated that patient is satisfied with the care provided.

QQ 10 Questionnaire

Patients’ perception and opinion about the PSS questionnaire was recorded using the QQ 10 questionnaire. It has been used to assess the face validity and utility of questionnaires [12]. It is a patient administered tool with 10 Like it items with a 5-point scale assessing an individual’s concordance with statements on the patient experience of questionnaire use. Two factors were assessed: 1) Value (Communication, relevance, ease of use, enjoyableness, comprehensiveness, willingness to repeat) and 2) Burden (Overlong, embarrassing, complicated, upsetting). For both value and burden, a score of 1-5 was assigned. These raw scores were converted on to a scale of 0-100.

Statistics

Convenience sampling was used in this study. This is a pilot study and 50 consecutive patients who were proficient in English were enrolled. IBM SPSS version 20.0 (SPSS, Chicago, IL) was used to perform statistical quantitative analysis. The characteristics of the patients were summarized using tabulations for means, median and standard deviations for all the PSS domains.

Construct validity was assessed using Spearman rank correlation between the items and scales (convergent validity) and between scales (discriminant validity). Items within a scale were correlated with their own scale when correlation coefficient is > 0.4 [13,14]. Scaling success for items and scales was defined as those cases in which an item correlated significantly higher with its own scale than with another scale. Correlation coefficient of < 0.70 was required to indicate that the two scales assess differently related constructs. Internal consistency (scale reliability) of the questionnaire was tested by Cronbach’s alpha coefficient of 0.70 or higher when scales were used for group comparisons. A low alpha value suggests that some items either have high variability or that the items are not measuring the same thing. Exploratory factor analysis was used to assess the underlying factor structure of the questionnaire.

The normality of the data was assessed with Kolmogorov Smirnov and Shapiro-Wilk tests. The satisfaction scores were compared between the three groups of professionals using the Kruskal Wallis test.

Results

A total 65 patients were screened over a period of four months and the required 50 patients were accrued in the study.

Convergent validity

The smallest within factor correlations are Item 1 (1a-f) appointment and secretarial assistance: 0.580, $p < 0.0001$, item 3 (a-h) assisting medical staff and facilities 0.53, $p < 0.0001$ and item 4 (a-j) treating physician 0.27 and $p = 0.031$. These correlations are significantly different than zero and hence convergent validity is supported. (Table 1)

Discriminant validity

Discriminant validity for each item is tested by counting the number of times that the item correlates higher with items of other factors than with item of its own theoretical factors. Campbell and Fiske suggest that the count should be less than one half the potential comparisons. Item 1: there were 34 violations out of 108 comparisons. Hence discriminant validity is supported. Item 3: there were 53 violations out of 128 comparisons. Hence discriminant validity is supported. Item 4: there were 124 violations out of 140 comparisons. Hence discriminant validity is not supported.

Factor Analysis: Bartlett’s test of Sphericity yielded a statistically significant value ($p = 0.000$) and Kaiser-Meyer-Olkin measure of sampling adequacy was high (0.75). These indices implied that the matrix was well suited for factor analysis. The Maximum Likelihood and the varimax rotation were chosen to support a four-factor solution. Factors I through IV explained the following percentage of variances: 25.25, 22.45, 16.73 and 8.18, respectively. (Table 2)

Internal Consistency: The internal consistency of the subscale scores was estimated by Cronbach’s alpha. The internal consistency estimates of the PSS showed high consistency for three factors (item 1, 3, 4) for which Cronbach’s alpha was 0.9 or greater. The overall reliability for the 25 items (item 1-4) was 0.96. The reliability scores of PSS when administered to surgical, medical and radiation professionals were 0.96, 0.97 and 0.97 respectively for the whole questionnaire. The table 2 summarizes the reliability estimates of

Table 1: Validity and Reliability measures of the PSS questionnaire.

	Cronbach’s Alpha	Inter-Item Correlation	Inter-Item corr. significance value	Item-discriminant validity (IDV)
Item1(a-f) (Appointment and secretarial assistance)	0.926	0.58-0.76	<0.0001	0.07-0.739
Item 3 (a-h) (Assisting medical staff and facilities)	0.952	0.53-0.89	<0.0001	0.092-0.739
Item 4 (a-j).(Treating physician)	0.931	0.27-0.85	0.031	0.07-0.714

Table 2: Factor analysis of PSS.

Factor	Item	Factor loading	Variance explained	Cronbach's alpha
Factor I (Assisting medical staff and facilities)	3a	.76	25.25%	0.952
	3b	.727		
	3c	.856		
	3d	.708		
	3e	.818		
	3f	.721		
	3g	.808		
	3h	.786		
Factor II (Treating physician)	4b	.531	22.45%	0.931
	4c	.693		
	4d	.826		
	4e	.602		
	4f	.881		
	4g	.862		
	4h	.494		
	4i	.641		
	4j	.769		
Factor III (Appointment and secretarial assistance)	1a	.801	16.73%	0.926
	1b	.778		
	1c	.634		
	1d	.653		
	1e	.486		
	1f	.788		
Factor IV	2a	.773	8.18%	0.571
	4a	.784		

the 5 components of the questionnaire.

