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Variation in Practice: A Questionnaire Survey of How Congruence in Attitudes Between Doctors and Patients Influences Referral Decisions

Benedicte Carlsen, PhD, Arild Aakvik, DrPolit, Ole F. Norheim, DrMed

Background. There is a well-known and partly unexplained variation in referral rates among general practitioners (GPs). GPs who are positive toward shared decision making refer less to secondary care, but how congruence in attitudes between doctors and patients influences referral rates has not been investigated. In this study, the authors analyze whether congruence in attitudes between the GP and patients toward shared decision making affects the GP's referral rate. **Methods.** Questionnaire survey was distributed by 56 Norwegian GPs, each to 50 consulting patients. The level of congruence in attitudes toward shared decision making of GPs and corresponding patients was measured by the Patient-Practitioner Orientation Scale. The survey also included self-reported referral rates. **Results.** In total, 1268 patients (45%) returned the questionnaires. Respondents

were eliminated if they did not fully answer the questionnaire, resulting in a working sample of 835 patients. The authors found that congruence of attitudes toward shared decision making between the GP and patients had a negative effect on referral rate. **Conclusion.** In this study, congruence of attitudes toward shared decision making between GPs and patients influences referral decisions, indicating that matching attitudes may enhance the effort to solve the medical problem within the GPs' practice (i.e., doctor-patient interaction explains some of the variation in practice). The study supports the policy argument that, if possible, health authorities should enhance the possibilities for patients to choose a GP of matching attitudes. **Key words:** patient involvement; physician-patient relationship; referral patterns; variation in practice style. (*Med Decis Making* 2008;28:262–268)

There is a well-documented, large, and persistent variation in general practitioners' (GPs') practice across countries and regions, as well as between practices and individual doctors.¹ The referral rate is often the key outcome measure in studies of variation in practice.^{2–6} Decisions regarding referral are of crucial importance because they have substantial implications for resource allocation in health care.

Both the effectiveness and fairness of health care services are affected by referrals.

Unfortunately, variation in referral rates is poorly understood. Several influencing factors have been identified relating to the practice (such as location, size, and financing), the GP (sex, age, years of and type of experience, personality, and practice style), the patients (sex, age, social class, case mix, and number of previous consultations), and access to specialist care (e.g., density of specialists), but findings tend to be inconsistent across studies.² Previous studies indicate that less than 40% of this variation in referral rates is explained by patient characteristics, and less than 10% may be ascribed to characteristics of the doctor.² A recent North American study demonstrated how GPs' referral decisions result from a complex interaction between clinical, practice, GP, and patient factors.³ Consequently, it has been suggested that the impact of the combination of factors, such as doctor-patient relations and patient pressure, should be investigated to shed some light on the remaining unexplained variation.

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Address correspondence to Benedicte Carlsen, PhD, Stein Rokkan Centre for Social Studies, University of Bergen, Nygaardsgaten 5, N-5015 Bergen, Norway; e-mail: benedicte.carlsen@rokkann.uib.no.

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Some degree of patient involvement is the rule in current general practice, and shared decision making is largely accepted as the ideal practice style.^{7,8} Knowledge of how GPs' attitudes and practice style toward patient involvement influence resource allocation is scarce, although patient involvement in consultations seems to be associated with lower costs.⁹ A few studies have investigated the association between GPs' decision-making style and referral decisions, and there is a consensus that shared decision making is associated with lower referral rates.^{10,11} One study indicates that patients associate patient involvement with finding common ground for decisions, which again could preclude the perceived need for specialist referral.¹²

However, these studies focus either on the doctor's attitude and conduct or on how the patient perceives the doctor's practice style. Studies acknowledging the influence of the patient's preferences regarding shared decision making are lacking, and no study has analyzed how congruence in role preferences of doctor and patient influences referral decisions.

In this study, we used a previously validated survey instrument to analyze whether congruence in attitudes between GPs and their patients toward shared decision making affects the GPs' referral rates.

DATA AND METHODS

During the summer of 2004, 56 GPs in the municipality of Bergen volunteered to participate in the survey after a postal invitation to all GPs in the region ($n=181$). The GPs were asked to distribute the questionnaire consecutively to 50 of their patients older than age 16. The GPs also agreed to complete a doctor's questionnaire.

The GPs' questionnaire contained demographic questions about the GP as well as questions on the practice such as list size and preferences for list size. Norwegian general practice is a list-based system, where every inhabitant has the right to be under the responsibility of a regular GP. The GPs are allowed to have up to 2500 patients on their lists but may put a maximum limit to the list below this level.

