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The physician's self-evaluation of the consultation and patient outcome: A longitudinal study

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Abstract

Objective. To study whether the physician's evaluation of the consultation correlates to patient outcome one month later concerning symptom relief, sick leave, and drug compliance as perceived by the patient. The study also investigated whether the patient's evaluation of the consultation correlated to patient outcome. *Design.* A longitudinal study using questionnaires. *Setting.* A county in south-western Sweden. *Subjects.* Forty-six physicians and 316 primary care patients aged 16 years or more with a new complaint lasting one week or more were invited. A total of 289 patients completed a questionnaire presented at the consultation; 273 patients were reached in a follow-up telephone interview one month after the consultation. *Main outcome measures.* The association between each statement in the physician-patient questionnaire (PPQ) from the consultation and the answers obtained from the telephone interview were analysed by either multiple linear or logistic regression analysis. *Results.* Five out of 10 items in the PPQ were significantly associated with patient outcome. Physician's self-evaluation of the consultation was much more strongly associated with patient outcome than the patient's evaluation. *Conclusion.* The difference between the physician's and patient's evaluation of the consultation to predict patient outcomes indicates that the physician's self-evaluation of the consultation is of importance.

Key Words: *Family practice, patient satisfaction, physician–patient relations, process assessment (health care), quality of health care, questionnaires, self-evaluation programs, Sweden*

Introduction

The consultation is still the GP's most valuable everyday work tool. Sir Francis Peabody expressed, as early as 1927, that to develop the consultation we must focus on the "intimate personal relationship between physician and patient" because "both diagnosis and treatment depend directly upon it". To evaluate and improve the consultation we need to be aware of different elements of the consultation and their degree of importance to the patient [1–4].

The outcome of a consultation is often measured by patient satisfaction, enablement, compliance, symptom relief, and efficacy [5]. These outcomes can be improved by different consultation aspects. Patient satisfaction and enablement can be improved by patient-centredness [6,7]. Symptom relief and efficacy can be improved by focusing on agreement of the problem [8–10] and patients' health beliefs [11]. The GP's personal evaluation of the consultation is more easily accessible to the GP than the patient's evaluation. However, previous studies have mainly focused on the patient's evaluation of the consultation and its association with patient outcome.

The primary aim of this study was to evaluate whether the physician's evaluation of the consultation could predict patient outcome concerning symptom relief, sick leave, and drug compliance one month after the consultation as perceived by the patient. A secondary aim was to investigate whether the patient's evaluation of the consultation could predict patient outcome.

The consultation is the most valuable tool in the GP's everyday work. The importance of patient-centredness is well known.

- This study demonstrated a relationship between the consultation as perceived by the GP and outcome in terms of perceived change of health.
- A similar relationship was not found when the patient made the same evaluation. Thus, patient satisfaction seems to be an imperfect measurement of medical quality
- The physician-patient questionnaire (PPQ) is suited as a self-evaluation tool for physicians.

Material and methods

This study was an extension of a study validating the physician-patient questionnaire (PPQ) for evaluating consultations [12]. The study was approved by the Ethical Committee, University of Gothenburg.

Questionnaire

Based on studies of aspects important to the patient in the consultation [1–3,13] a questionnaire with 10 identical items was constructed: one for the physician and one for the patient [12]. Items were constructed as statements with degrees of agreement recorded on a five-point Likert scale. Items represented both global and specific aspects of the consultation. When testing PPQ, patients and physicians had a high level of agreement in responses [12]. Thus, the index of validity was generally high for each item.

Selection of consultations

Each physician asked eight consecutive patients fulfilling the inclusion criteria if they wanted to participate [12]. Only patients with new complaints of at least one week's duration, age ≥ 16 years, and without the need for an interpreter were asked to participate. Patients with dementia, psychosis, or drug abuse were not asked to participate.

Procedure

When the physician considered a patient fulfilled the inclusion criteria, the patient was asked to participate directly after the consultation. Patients were informed verbally and in writing of confidentiality, that participation was voluntary, and that if they decided to participate they would be telephoned one month after the consultation regarding their current state of health. The patient was then asked to complete the patient version of the PPQ in the waiting room directly after the consultation and leave it in an envelope at the reception desk. If they did not wish to participate, they could leave the uncompleted questionnaire.