Satisfaction Scores: The mean overall satisfaction scores of the whole questionnaire for the surgical, medical and radiation professionals was 84 (16), 85 (17) and 88 (17). There was no statistical difference in the scores between the 3 groups ($p=0.17$). The mean values of the items for appointment and secretarial assistance, medical staff and treating physician were high, majority being 80 and above. The values are summarized in Table 3,4,5.

There was no difference among the groups in the items pertaining to appointment and secretarial assistance, medical staff and facilities and related to treating physician.

Waiting Time: The median waiting period was 3 hours for surgical team, 3 hours for medical oncology team and 1 hour for radiation oncology team. The item scores pertaining to waiting times were significant better in the radiation group compared to other ($p=0.02$) as shown in Figure 1.

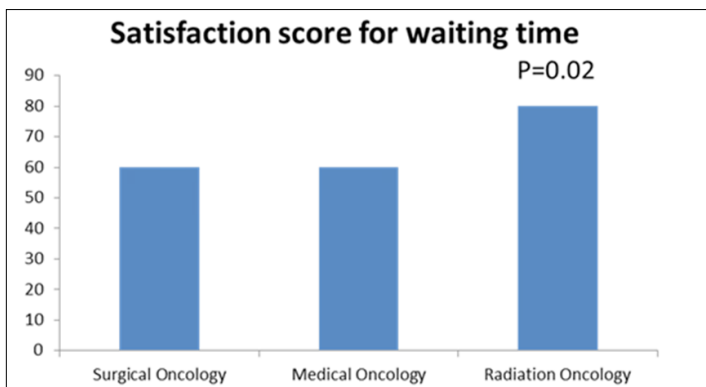


Figure 1: Bar diagram showing satisfaction scores for the waiting times. Majority of patients wished to return or continue the treatment

with the consulting physicians: surgical oncologists 94%, medical oncologists 94% and radiation oncologists 92%. Majority of patients wished to recommend the treating consultants to other patients: surgical oncologists 90%, medical oncologists 88% and radiation oncologists 84%. About 28-38% of patients felt the existing care provided in breast disease management group needed improvement. Some of the suggestions given by patients were improvement in infrastructure with increase in seating space in outpatient clinics, display of waitlist numbers in the outpatient area and measures to reduce waiting period for surgery and radiation.

QQ 10

The PSS was found to have high mean value (85, SD 10.6) and low

Table 3: Satisfaction scores pertaining to item 1 of PSS.

Appt and secretarial assistance	Surgical Oncology	Medical Oncology	Radiation Oncology	P value
Ease of scheduling your appointment.	83.6 (20)	81.2 (21)	85.2 (18)	0.40
Courtesy	87.2 (17)	85.2 (19)	87.6 (19)	
Efficiency	90.4 (15)	85.2 (18)	88.4 (18)	
Communication skill	89.6 (16)	86.2 (17)	88.8 (18)	
Availability of the doctor on your appointment day.	88 (19)	87.2 (21)	87.2 (22)	
Overall satisfaction.	86.8 (18)	84.4 (20)	88 (18)	

Table 4: Satisfaction scores pertaining to item 3 of PSS.

Medical Staff	Surgical Oncology	Medical Oncology	Radiation Oncology	P value
Thoroughness about your case history and examination	87.2 (20)	85.2 (18)	89.2 (18)	0.28
Courtesy	86 (19)	84.8 (20)	88.4 (21)	
Efficiency	90.2 (16)	88 (18)	91.2 (19)	
Communication skill	89.6 (20)	89.6 (18)	91.2 (18)	
Clarity in explanation of your disease condition and medical instructions	91.2 (16)	90 (19)	92.8 (19)	
Ability to resolve your queries	85.2 (18)	86.8 (18)	88.8 (20)	
The privacy of the consultation and examination room	88.4 (19)	83.6 (21)	88 (20)	
Overall satisfaction	88.8 (17)	87.2 (17)	89.6 (17)	

Table 5: Satisfaction scores pertaining to item 4 of PSS.

Treating Physician	Surgical Oncology	Medical Oncology	Radiation Oncology	P value
Time spent with you	87.2 (16)	85.6 (17)	91.2 (15)	0.17
Willingness to listen to you patiently	90.2 (11)	89.6 (15)	92.4 (15)	
Ability to explain your medical condition honestly	92.8 (12)	91.6 (12)	92.4 (15)	
Explanation of tests, procedures, treatment	92.4 (13)	89.6 (15)	92 (18)	
Your involvement in the decision making	89.6 (15)	89.6 (14)	90.6 (16)	
Ability to diagnose problems	90.4 (15)	90 (16)	93.2 (16)	
Skill in treating condition	92.8 (11)	90 (16)	92.8 (16)	
Responsiveness to questions	90 (13)	88.4 (16)	93.2 (16)	
Gave comfort and support	87.6 (15)	87.6 (15)	90.8 (16)	
Overall satisfaction	90.4 (14)	90.8 (14)	92.8 (16)	

mean burden (41, SD 17). None of the patients had any suggestions on the improvement of questionnaire.