The main part of the questionnaire was adapted from a previously validated measure, the Patient-Practitioner Orientation Scale (PPOS).¹³ This is a multi-item Likert-type scale instrument developed to measure attitudes of patients and doctors toward shared decision making by degree (6 levels) of agreement with a set of statements on sharing information and power in consultations. The highest score (= 6)

reflects preference for a high degree of patient involvement in the consultation (see the appendix for the list of statements). In addition, GPs reported their number of referrals and the total number of consultations during the previous 5 working days. The reported referral rate was then calculated on the basis of these 2 reported figures.

The patients were asked to assess the same statements about preferences for shared decision making as the GPs. In addition, the patient questionnaire contained questions relating to background characteristics (demographics and formal relation with the GP).

A *sharing score* was calculated both for GPs and for patients from the average of the score of all the PPOS items for each respondent. The congruence between GP and patients was measured through a *difference score*, which is the absolute value of the difference between each GP's sharing score and the mean value of the sharing scores of the GP's responding patients.

Data were analyzed using Stata 8.0. To determine whether congruence in attitudes between the GP and patients has an effect on referral decisions, we used a linear regression model with reported referral rate as the dependent variable and GP sharing score, patient sex, GP sex, and preferred list size as independent variables. We used both multiple linear regression and simple linear regressions. We used the simple regression model to examine each variable's correlation with referral rate. We tested for sex differences by constructing a variable capturing the interaction effect between the GP-patient difference score and the GP sex in a multiple regression model.

RESULTS

Patients' questionnaires were distributed by 56 GPs, but 15 of these failed to return their own questionnaire. Hence, for the purpose of matching GPs' and corresponding patients' questionnaires, we have data from 41 practitioners. These 41 GPs represent 23% of the GP population in Bergen. The participating GPs were similar to the whole population of GPs in Norway in terms of age, sex, and list size (Table 1). The mean sharing score for the GP sample was 4.31 (SD = 0.46); for female GPs, the mean score was 4.42 (SD = 0.47), and for male GPs, it was 4.26 (SD = 0.45). The mean reported referral rate was 13% (SD = 6.6) of consultations, with a minimum of 4% and a maximum of 30%.

We received 1268 patients' questionnaires. After eliminating respondents where the corresponding

Table 1 Characteristics of the General Practitioner (GP) Sample ($n = 41$) and All GPs in Norway ($n = 3767$)

Variable	Sample	All GPs in Norway ^a	GPs in Bergen ($n = 181$)
GP age (mean \pm SD) (min–max values)	47.2 \pm 7.8 (32–65)	46.3	45.6
Number of male GPs (% of male GPs)	27 (66)	(70)	(68)
List size (mean \pm SD) (min–max values)	1161 \pm 410 (285–2200)	1199	1329
Number of GPs who prefer longer list (%)	8 (20)		
Referral rate in % of consultations (mean \pm SD) (min–max values)	13 \pm 6.6 (4–30)		
GP sharing score (mean \pm SD) (min–max values)	4.31 \pm 0.46 (3.25–5.25)		
Male GP sharing score (mean \pm SD) (min–max values)	4.26 \pm 0.45 (3.25–5.00)		
Female GP sharing score (mean \pm SD) (min–max values)	4.42 \pm 0.47 (3.50–5.25)		
GP-patient difference score (mean \pm SD) (min–max values)	0.39 \pm 0.36 (0–1.19)		

SD, standard deviation.

^aData from the National Insurance Administration. Available from: http://www.trygdeetaten.no/tall_mrog_mrfakta/Statistikker/folgerapporter/20040211/02.html. Accessed 2004 Dec 7. Taraldset A. Allmennleger—antall og utvikling [General practitioners—numbers and development]. *Utposten*. 2003;4(32). Available from: <http://www.uib.no/isf/utposten/2003nr4/utp03410.htm>. Accessed 2004 Dec 7.

Table 2 Characteristics of the Patient Sample ($n = 835$)

Variable	Patient Sample
Age (mean \pm SD) (min–max values)	49.3 \pm 17.9 (16–95)
Females (% females)	597 (71)
Education (3 levels)	2.15 (1–3)
Patient sharing score (mean \pm SD) (min–max values)	4.47 \pm 0.59 (2–6)
Male patient sharing score (mean \pm SD) (min–max values)	4.38 \pm 0.59 (2.75–6)
Female patient sharing score (mean \pm SD) (min–max values)	4.51 \pm 0.58 (2–6)

SD, standard deviation.

