Is the job satisfaction of primary care team members associated with patient satisfaction?

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ABSTRACT

Background: Previous research has shown a correlation between physician job satisfaction and patient satisfaction with quality of care, but the connection between job satisfaction of other primary care team members and patient satisfaction is yet unclear.
Objective: To evaluate whether there is an association between patient satisfaction and job satisfaction of the members of patient care teams.
Design: The study was based on data from the European Practice Assessment and used an observational design.
Setting: 676 primary care practices in Germany.
Participants: 47 168 patients, 676 general practitioners (practice principals), 305 physician colleagues (trainees and permanently employed physicians) and 3011 non-physician practice members (nurses, secretaries).
Main outcome measures: Patient evaluation was measured using the 23-item EUROPEP questionnaire. Job satisfaction was measured using the 10-item Warr−Cook−Wall job satisfaction scale and further items relating to practice structure. Bivariate correlations were applied in which factors of patient satisfaction and practice structure were compared with physicians and non-physicians satisfaction.
Results: Patient satisfaction correlates positively with the general job satisfaction of the non-physician (r=0.25, p<0.01) and no significant correlation was found for the general job satisfaction of practice principals and physician colleagues. Patients' satisfaction with the practice organisation correlates positively with the general job satisfaction of the non-physicians (r=0.30, p<0.01) and their view of practice structure (r=0.29, p<0.01).
Conclusions: The correlation between non-physician team member satisfaction and patient satisfaction was higher than the correlation between satisfaction of physicians and patients. Patients seem to be sensitive to aspects of practice structure.

INTRODUCTION

An important issue in healthcare is the relation between job satisfaction of primary care team members and patient satisfaction. Traditional job satisfaction relates to the feeling an individual has about his/her job. It is distinguished between intrinsic (recognition, work itself or responsibility) and extrinsic factors (working condition, company policy or salary) which have an influence of job satisfaction.[1] General practitioners as well as non-physician members are generally satisfied with their work.[2]

In addition, patient satisfaction consists of a combination of patients' expectations regarding healthcare providers and actual experiences.[3] It has been observed that patients are highly satisfied with their care.[4] Patient satisfaction with care and job satisfaction among healthcare providers are being recognised as an important dimension within quality of care.

It has been shown that physicians' job satisfaction is associated with patients' satisfaction.[5] Moreover, there is a relation between nurses' job dissatisfaction and patients' satisfaction with the quality of their care in hospitals.[6] In general, patients' perspective on their care is highly associated with non-physician and physician factors, a first overview is given in Laurant et al[7] Furthermore, the working condition of physicians and non-physicians have an important impact on the quality of care.[8] In particular, a higher workload is associated with lower performance at primary care practices.[9] It is remarkable that there is a lack of research about the influence of physician and non-physician satisfaction on patient evaluations of quality of services in general practice at the moment.

The aim of the study was to explore any link between the satisfaction of the physician and non-physician practice members and patient satisfaction. Non-physician practice

members are defined here as practice nurses, practice managers or secretaries/administrators. Physician and non-physician practice member satisfaction was seen as the independent variable which might influence patient satisfaction. Three research questions were tested: First, is there an association between non-physicians' satisfaction and patient satisfaction? Second, is the influence of non-physicians satisfaction on patient satisfaction higher than the influence of physician satisfaction on patient satisfaction? Third, does workload affect patient and non-physician satisfaction similarly?

METHODS

Design and study population

Since 2005, participation in quality management activities is mandatory in Germany according to the Social Code Book V. General practices can choose from different quality management programmes and options. One of them is the European Practice Assessment (EPA) instrument which was developed and validated by an international collaboration of researchers and practitioners from nine countries between 2001 and 2004.[10] [11] It consists of a set of validated quality indicators for external and self-assessment, a patient survey, a staff job satisfaction survey, an outreach visit by a trained visitor, a team-meeting and a comparison with other practices. All activities aim to motivate practices to improve their management and services for their patients.