Discussion

Patient satisfaction is a patient reported outcome measure which is used to evaluate the health care process and identify gaps in the care. It is a quality outcome index used to measure the success of service delivery system [15]. Various patient satisfaction surveys and tools have been developed and validated in cancer patients in general [11]. In this study, we have shown that PSS questionnaire has good psychometric properties. High level of satisfaction was seen among the outpatient breast cancer patients for all three oncological specialties (surgical, medical and radiation).

Piang et al studied the patient satisfaction with the health care providers in the six regional cancer centres in India. They evaluated 609 patients using the EORTCIN-PATSAT32 questionnaire. 70 percent of the patients were satisfied with the facilities, doctors, nurses, services and care, except on the few items like information support by doctor or nurses and the facilities for attendants [16].

Landen et al studied the satisfaction with physicians in 48 cancer patients using the Princess Margaret Hospital Satisfaction with Doctor Questionnaire (PMH-PSQ-MD). 96% patients responded of which 58% were breast cancer patients. Satisfaction was measured on a scale of 1 to 4, with 4 being the most satisfied. The average questionnaire score was 3.08. The factors associated with high level of patient satisfaction were communication, physician honesty and thoroughness in clinical examination [17].

A few satisfaction studies have been carried out in breast cancer patients [18,19,20,21,22]. Breast cancer care involves a multidisciplinary approach and requires excellent coordination during various phases of treatment. Bergenmar and colleagues studied changes in patient satisfaction at an outpatient clinic for 316 patients with breast cancer at 2 time points 3 years apart [18]. The questionnaire consisted of 12 multiple-choice items assessing waiting time, interpersonal skills of physician and nurse, continuity of care, length of medical visit, communication and expectations. Statistically significant improvements were found in 8 of the 12 items (waiting time, duration of visit, expectations, continuity of care and information). The questionnaire showed improvement in patient satisfaction between the two measurements. However, despite improvement, further changes were suggested for continuity of care. However, the validity and reliability of the questionnaire was not reported.

Brown et al studied the satisfaction rates and expectations in 395 early-stage breast cancer patients and evaluated the concordance of consultations of 56 oncologists [19]. Patients and oncologists completed a matched questionnaire measuring (a) met expectations, (b) concordance over content and item importance,

and (c) satisfaction using the Patient Services Received Scale (PSRS). The patient satisfaction was high especially when patient expectations were met. Overall patient expectations were not met and there was high discordance between physician patient over consultation content and items.

The most commonly reported measures of any quality of life tool are validity and reliability [23]. The EORTC INPATSAT 32 which has been validated in different populations has shown high internal consistency with a Cronbach's alpha value of 0.8-0.9 and criteria for convergent and discriminant validity was met [24,25]. The PMH-PSQ-MD is validated for outpatients with Cronbach's alpha value of 0.97 [11]. Similarly, the PSS tool used in the current study has shown a high reliability with an overall Cronbach's alpha value of 0.96 with both convergent and divergent validity supported.

Patient perceptions and views on the utility of the tool are also relevant when designing and adapting the tool in clinical practice [26]. QQ 10 is valid and reliable measure to assess the value and burden of questionnaires and shows good internal reliability for the face validity of questionnaires [9]. QQ 10 was used to assess patient's views on Kings Health Questionnaire (KHQ), which showed high patient value and low burden [27]. Similarly in our study, the assessment of PSS with QQ 10 showed high patient value and low burden, indicating the ease of use in clinical practice and also likely to improve the compliance with the use of this tool when tested in a large population.

PSS questionnaire is different from other tools in various aspects. It has items separately for care provided by resident doctors which no other tools have assessed so far. The items for physician, nurses and secretary have been segregated. Many of the reported tools use same items/responses for 2 health professionals (doctor and nurse) which may not be relevant. Majority of the tools are too lengthy (32 to 60 items) and this restricts its practical use in a busy outpatient clinic. Hence we developed this questionnaire which is an abbreviated 28 item tool, which will facilitate its use in clinical practice to evaluate the quality of service.

The limitations of the study were that it was done in only private patients and hence bias cannot be ruled out. Secondly this was a pilot study conducted among only the English speaking population. We plan to validate the tool across common languages (Hindi and Marathi) and use the same in both private and general outpatient clinics. We used convenience sampling which may have an effect on the rigor of the study. However a sample size of 50 patients seems to be adequate for studying the psychometric properties of the tool. The test- retest reliability could not be reported as the study was conducted at one time point. The continuity of patient care was not studied in this pilot study but we plan to do the same in the validation cohort.

Conclusion

The PSS is a valid and reliable tool and showed a high satisfaction among the patients receiving outpatient care in multidisciplinary clinic. There was no difference in the satisfaction scores among the surgical, medical and radiation oncology professionals. The PSS had a high patient value and low burden when used in clinical practice based on assessment with QQ 10. This study forms the basis for a validation study on larger cohort of patients with diverse linguistic and economic background.

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