GP questionnaire was missing, as well as respondents younger than age 16 and those who had failed to complete all items of the questionnaire, 835 patients (41%) remained (Table 2). The mean age of the working sample was 49.3 (SD = 17.9), with a male-female ratio of 29%:71%. The mean sharing score for patients was 4.47 (SD = 0.59); distinguished by sex, the mean scores were 4.51 (SD = 0.58) for female patients and 4.38 (SD = 0.59) for male patients. The mean sharing score of the GPs is significantly lower than the mean sharing score of the patients ($P < 0.005$, paired t test).

We correlated the reported referral rate with the GP and patient sharing scores, respectively, to check how attitudes were associated with reported referral rate. We found a strong and significant negative correlation (raw correlation = -0.46 , $P = 0.002$) between the GP sharing score and reported referral rate, indicating that GPs with a preference for patient involvement are less likely to refer. We found no significant association between patient sharing score and reported referral rate, but there was a low degree of correlation ($r = 0.29$, $P = 0.07$) between GP sharing score and patient sharing score.

The linear regression of determinants of referral rate showed that the difference score had a positive effect on the reported referral rate of 0.086 ($P = 0.007$, multiple linear regression results; Table 3) and 0.091 ($P = 0.001$, simple linear regression results; Table 4). Thus, the larger the difference in attitudes toward shared decision making between GP and patients, the higher the referral rate. The average difference score in absolute value was 0.39. This means that if the difference score between GPs and the mean of their patients decreases by a tenth of a unit (e.g., from 0.39 to 0.29), the number of referrals would decrease by a tenth of the effect of 0.086, which is 0.0086, which again is 6.6% of the mean referral rate of 0.13.

We could not find a separate effect of the GP sharing score in the multiple linear regression when we also included the difference score between GPs and their patients, although a joint test for the GP sharing score and the difference score is significant at the 1% level in Table 3. These 2 variables have a correlation coefficient of -0.6 . The GP sharing score is never significant together with the difference score in the regression model, which may be due to the high correlation between the difference score

Table 3 Linear Regression Analyzing Determinants of Referral Rate: Multiple Regression

Variable	Coefficient	<i>P</i> > <i>t</i>	95% Confidence Interval
Difference score	0.086**	0.007	0.025 to 0.146
GP sharing score	-0.018	0.449	-0.067 to 0.030
Patient sex ^a	-0.059	0.126	-0.136 to 0.017
GP sex ^b	0.041*	0.030	-0.001 to 0.042
Preferred list size	0.021*	0.047	-0.135 to 0.341

^aProportion of male patients by general practitioner (GP).

^bDummy variable, 0 = female gender and 1 = male gender.

P* < 0.05. *P* < 0.01.

Table 4 Linear Regressions Analyzing Determinants of Referral Rate: Simple Regressions

Variable	Coefficient	<i>P</i> > <i>t</i>	95% Confidence Interval
Difference score	0.091**	0.001	0.040 to 0.141
GP sharing score	-0.066**	0.002	-0.107 to -0.025
Patient sex ^a	-0.040	0.4	-0.132 to 0.052
GP sex ^b	0.035	0.1	-0.008 to 0.078
Preferred list size	0.014	0.3	-0.012 to 0.040

GP, general practitioner.

^aMale/female ratio in the patient sample.

^bDummy variable, 0 = female gender and 1 = male gender.

P* < 0.05. *P* < 0.01.

and the GP sharing score combined with the low number of observations, which gives insufficient statistical power. The results in Table 3 are slightly affected by the number of variables included in the multiple regression model. Hence, it is difficult to deduce the effect of GP sharing score solely based on the results in Table 3. Table 4 shows the simple regression coefficients, where we have included 1 independent variable at the time, and tested the effect of each variable on the referral rate. Table 4 shows that the GP sharing score is significantly different from 0 when it is estimated separately.

When all the variables are included in the multiple linear regression analysis in Table 3, the difference score is significantly different from 0 at the 1% level, and GP sex and preferred list size are significantly different from 0 at the 5% level. Several other variables did not significantly contribute to the explanatory power of the multiple regression model and are not included in Table 3: patient age, GP age, GP years of experience, patient educational level, list size, and number of GPs in the practice. Thirty-six percent of the variance in the reported referral rate was explained by the factors included in the study (adjusted $R^2 = 0.36$). The contribution of the difference score to the overall adjusted R^2 was 0.25.

Male GPs had a 0.04 or 31% ($P = 0.09$) higher reported referral rate in the regression model compared

with female GPs. Hence, we checked for an interaction effect between GP sex and difference score. The interaction between the difference score and GP sex is not statistically significant in the regression model, but Figure 1 shows that male GPs refer more as the difference in absolute value increases and that there is a clear, positive relationship between the difference score and referral rate.