This study comprised of 679 primary care practices in Germany which had volunteered to participate. None of the 32 pilot practices from the pilot study or from 25 additional early implementers in Germany are included in this sample because they were considered as 'pioneers'.[12] All practices had to contribute with an amount of approximately €1.75 000, on average, covering the costs for all materials and surveys including feedback and the practice visit. Data collection took place between May 2004 and September 2007.

In each practice patients were asked consecutively to complete the EUROPEP questionnaire in the waiting room, put it in an envelope and place it in a sealed box. Patient participation in the study was voluntary and anonymous. Patients were informed orally and on the header of the forms that the aim of the study was to improve management of the practice and its services and staff and that they could refuse participation for any reason. Exclusion criteria included those under 18 years and anyone unable to read and/or understand the German language or unable to answer written questions without support. The sealed box was forwarded directly to the research team.

To measure job satisfaction all team members (physicians and non-physicians) completed the staff questionnaire

during their working hours. They returned it individually to the research team in a pre-paid envelope.

Ethics

An ethical approval was not necessary. Our study used data from the routine implementation of quality management in ambulatory care in Germany, according to the social code book V and the directives on quality management of the Federal Joint Committee. The questionnaires were completed anonymously. No additional information or data from patients or staff were requested to perform this study.

Measures

To measure the patient satisfaction with quality of care and the job satisfaction of the team members two questionnaires were used, which are part of the EPA.[10] Patient satisfaction was measured by the EUROPEP questionnaire.[13] It is an established and internationally validated instrument reflecting a set of indicators for patients to evaluate the quality of primary care. The instrument consists of 23 items; 5-point Likert Scale was used ('poor' to 'excellent'). Additionally, two further items of the EPA-questionnaire are integrated which ask about 'the intention not to change the practice' and 'the willingness to recommend the practice for friends'; also 5-point Likert Scale was used ('fully disagree' to 'fully agree').

Job satisfaction was measured by the German version of the Warr−Cook−Wall job satisfaction scale developed by Warr et al.[14] The instrument consists of 10 items; 7-point Likert Scale was used ('extreme dissatisfaction' to 'extreme satisfaction'). Each team member completed the same questionnaire. The non-physician staff were further asked about their estimation of the practice organisation with four items; 5-point Likert scale were used ('fully disagree' to 'fully agree'). The items asked about the responsibility of the staff members, the general work atmosphere within the team, offering suggestions for improvement and the proposals for improvement were taken seriously. Each participating practice met the criteria of at least one physician, one team-member and more than 50 completed patients−questionnaires. A further variable, which might contribute to the job and patient satisfaction, is workload. Within the EPA information on the number of patients with at least one contact per quarter of a year (which is a common denominator in countries without a patient list system)[15] and on the number of team members is routinely collected.

Data analysis

The data were analysed by SPSS 18.0 (SPSS Inc.). The 23 items of EUROPEP-questionnaire were summarised by

exploratory factor analysis with principal axis factor analysis (principal component method) and a number of factors were determined by the scree test and number of eigen values >1. The solution was rotated using the varimax rotation. The Kaiser−Meyer−Olkin measure of sampling adequacy was reported (table 1). Two factors were extracted (factor I 'evaluation of the physician' and factor II 'evaluation of the organisation of the practice/ team') with explained variance of $R^2=60.06\%$. Additionally, the items 'the intention not to change the

practice' and 'the willingness to recommend the practice for friends' were summarised by mean and accumulated the factor III ('intention not to change the practice'). All three factors were aggregated by mean of practice level.

The WCW job satisfaction items were compared between the three groups of practice staff (physician, practice colleague, non-physician staff) by using ANOVA; mean and corresponding 95% CIs were presented. Furthermore, we used the False Discovery Rate, a correction technique for multiple testing.[16] [17]

Table 1 Mean scores (95% CI) and rotated factor loading* with Kaiser−Meyer−Olkin measure for each of the 23 items of the EUROPEP questionnaire by patients

