

Customer Satisfaction as a Quality Factor in Geriatric Rehabilitation

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Abstract: Customer satisfaction is relevant for geriatric rehabilitation, besides objective outcomes. We aimed at measuring customer satisfaction at discharge from our rehabilitative wards, and at singling out its predictive factors. We studied 506 elderly patients, aged 78 ± 8 years. Satisfaction at discharge scored high in all 4-levels graded items of a questionnaire surveying perception of patient improvement, quality of rehabilitative treatment, physicians' and nurses' intervention, personal care, lodging quality, goodness of information got. Mean overall rating (scoring 0 to 10) of the rehabilitative stay was 9.2 ± 2.1 , median and mode were 10. Rating correlated with: relative functional gain ($r = 0.23$, $p < .000$), absolute Barthel Index total score at discharge ($r = 0.18$, $p < .000$), net gain in Barthel Index total score at discharge ($r = 0.1$, $p = 0.021$), and improvement in CIRS Severity Index ($r = 0.9$, $p = 0.043$). Relative functional gain was the only variable predictive of rating that was retained by stepwise multiple regressions ($p < .000$).

Keywords: Customer satisfaction, geriatric rehabilitation, functional gain.

INTRODUCTION

The body of evidence favoring geriatric rehabilitation is growing incessantly [1]. Traditional outcomes of geriatric rehabilitation include: 1) functional improvement, 2) clinical stabilization, and 3) getting back home. Such aims can be pursued to somewhat different extents and at varying degrees of combinations [2]. Yet, it matters of objective outcomes only. Subjective aspects are getting increasing relevance [3-5]. Customer satisfaction is a concept centred on the vision of the patient as a "user-client", in the "total quality" perspective [www.eoq.org accessed 1-12-2008]. Only the client's perspective (by the patient her/him-self, or by a valid proxy) provides a full comprehension of the effects of disease(s) and treatment(s) on the patient [5]. Customer satisfaction then stands besides objective outcomes of geriatric rehabilitation. Therefore, we aimed at estimating customer satisfaction at discharge from our rehabilitation wards (by the patient her/him-self, or by a proxy) and at picking out possible predictive factors.

MATERIALS AND METHODS

Outcome Measures

In order to measure customer satisfaction, we built an on-purpose questionnaire, using few simple words easily understandable also by old persons with low formal education. Such questionnaire taps the following items: patient improvement, perceived quality of rehabilitative treatment, physicians' and nurses' intervention, personal care, lodging

quality, goodness of information purchased. Customer feelings are which graded on four levels: "very dissatisfied", "dissatisfied", "satisfied", "very satisfied", not allowing for neutral answers, as already performed in rehabilitative settings [6]. A grade from zero to ten synthesized the overall judgment on the rehabilitative stay. Customer expectation may vary between items: yet, we decided not to load our items, as a preliminary survey concluded that our clients had top expectations in every care items. Once refined, the questionnaire was offered to all patients and / or relatives, close to discharge; yet, many did not respond.

Explanatory Measures

Functional status was assessed at entry and at discharge by the Barthel Index (BI), as revised by Shah – in the Italian translation validated by one of author (M.C.): the BI is the most widely used and robust scale for dependence [7, 8]. Loaded scores in ten basic activities of daily living are summed to a potential total score of 100. Overall functional outcome was measured also as % functional gain relative to the rehabilitative potential, according to the formula: $[(BI \text{ total score at discharge} - BI \text{ total score at entry}) * 100] / (100 - BI \text{ total score at entry})$. Clinical status was assessed through the Cumulative Illness Rating Scale (CIRS) by comorbidity and severity indexes, both at entry and at discharge [9]. Basic cognitive function was assessed by the Mini Mental Status Examination (MMSE) [10].

Setting

A rehabilitation ward whose two units host forty inpatients each; the staff consisted of forty-two nurse-aids, twelve registered nurses, two head nurses, eleven physiotherapists, two nurse-aids committed to the gym, and six physicians.