DISCUSSION

A novel finding was that the level of congruence in attitudes seems to predict the referral rate; in our material, the more doctor and patients differ in attitude toward patient involvement, the more often the GP refers patients to specialist care. We also found that GPs who prefer shared decision making refer less, which supports earlier studies.⁹⁻¹²

We will explore 2 main plausible explanations for our findings that depend on whether it is the GP or the patient who takes the initiative to referral: first, mismatch could lead to frustration and thereby a desire to end the consultation quickly, whereas matching attitudes would lead to the opposite outcome. Second, referrals seem to be a likely inclination both with dominating doctors and patients, and because mismatch in most cases means that both GP

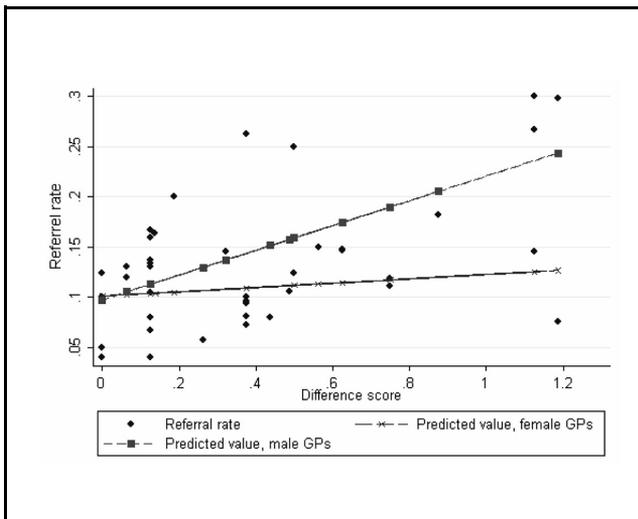


Figure 1 The relationship between the referral rate and difference score for male and female general practitioners (GPs; $n = 41$).

and patient would like to dominate decision making, referral is a more likely outcome in these cases.

Concerning the first suggested explanation, if we assume that a high difference score indicates disagreement about which roles the 2 parties should play in the consultation (i.e., there is discrepancy in expectations of the consultation), this finding is comparable to that of the recent study by Little and others.¹² When the patient's expectation of a participatory consultation style was not met, referral was a more likely outcome. In light of this, we could interpret the effect of the difference score on referrals as a result of patient pressure to be referred because of dissatisfaction with or lack of trust in the GP.

However, in contrast to the study by Little and others,¹² we also incorporated the GPs' attitude in our analysis because we assumed that GPs' actions reflect an interaction of attitudes that are realized in the consultation. According to this view of medical decision making, one could interpret a low difference score as a sign that the GP and patient understand each other and communicate well. In this type of consultation environment, it might be easier for the patient to explain his or her symptoms and concrete expectations of treatment. Likewise, the GP would find it worthwhile to explain what type of intervention the condition calls for or why a referral is perhaps unnecessary. Several studies conclude that patient expectation is an important predictor of referral rate,^{2,4} and there is also some evidence that the GP's perception of patient expectations is an even stronger predictor of referrals and other medical decisions.¹²⁻¹⁵

Altogether, this suggests that congruence in attitudes enhances the effort to solve the medical problem within the GP's practice.

A second and overlapping explanation of the results could be that when there is a discrepancy in attitudes between the GP and patient, it is most likely that the GP will be less positive to shared decision making than the patient (as the patients on average proved to be more patient centered than the GPs). We also know from the results that the GPs who are negative toward patient involvement are more likely to refer, but we did not find any significant association between the patients' attitudes and the probability of being referred. Hence, in this pair, there is a dominating GP who would like to refer and a dominating patient who probably does not have very strong preferences about being referred or not. This is plausible because a referral is not an intrusive or risky intervention to the patient, but perhaps one that could be considered a benefit in a gatekeeper system. Indeed, a British study from 1994 found that more patients wanted a referral than those who got one and that the GPs were strongly influenced by the patients' expectations for referrals.¹⁶

Strengths and Limitations of the Study

This is the first study to our knowledge that matches doctors' and patients' attitudes toward patient involvement in medical decision making to explain the variation in referral rates. We believe that our findings are strengthened by adopting a measure of attitudes to shared decision making used in earlier studies. In addition, we consider it an advantage that we were not aiming to explain absolute scores or the scores of patients or doctors separately.