Questions† (What is your opinion of your general practitioner/general practice over the last 12 month with respect to…)	Mean (95% CI)	Factor I: evaluation of the physician	Factor II: evaluation of the organisation of the practice/team	Kaiser−Meyer−Olkin
1. Making you feel you had time during consultation?	4.48 (4.48 to 4.49)	0.724		0.974
2. Interest in your personal situation?	4.50 (4.49 to 4.51)	0.770		0.971
3. Making it easy for you to tell him or her about your problem?	4.45 (4.45 to 4.46)	0.743		0.981
4. Involving you in decisions about your medical care?	4.37 (4.37 to 4.38)	0.748		0.988
5. Listening to you?	4.54 (4.53 to 4.55)	0.767		0.979
6. Keeping your records and data confidential?	4.60 (4.59 to 4.61)	0.567		0.989
7. Quick relief of your symptoms?	4.22 (4.21 to 4.22)	0.633		0.974
8. Helping you to feel well so that you can perform your normal daily activities?	4.31 (4.30 to 4.32)	0.653		0.975
9. Thoroughness?	4.48 (4.47 to 4.48)	0.757		0.979
10. Physical examination of you?	4.42 (4.41 to 4.42)	0.728		0.982
11. Offering you services for preventing diseases (screening, health checks, immunisations)?	4.27 (4.26 to 4.28)	0.641		0.984
12. Explaining the purpose of tests and treatments?	4.37 (4.36 to 4.37)	0.752		0.976
13. Telling you what you wanted to know about your symptoms and/ or illness?	4.39 (4.39 to 4.40)	0.755		0.980
14. Helping you deal with emotional problems related to your health status?	4.29 (4.28 to 4.30)	0.768		0.985
15. Helping you understand of following his or her advice?	4.32 (4.32 to 4.33)	0.725		0.986
16. Knowing what s/he had done or told you during earlier contacts?	4.28 (4.27 to 4.28)	0.707		0.989
17. Preparing you for what to expect from specialist or hospital care?	4.25 (4.24 to 4.26)	0.708		0.985
18. The helpfulness of the staff (other than doctor)?	4.56 (4.55 to 4.57)		0.648	0.975
19. Getting an appointment to suit you?	4.46 (4.45 to 4.46)		0.804	0.948
20. Getting through to the practice on telephone?	4.50 (4.49 to 4.50)		0.757	0.956
21. Being able to speak to the general practitioner on the telephone?	4.18 (4.17 to 4.19)		0.694	0.971
22. Waiting time in the waiting room?	3.73 (3.73 to 3.74)		0.724	0.961
23. Providing quick services for urgent health problems?	4.51 (4.50 to 4.52)	0.470	0.610	0.986

*Using a exploratory factor analysis; Extraction method: Principal axis factoring; Rotation method: Varimax with Kaiser normalisation; Rotation converged in three iterations. Only loadings greater than 0.4 are shown.
†Possible score for each item between 1 (poor) and 5 (excellent).

Box 1 Characteristics of the practices (n=676)

Characteristics
- Mode of practice: Single handed: 47.1%
- Location: Urban: 47.3%
- Practice size (mean (SD)) in m^2: 149.07 (61.03)
- Number of team members (without physicians) (mean (SD)): 4.41 (2.03)
- Full Time Equivalent (Staff without physicians) (mean (SD)): 2.71 (1.44)
- Number of physicians per practice (mean (SD)): 1.52 (0.75)
- Quarterly contact group (mean (SD)): 1446.67 (649.81)
- Percentage of patients with disease of longer than 3 months: 48.6%

The measurement of job satisfaction using the WCW job satisfaction scale revealed a different number of factors (one to two factors) by factor-analytical extraction in the three groups (physician, practice colleague, nurse) with explained variance between R^2=48.58% and 59.39%. For this reason, the mean of all items of the WCW job satisfaction scale were used to getting an overall evaluation of job satisfaction. Therefore, we had one item which explained the general job satisfaction of the three participating groups. This item—the general job satisfaction—was aggregated up to the practice level. Accordingly, the sample size for the correlation analysis was n=676.

Furthermore, the four items which asked about the evaluation of the practice organisation in the view of the non-physicians were summarised by mean and accumulated a new item which is called 'practice structure in the view of non-physicians'.