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Table 1. Patients' Characteristics at Admission and Respective Modifications at Discharge

Variable	Admission Score: Mean (SD)	Difference at Discharge: Mean (SD)	p ^a
Barthel Index (BI) total score	56.5 (25)	21.4 (14.7)	< .000
CIRS severity index	2.1 (1.4)	- 0.17 (0.19)	< .000
CIRS comorbidity index	4.6 (2.1)	- 1 (1.2)	< .000
MMSE	21.5 / 30 (6.9)	2.4 / 30 (3)	< .000

Abbreviations

CIRS: Cumulative Illness Rating Scale; MMSE: Mini Mental Status Examination.

Notes^a By paired t-test.**Statistical Analysis**

Descriptive analysis, measures of associations (by cross-tabulations), group comparisons (by paired parametric as well as non-parametric tests, as appropriate), bivariate correlations and multiple regression were conducted with SPSS software for Windows, release 11 (SPSS, Chicago, IL, USA).

RESULTS

We studied 506 patients admitted in our rehabilitation wards, who filled the questionnaire. Half of them came from their home and half from nearby referring hospitals, because of a variety of typical geriatric diagnosis or syndromes. Main problems at entry were disability following fractures, hemiplegia, joint replacement, but they comprised also de-conditioning due heart failure, parkinsonism, vascular peripheral disease, and convalescence or immobilization syndromes after medical or surgical hospital stays, with related complications such as pressure sores or dysphagia. Two patients out of three were female; their mean age was 78 years (Standard Deviation: SD = 8). Socio-demographic features and relevant health status / frailty variables were reported by a simple checklist: 40 % lived alone, 14 % had communication impairments, 10 % needed some arrangement to be fed.

Non-responders inpatients were older, more functionally and clinically impaired (both at admission and at discharge), had more frequent troubles with communication and feeding, had more problems with pressure sores (both at admission and at discharge); they had also less efficient gains in severity and comorbidity and marginally lower MMSE at discharge; they were less frequently discharged to home. No statistically significant differences were found between respondents and non-respondents as for age, sex, living together, cognitive level at admission, absolute functional and cognitive gains, and length of stay.

Two set of results will be shown: the first set (I) will focus on overall geriatric rehabilitation outcomes – relative to the traditional aims of geriatric rehabilitation, and other contextual information, the second set (II) will pertain specifically satisfaction outcomes.

(I) 89,7 % of patients were discharged to home. Mean length of stay was 43.7 days (SD = 16.3). Patients' features and respective modifications at discharge are shown in Table 1.

Entry mean Barthel Index total score corresponded to a moderate – severe dependence; at discharge, functional gain

achieved a mild dependence level, through the fulfillment of 58.6 % (SD = 31.8 %) of the rehabilitative potential. Also clinical and cognitive indicators averaged significant gains. 17.2 % of patients had one or more pressure sores stage ≥ 2 (according to European Pressure Ulcer Advisory Panel (EPUAP) grading) at entry, who became 6.8 % at discharge ($p < .000$ by both Chi-square and Kendall's tau-b tests, across all stages); also the number of pressure sores per patient – stage ≥ 2 EPUAP – decreased significantly ($p < .000$ by Wilcoxon test).

(II) Satisfaction scored high in all 4-levels graded items of a questionnaire surveying perception of patient improvement, quality of rehabilitative treatment, physicians' and nurses' intervention, personal care, lodging quality, goodness of information purchased. 91.3 % of clients perceived an improvement (of which, 53.9 % "very improved"). Satisfaction ranked top for 85 % of physicians' work. Also perceived quality of rehabilitative treatment, physicians' and nurses' intervention, personal care, lodging quality, goodness of information purchased achieved almost a 100 % of positive appreciations, albeit less top ranking than the former judgment. The overall rating (scoring 0 to 10) of the rehabilitative stay achieved a mean of 9.2 (SD = 2.1), and a mode and median of 10. Details of overall rating are shown in Table 2.