In the patient's absence, the physician completed the physician version of the PPQ and a code list with the patient's name and telephone number. Questionnaires were coded whereby the physician's questionnaire could be matched with the corresponding patient questionnaire.

Telephone interview

Patients completing the PPQ after the consultation were contacted one month later by one of the authors (GCA). The author had information only concerning the name and telephone number from the code list.

The patients were asked if they would accept participation in a telephone interview regarding the consultation one month earlier. If they accepted, they were asked about their current health status regarding problems discussed with the physician one month earlier, if they had been on sick leave after the consultation, and if they were given a prescription. There were five alternatives regarding change of health: "much worse", "worse", "unchanged", "a little better", and "much better". There were three alternatives for sick leave: "yes", "no", or "on permanent sick leave". Regarding possible prescription there were the following alternatives: "yes", "no", "don't know", if yes "did or did you not take the medication?", if yes "did you take it according to instructions?".

Statistical methods

Changes in health, drug compliance, and responses to items in the PPQ lack equidistant scale steps. Thus, we choose to treat them as ordinal data and in further statistical analysis these variables were transformed to their rank value.

The relationship between each statement in the PPQ and changes in health and drug compliance were analysed by multiple linear regressions. The dependent variable was the rank of change in health or rank for drug compliance. Independent variables were ranks for physician or patient responses to one item in the PPQ, gender, and patient age. One regression was made for each item of the PPQ. Since the dependent variable was a rank, the regression coefficient (β) could not be given a meaningful interpretation. Thus, only p-values and an indication of whether β is below or above zero are presented.

When analysing sick leave we excluded patients over 65 years of age and those on permanent sick

leave. Since the dependent variable "sick leave" is dichotomous, multiple logistic regressions were used. Independent variables were ranks for physician or patient responses to one item in the PPQ, gender, and patient age.

Results

A total of 316 patients fulfilled the inclusion criteria and were invited to participate. The response rate of the questionnaires among physicians was 99% (314/316) and among patients 91% (289/316). All 289 patient questionnaires had a matching answer from a physician. Mean patient age was 50 years ranging from 17 to 84 years with 68% women. The most common causes for consultations were the diagnosis ICD10–13 diseases of the musculoskeletal system and connective tissue (n = 101), ICD10-10 diseases of the respiratory system (n = 61), ICD10–18 symptoms, signs, and abnormal clinical and laboratory findings (n = 46), and ICD10-5 mental and behavioural disorders (n = 26). From these 289 matched questionnaires 273 patients (94%) were reached in the follow-up telephone interview.

At the telephone follow-up 48 (18%) were retired, 11 (4%) were on permanent sick leave, 55 (20%) were on temporary sick leave, and the remaining 159 (58%) were neither retired nor on sick leave. Altogether 151 patients (55%) received a prescription from the physician; 83% of these stated they took the prescribed medicine according to prescription; 9.3% took the medication but not according to the prescription; and 8.0% did not take the medication at all.

One month after the consultation 0% felt much worse, 3.7% felt a little worse, 3.7% felt unchanged, 27% felt a little better, and 65% felt much better concerning the problem they had discussed at the consultation.

The GP's response to statements 6, 7, 8, 9, and 10 could indicate the patient's perceived change in health status one month after the consultation (Table I). However, the patient's response to statements could not indicate the patient's perceived change in health status as well as the GP's responses (Table II). Sick leave or drug compliance could not be indicated by either GPs or patients' statements with the exception of the patient's response to item six (Table II).

Discussion

Statement of principal findings

In this study we were able to demonstrate a relationship between the process in the consultation as perceived by the GP and outcome in terms of perceived change in health. We did not find a similar relationship when the patient made the same evaluation.

Strengths and weaknesses of the study

At some primary health care centres all physicians accepted participation while at some centres all physicians declined. In this type of study, participating physicians are probably interested in the consultation process. Physicians in a similar study were

Table I. Correlation between the physician's perception of the consultation and patients' subjective change in health, sick leave, and drug compliance one month after the consultation.