For each group—practice principals, practice colleagues and non-physicians—the data of job satisfaction, practice structure, quarterly contact group, etc were correlated by the three factors of patient satisfaction ('evaluation of the physician'; 'evaluation of the organisation of the practice/team' and 'intention not to change the practice') by using bivariate correlation. An

α level of p≤0.05 was used for tests of statistical significance. However, as this was an exploratory analysis, p values should be interpreted carefully.

RESULTS

Data were collected from 47 168 patients, 676 GP principals, 305 physician colleagues and 3011 non-physician practice members. The participating practices are representative for primary care in Germany concerning the number of single-handed practices, location, the full time equivalent or the number of physicians per practice. The descriptive data of practices and participants are presented in box 1 and table 2.

Out of the 50 700 patient questionnaires handed out, 47 168 were returned, giving a response rate of 93.0%. For the questionnaires for practice principals on job satisfaction the response rate was 100.0% (for principals) and for practice colleagues was 93.2% (305 out of 327). For the non-physicians it was 90.2% (3011 of 3337), respectively.

83.7% of all patients chose options '4' and '5' on the 5-point-scale ('poor' to 'excellent') in the EUROPEP questions. Table 1 includes the descriptive data of the EUROPEP questionnaire.

The random effect of the practices was very small and thus neglected. The variance between practices is too small in relation to the overall variance (f-value of 0.152). Job satisfaction by physicians and within practice teams were generally high. The descriptive data of WCW job satisfaction scale and the level of significance by using False Discovery Rate for all participants—physician, physician colleagues and nurse is presented in table 3. Mainly differences are shown in the items 'hours of work' and 'income' regarding the comparison of the three participants.

In summary, the principal physician rated the job satisfaction with mean=5.32 (SD=0.93) on the 7-point-Likert scale ('extreme dissatisfaction' to 'extreme satisfaction'). The physicians colleagues reached mean=5.45

Table 2 Characteristics of the participants

	Patients (n=47 168)	Physician (practice principal) (n=676)	Physician colleagues (n=305)	Nurses (n=3011)
Age (mean (SD))	54.41 (18.91)	50.13 (7.59)	49.20 (7.66)	38.31 (12.24)
Sex (male)	37.80%	70.80%	51.40%	2.80%
Mean weekly work time (mean (SD))		50.63h (12.85)	41.19h (15.83)	26.03h (12.25)
Duration of membership in the practice (mean (SD))	3.32 years (1.15)	14.14 years (8.51)	12.09 years (8.87)	8.89 years (8.44)
Patients (Quarterly contact group) per team member* in each practice		1446.67	1595.00	579.44
Number of contacts with the physician in the last 12 months (mean (SD))	9.49 (14.81)			

*Full time equivalent.

Table 3 Mean scores (95% CI) of practice staff for each of the 10 items on the Warr−Cook−Wall job satisfaction scale*

WCW items	Physician (n=676)	Physician colleagues (n=305)	Non-physician staff (n=3011)	p Value†
1. Amount of variety in job	5.70 (5.60−5.79)	5.59 (5.46−5.73)	5.93 (5.89−5.97)	<0.001¶
2. Opportunity to use abilities	5.36 (5.24−5.47)	5.52 (5.38−5.67)	5.82 (5.77−5.86)	<0.001‡
3. Freedom of working method	5.67 (5.56−5.78)	5.70 (5.56−5.84)	5.82 (5.77−5.86)	0.012§
4. Amount of responsibility	5.62 (5.52−5.73)	5.74 (5.61−5.87)	5.92 (5.87−5.96)	<0.001¶
5. Physical working condition	5.16 (5.04−5.27)	5.40 (5.26−5.55)	5.62 (5.57−5.67)	<0.001‡
6. Hours of work	4.38 (4.26−4.51)	4.82 (4.64−5.00)	5.73 (5.68−5.78)	<0.001‡
7. Income	4.36 (4.23−4.48)	4.66 (4.49−4.83)	4.77 (4.71−4.83)	<0.001‡
8. Recognition for work	5.57 (5.48−5.67)	5.57 (5.44−5.71)	5.42 (5.37−5.48)	0.015§
9. Colleagues and fellow workers	5.98 (5.90−6.06)	5.97 (5.86−6.07)	6.17 (6.14−6.21)	<0.001¶
10. Overall job satisfaction	5.55 (5.46−5.63)	5.58 (5.47−5.70)	5.94 (5.90−5.98)	<0.001¶

*Possible score for each item between 1 (extremely dissatisfied) and 7 (extremely satisfied).
†ANOVA including post hoc False Discovery Rate.
Statistical significances ‡between all three groups; §between physician and non-physician staff; ¶between physician/physician colleagues and non-physician staff.