A few limitations to this study should be considered. First, the participating GPs are all from the municipality of Bergen, and they are not necessarily representative of all Norwegian GPs. The reason for asking GPs from only 1 municipality to participate was that the density of specialists and distance to the hospital are known to be important factors of influence on the referral rate.²⁻⁴ These factors vary considerably between municipalities in Norway. By collecting data within a single municipality, we would keep this variable constant.

Second, only a small percentage of the GPs in Bergen participated in the study, which is not surprising given the amount of work required, but this could have led to a selection bias. One could speculate whether the participating doctors had a positive bias toward research or patient-centered care or had been

less busy than the average GP. Indeed, the mean list size of the study sample is below the average among Bergen GPs. However, as mentioned above, the participating GPs are similar to the GP population in Norway in all of the 3 characteristics where data are available (Table 1). The low number of observations and the high correlation between the difference score and the GP sharing score make the results slightly sensitive to the number of variables included in the study. Thus, we should be cautious not to draw too strong conclusions from the empirical results.

We decided to leave the distribution of the survey to the GPs because of ethical considerations regarding anonymity and because we believed this would result in a higher response rate than, for instance, a postal survey. Certainly, the patient response rate was adequate, but on the other hand, it was complicated by the fact that we left the distribution of the survey to the participating GPs. We therefore had no way of controlling whether the questionnaires actually were distributed according to our instructions. The GPs could be liable to distribute the questionnaires to the patients who matched their own attitudes to decision sharing, leading to minimizing reported differences between doctors and patients and thus underestimating resulting effects. However, the GPs were informed that they would be anonymous to the researchers; moreover, there was no evaluation of practice involved in the study, and hence there were no apparent incentives for the GPs to screen the patients for distribution. Still, we know little about the total patient sample, although the pattern and values of the sharing scores are similar to the other studies using the PPOS instrument, and the patient sample has a majority of older and female patients, which is expected as older and female patients consult their GP more frequently than younger and male patients.^{13,17,18} In addition, there was only a low degree of correlation between the GPs' and patients' sharing scores. Nonetheless, this calls for a certain caution when drawing conclusions based on the findings.

Regarding the reported referral rates, we would have preferred observational data to self-reported referral data, but such data are not yet available in Norway. There is no obvious reason to believe that the participants would be biased when reporting referrals, but as the number of participating GPs is small, random errors in the reporting might have reduced the probability of significant findings. In support of our finding, however, a Norwegian study from 1989 reports a referral rate of 11%, varying between 0% and 33%.¹⁹ There is also reason to emphasize that the dependent variable is 1-dimensional, as we do not differentiate between referrals to specialists and hospitals or between

different diagnoses. In addition, we do not know the outcome of the referral decisions. Hence, the study does not say anything about the appropriateness of the referral decisions.

CONCLUSIONS

The study indicates that it is important to investigate both GPs' and patients' attitudes to medical decision making to understand variations in GP practice. This study is a first step in exploring how congruence in attitudes of doctor and patient, or perhaps that the doctor and patient are in tune, may influence referral decisions in general practice and thereby the filtering to secondary care. The method could also be applied to other kinds of discretionary choices influencing resource allocation and quality of care.

Norwegian health authorities have proclaimed it an overall objective to treat patients at the lowest appropriate level of care (the LEON-principle),²⁰ and there is an assumption that GPs use their professional discretion to secure that those patients most in need get the appropriate treatment. Cost containment can therefore be viewed as a goal in itself. Nevertheless, we believe that further studies are necessary to explore how the quality of referral decisions is influenced by congruence in attitudes. There seems to be reason to ask whether a close doctor-patient match may contribute to the LEON-principle and contain costs of secondary care. In light of this, and assuming that patients prefer a GP who matches their own preferences, our findings could be interpreted as support of the system of free choice of GP and the right to change the GP at will.

APPENDIX

Patient-Provider Orientation Scale Items (PPOS)¹²

The level of agreement with the statements is marked on a Likert-type scale from 1 to 6.

1. The patient is the one who should decide what gets talked about during a visit.
2. It is often best for patients if they do not have a full explanation of their medical condition.
3. Patients should not only rely on their doctor's knowledge but try to find out about their conditions on their own.
4. Many patients continue asking questions until they understand the information given by the doctor.

5. Patients should be treated as if they were partners with the doctor, equal in power and status.
6. When patients disagree with their doctor, this is a sign that the doctor does not have the patient's respect and trust.
7. Most patients appreciate to take their time in the doctor's office.
8. The patient must always be aware that the doctor is in charge.
9. When patients look up medical information on their own, this usually confuses more than it helps.

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