		Change in health[a,b]			Sick leave[c]			Drug compliance[a,d]		
	Item	n	β	p	n	OR	p	n	β	p
1	The patient told me the true reason for his/her visit	272	<0	0.81	214	0.99 (0.99–1.0)	0.058	150	>0	0.78
2	I listened intensely to the patient	272	>0	0.13	214	1.0 (0.99–1.0)	0.38	150	>0	0.90
3	The patient talked about his/her worries	272	>0	0.17	214	1.0 (0.99–1.0)	0.51	150	<0	0.62
4	The patient received sufficient time	272	>0	0.15	214	1.0 (0.99–1.0)	0.68	150	>0	0.97
5	We talked about the patient's view of the reason for complaints	272	>0	0.44	214	1.0 (1.0–1.0)	0.43	150	>0	0.35
6	We agreed on the reason for the patient's complaints	272	>0	**0.0070**	213	1.0 (1.0–1.0)	0.35	149	>0	0.43
7	The patient received concise information about the treatment, for example general advice, medication, referrals	272	>0	**0.024**	214	1.0 (1.0–1.0)	0.93	150	>0	0.41
8	The patient's expectation of the visit was largely fulfilled	272	>0	<**0.0001**	214	1.0 (1.0–1.0)	0.54	150	<0	0.73
9	The patient was largely satisfied with the visit	272	>0	<**0.0001**	214	1.0 (1.0–1.0)	0.96	150	>0	0.30
10	The patient felt her problems were taken seriously	270	>0	**0.003**	212	1.0 (0.99 – 1.0)	0.51	148	>0	0.88

Notes: [a]Result of multiple linear regression showing association between rank for the response by the patient in the telephone interview and rank for physician response in the consultation. Since the regression coefficient (β) describes the association between two ranks its exact value cannot be given a meaningful interpretation. Thus, it is only indicated if β is above or below zero. [b]Patient's perceived change in health one month after consultation. [c]Sick-leave excluded patients over 65 years and those on permanent sick leave. Logistic regression was used. For OR 95% confidence interval is given within parentheses. [d]Prescription according to the following alternatives: yes, no, don't know, if yes did or did you not take the medicine, if yes did you take it according to instructions. P-values below 0.05 are marked in bold.

Table II. Correlation between the patient's perception of the consultation and patients' subjective change in health, sick leave, and drug compliance one month after the consultation.

Item	Change in health[a,b]			Sick leave[c]			Drug compliance[a,d]		
	n	β	p	n	OR	p	β	p	n
1 I told the physician about the true reason for my visit	267	>0	0.50	211	1.0 (0.99–1.0)	0.55	<0	0.20	147
2 I felt the physician listened intensely to me	271	<0	0.61	213	0.99 (0.98–1.0)	0.12	<0	0.13	149
3 I told the physician about my worries	268	>0	0.54	212	1.0 (0.99–1.0)	0.62	<0	0.60	148
4 I received sufficient time	270	>0	0.97	213	1.0 (1.0–1.0)	0.38	<0	0.08	148
5 We talked about my view of the reason for my complaints	263	<0	0.99	208	1.0 (1.0–1.0)	0.21	<0	0.12	148
6 We agreed on the reason for my complaints	252	>0	0.20	201	1.0 (1.0–1.0)	0.71	<0	**0.0058**	143
7 I received concise information about the treatment, for example general advice, medication, referrals	263	>0	**0.002**	209	1.0 (0.99–1.0)	0.92	<0	0.41	150
8 My expectation of the visit was largely fulfilled	270	>0	0.13	214	1.0 (0.99–1.0)	0.74	<0	0.58	149
9 I was largely satisfied with the visit	271	>0	0.19	213	1.0 (0.99–1.0)	0.78	<0	0.22	149
10 I felt my problems were taken seriously	272	>0	0.17	214	1.0 (0.99–1.0)	0.39	<0	0.14	150

Notes: [a]Result of multiple linear regression showing association between rank for the response by the patient in the telephone interview and rank for physician response in the consultation. Since the regression coefficient (β) describes the association between two ranks its exact value cannot be given a meaningful interpretation. Thus, it is only indicated if β is above or below zero. [b]Patient's perceived change in health one month after consultation. [c]Sick-leave excluded patients over 65 years and those on permanent sick leave. Logistic regression was used. For OR 95% confidence interval is given within parentheses. [d]Prescription according to the following alternatives: yes, no, don't know, if yes did or did you not take the medicine, if yes did you take it according to instructions. P-values below 0.05 are marked in bold.

significantly more likely to be certificates of the College of Family Physicians of Canada [14]. It is not possible to eliminate this bias but it should be accounted for when interpreting results.