(SD=0.89) and the non-physicians reached a value of mean=5.71 (SD=0.91).

According to our three research questions, table 4 shows the correlation between the three factors of patient satisfaction and items of the practice principals, practice colleagues and non-physicians. Factor I ('evaluation of the physician') reached a mean value of mean=4.17 (SD=0.21), factor II ('evaluation of the organisation of the practice/team') reached a value of mean=4.09 (SD=0.27) and factor III ('intention not to change the practice') reached a value of mean=4.34 (SD=0.26). Table 4 presents a description of relationships between factors of patient satisfaction and satisfaction of professionals.

Association between non-physicians' satisfaction and patient' satisfaction

The correlation between non-physician team members' satisfaction and patient satisfaction was significantly positive. They ranged between r=0.15 (p<0.001) and r=0.309

Table 4 Bivariate correlation of different aspects of satisfaction by three factors of patient satisfaction

	Patient satisfaction		
Items for correlation	Evaluation of the physician	Evaluation of the organisation of the practice/team	Intention not to change the practice
Job satisfaction of the physician (practice principal)	r=−0.026 p=0.497	r=0.018 p=0.638	r=−0.045 p=0.249
Job satisfaction of the physician (practice colleagues)	r=0.046 p=0.456	r=0.173 p=0.004	r=0.001 p=0.998
Job satisfaction of the non-physicians	r=0.259 p<0.001	r=0.309 p<0.001	r=0.151 p<0.001
Practice structure in the view of the non-physicians	r=0.242 p<0.001	r=0.295 p<0.001	r=0.139 p<0.001
Quarterly contact group	r=−0.144 p<0.001	r=−0.358 p<0.001	r=−0.046 p=0.244
Number of staff members	r=−0.216 p<0.001	r=−0.399 p<0.001	r=−0.116 p<0.001
Ratio of quarterly contact group/number of all staff members	r=0.078 p=0.05	r=0.022 p=0.571	r=0.100 p=0.011
Number of non-physicians	r=−0.213 p<0.001	r=−0.377 p<0.001	r=−0.107 p=0.005
Ratio of quarterly contact group/number of non-physicians*	r=0.009 p=0.831	r=0.039 p=0.321	r=0.050 p=0.201
Number of physicians	r=−0.157 p<0.001	r=−0.321 p<0.001	r=−0.096 p=0.013
Ratio of quarterly contact group/number of physicians*	r=0.005 p=0.908	r=−0.063 p=0.107	r=0.040 p=0.307

*Full time equivalent.

(p<0.001). High job satisfaction by non-physicians was associated with high patient satisfaction. This positive correlation relates to the factor I ('evaluation of the physician') (r=0.259), factor II ('evaluation of the organisation of the practice/team') (r=0.309) and factor III ('intention not to change the practice') (r=0.151).

Influence of non-physicians' and physicians' satisfaction on patient satisfaction

The practice structure according to non-physicians was statistically significant in all three factors of patient satisfaction. The correlations ranged between r=0.13 (p<0.001) and r=0.29 (p<0.001). Non-physicians satisfaction with practice structure affects the patients perception of the physicians (factor I) (r=0.241). Even 'the intention to change the practice' (factor III) correlates with the satisfaction of the non-physicians (r=0.139).

The number of significant results between patient and physician satisfaction were lower. Only one correlation between patients' satisfaction and satisfaction of the physician colleagues was statistically significant (factor II, r=0.17). No significant correlation was found between patients' satisfaction and the job satisfaction of the practice principal.