Table 2. Satisfaction Overall Rating Score by Different Rater

Rater	Mean (SD)	Rater	Mean (SD)	p ^a
Patients	9.4 (0.9)	Proxies	9 (1)	< .000
Males	9.4 (0.9)	Females	9.1 (1)	< .000

Notes

Satisfaction Overall Rating Score: 0 to 10.

^a By t-test.

Bivariate correlations with rating, in decreasing order of significance, are shown in Table 3.

DISCUSSION

Our data report highly perceived satisfaction and highlight the role of functional gain as a mainstay for customer satisfaction [11]. These result substantially agree with the literature, also in specific geriatric rehabilitative settings such as orthopedic and neurologic contexts. Some authors indeed have investigated satisfaction with community participation. Ostir *et al.*, for example, have found that gains in functional status were significantly associated with greater satisfaction with community participation, at 80 to 180 day

Table 3. Statistically Significant Bivariate Correlations of Satisfaction Overall Rating Score

Variable	r ^a	p ^b
Relative functional gain	0.23	< .000
Absolute Barthel Index total score at discharge	0.18	< .000
Net gain in Barthel Index total score at discharge	0.1	0.021
Improvement in CIRS Severity Index	0.09	0.043

Notes^a Pearson Correlation.^b 2-tailed significance.

Relative functional gain was the only variable predictive of rating that was retained by stepwise multiple regressions (p < .000).

follow-up after medical rehabilitation for orthopedic impairments [12]. Their overall levels of satisfaction (87 % were very or somewhat satisfied) approach ours. In a similar setting, functional as well as demographic variables were identified as predictors of satisfaction, in patients with orthopedic impairments. A logistic regression model correctly classified 94.9 % of the patients, relying on five variables. Specifically, discharge Functional Impairment Measure motor subscale ratings were significantly associated with increased satisfaction in patients with joint replacements and lower-extremity fractures. The sample investigated by Mancuso *et al.* was a little younger than our (mean age = 73, SD = 11.8 years), yet gender mix was quite similar (mostly females) [13]. Patient satisfaction 3 to 6 months after rehabilitation discharge for stroke was affected by change in functional status, and by the source of information: satisfaction rating differed whether the response was collected from patient or proxy, as in our sample [14].

We are aware of limitations in the present study. The first limitation to mention is the low proportion of variance in satisfaction rating explained by our multiple stepwise regression model (adjusted R squared = 0,053). Indeed customer satisfaction is influenced by a host of factors – included an enhanced patient orientation, so that patient satisfaction can be increased during inpatient rehabilitation after total hip and total knee arthroplasty even while the functional change from admission to discharge decreases [15]. Another important factor we didn't yet measure at the time of the present study, which can influence patient satisfaction, is pain. In persons with stroke, for example, high pain rating scores, were significantly associated with lower satisfaction with community participation [16]. Besides neurological settings, also better postoperative pain control may improve patients' levels of satisfaction. Postoperative pain from hip or knee replacement is associated with reduced satisfaction with medical rehabilitation, some 90 days after discharge [17]. Good patient education is shown to be effective in terms of improving patient expectations and also associated with an early functional recovery after surgery [18]. More, length of stay may influence customer appreciation with medical rehabilitation. Satisfaction rating in our study was not related with the length of the rehabilitative stay, at variance with Grissom and Dunagan [15]. Other enquiries on customer satisfaction in rehabilitation settings are weak too. In Veterans Affairs medical centres, post-acute stroke guideline compliance is associated with greater patient satisfaction. In their

multivariate analysis of the hospital satisfaction dimension, Reker's *et al.* model got an R squared = 0,15 [6].

CONCLUSIONS

In conclusion, we want to highlight two issues:

1. Patient satisfaction is correlated to a reasonable outcome: relative functional gains, according to the Montebello Rehabilitation Factor Score [19].
2. it is worthwhile to mention that customer satisfaction goes together with caregivers' one: intriguing models based on sound geriatric education of the staff, by team working in coordinated modules, get all at once relevant clinical outcomes and satisfaction [20].

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