Since β-coefficients cannot be given a meaningful interpretation in this situation, a mathematical prediction model cannot be made. Thus, it is important that the figures given in Tables I and II are not used to build prediction models. We emphasize that our results be interpreted with caution, just indicating a new and potentially interesting finding that should be further investigated.

Many statistical analyses are made and their outcome is outlined in Tables I and II. When multiple analyses are performed statistical significance may occur by pure chance. However, if the findings occur by pure chance the p-values are usually quite close to 0.05 and rarely as low as found in Table I. Thus, the pattern of having more significant findings in Table I compared with Table II concerning change of health is likely to be true.

GPs' evaluation of the consultation correlates to patient outcome

Important elements in the consultation have been described in several studies [1–3]. Factors influencing the outcome have also been described [4,7–10,14,15]. The items in the PPQ cover these important elements and factors.

The GP's evaluation of the consultation correlated strongly to patient outcome while the patient's evaluation did so to a much lesser extent. Since the physician cannot estimate the patient's perception better than the patient, one may assume that the correlation between a GP's evaluation of the consultation and patient outcome must be mediated by another factor than the patient's perception of the consultation. Since PPQ focuses on important elements in the consultation it is reasonable to believe that this factor X is somehow related to one of these elements. Further research is needed to clarify this.

Agreement on the reason for the complaint, concise information about treatment, expectations fulfilled, and the overall feeling of the patient being taken seriously, items 6–10 as perceived by the GP, were significantly correlated with improved health one month later as judged by the patient (see Table I). Items 1–5 focus on the patients' needs while items 6–10 focus on interaction, mutual understanding, and cooperation in the consultation.

Concerning concise information about treatment the p-value for patients was actually lower than that for GPs (see Tables I and II). However, the overall pattern when comparing Tables I and II is that the GP's "gut feeling" in the consultation seems to be able to indicate the outcome better than the patient (see Tables I and II). Thus, this study implies that in case of a negative "gut feeling" in items 6–10 (Table I) an earlier follow-up visit could be considered.

Patient satisfaction and medical quality

Quality in the consultation is often measured by the patient in terms of satisfaction [16–18]. An interesting

finding in this study was that there was hardly any correlation between the patient's evaluation of the consultation and patient outcome. Thus, patient satisfaction seems to be an imperfect measurement of medical quality [19,20].

Sick leave and drug compliance

Many patients want an explanation of their symptoms and are satisfied without medication [4,13]. Most illnesses in this study were self-limiting conditions with symptoms from the musculoskeletal or respiratory tract system. Agreeing with the GP on the reason for the complaints the patient might have felt content and could do without the prescribed medication. This might explain the finding of a negative correlation in drug compliance and the patient's response to item six in Table II ("We agreed on the reason for my complaints"). Another explanation might be that this is a single and somewhat peculiar finding that might have occurred by chance.

No other correlations between evaluation of the consultation and sick leave or drug compliance were found. The reason for this lack of correlations is not clear. A possible explanation might be that "Change of health" is more related to the perceived health of today while sick leave and drug compliance is more dependent on remembering facts about the past.

Meaning of the study and future research

Patient satisfaction seems to be an imperfect measurement of medical quality. This study indicates a relationship between the physician's evaluation of the process in the consultation and patient outcome that should be clarified in future studies. Due to the positive correlation between physician responses and patient outcome PPQ seems to be suited as a self-evaluation tool for physicians.

Authors' contribution

GCA performed data collection. RG and GCA were responsible for the design, analyses, and authorship of the article.

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Declaration of interest

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