Impact of workload on patients' and non-physicians' satisfaction

The relationship between patient satisfaction and the ratio of quarterly contact group/team members as an indicator for workload show ambiguous results: The ratio is not significantly correlated with patient satisfaction (r=0.078 to 0.10). But the number of patients with at least one contact per quarter of a year (as a proxi for practice size and workload) on its own seems to affect the satisfaction of patients; factor II ('evaluation of the organisation of the practice/team') correlates with the number of patients (r=−0.358, p<0.001) and with the ratio of quarterly contact group/number of team members (r=0.022). If we control the influence of the number of team members, we find other significant correlations: The number of team members correlates negatively with all factors of patient satisfaction (r=−0.116 to r=−0.399).

Even if we control the correlation between number of non-physicians and patient satisfaction, we find negative correlations in all three factors: The more team members there are, the lower the satisfaction, independent of the number of patients per staff member.

DISCUSSION

This is the first study which focuses on the correlation between patient satisfaction measured using EUROPEP

and job satisfaction of physician and non-physician team members measured using the WCW job satisfaction scale.

Our first question referred to whether there is an association between non-physicians' job satisfaction and patients' satisfaction. The results show that patient satisfaction is highly associated with the satisfaction of the non-physicians. Comparing job satisfaction and patient satisfaction shows that both measures assess similar aspects of the primary care practices. Remarkably, in the measurement of patient satisfaction, the variability of the patient data is sufficient to reveal positive correlations with the satisfaction of the non-physicians. The results are concordant with other studies which also have evaluated the influence of nurses' satisfaction and working condition on patient satisfaction.[6] [18] Our second research question refers to the influence of non-physicians' and physicians' satisfaction on patient satisfaction. However, the correlation between the job satisfaction of the physician and patient satisfaction is lower and not significant. Interestingly, the job satisfaction of the non-physicians seems to be more associated with patient satisfaction than physician satisfaction. Healthcare services are mainly provided by physicians and they are able to set boundaries regarding to opportunities of patient care. Sometimes patients have a high claim to physicians care. Therefore, the correlation between non-physician team members' satisfaction and patient satisfaction was significantly more positive than the job satisfaction of the physician. The third question examines whether there is an association between workload of the practice and patients' and non-physicians' satisfaction. Patients as well as non-physicians seem to be sensitive to practice characteristics, such as practice size.

Our data do not enable us to say what causes the significant correlation between non-physician job satisfaction and patient satisfaction. It is possible that dissatisfied patients can affect the satisfaction of non-physician members more than the satisfaction of the physician, or conversely a dissatisfied team could affect the satisfaction of the patients. In addition, both patient and non-physician member satisfaction could be influenced by common causes; for example, the number of patients visiting a practice affects both types of satisfaction: The more patients a practice has, the lower the satisfaction of the non-physician members and the lower the satisfaction of the patients. It seems that physician team members and patients prefer to work in practices with lower number of patients. This assumption is identical to Wensing et al.[19] Contrary to other results we did not find a correlation between workload and patient satisfaction.[3] However, it was already shown that physician's workload depends closely on practice size.[20]

Surprisingly, in the literature, it could not be explored whether full-time physicians are more dissatisfied with their work than part time physicians.[21] Nevertheless, it might be possible that the more people work in the practice (full-time equivalent) the lower the satisfaction of the non-physician members and the lower the satisfaction of the patients. Further research should clarify this.

Obviously, the study had strengths and weaknesses. Our sample may not be representative for all primary care practices in Germany because we only involved practices which were willing to participate in the quality management system, which expects practices to participate in benchmarking. A strong aspect was the availability of large numbers of data on German primary care practices including data from patients and staff. We used internationally validated measures for the evaluation of job satisfaction by physicians and non-physicians and of patient satisfaction. In addition, this was an exploratory study; p values should be interpreted carefully. Significant results might be due to chance and will need to be confirmed in further targeted studies.

The results demonstrate that satisfaction of non-physicians has a larger impact on patients' evaluation on quality of care more than the satisfaction of the physicians. The correlation between non-physician team member satisfaction and patient satisfaction was higher than the correlation between satisfaction of physicians and patients. This study provides research evidence to support health policy to optimise the working conditions of non-physicians and physicians which are a crucial aspect of patients' evaluation on the quality of care.

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