Research

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Verbal and non-verbal behaviour and patient perception of communication in primary care:

an observational study

Abstract

Background
Few studies have assessed the importance of a broad range of verbal and non-verbal consultation behaviours.

Aim
To explore the relationship of observer ratings of behaviours of videotaped consultations with patients' perceptions.

Design and setting
Observational study in general practices close to Southampton, Southern England.

Method
Verbal and non-verbal behaviour was rated by independent observers blind to outcome. Patients competed the Medical Interview Satisfaction Scale (MISS; primary outcome) and questionnaires addressing other communication domains.

Results
In total, 275/360 consultations from 25 GPs had useable videotapes. Higher MISS scores were associated with slight forward lean (an 0.02 increase for each degree of lean, 95% confidence interval [CI] = 0.002 to 0.03), the number of gestures (0.08, 95% CI = 0.01 to 0.15), 'back-channelling' (for example, saying 'mmm') (0.11, 95% CI = 0.02 to 0.2), and social talk (0.29, 95% CI = 0.4 to 0.54). Starting the consultation with professional coolness ('aloof') was helpful and optimism unhelpful. Finishing with non-verbal 'cut-offs' (for example, looking away), being professionally cool ('aloof'), or patronising, ('infantilising') resulted in poorer ratings. Physical contact was also important, but not traditional verbal communication.

Conclusion
These exploratory results require confirmation, but suggest that patients may be responding to several non-verbal behaviours and non-specific verbal behaviours, such as social talk and back-channelling, more than traditional verbal behaviours. A changing consultation dynamic may also help, from professional 'coolness' at the beginning of the consultation to becoming warmer and avoiding non-verbal cut-offs at the end.

Keywords
communication; consultation; general practice; non-verbal communication.

INTRODUCTION

The patient-centred consultation model is widely advocated,[1,2] although implementation is possibly limited,[3–5] and poor communication results in complaints and lawsuits.[6] Communication skills training is also probably very efficient given the long-lasting effects of training.[7–10] A Cochrane Review of trials to modify patient-centredness documented mixed effects on satisfaction and small effects on health status.[11] However, for satisfaction, none of the studies addressed non-verbal skills, and nearly all were intensive ('brief' training was up to 10 hours).[11] Most models of patient-centred behaviour refer to traditional verbal skills, but a review of 22 observational studies suggested that other important factors were courtesy, empathy, positive reinforcement, reassurance and support, psychosocial talk, friendliness, humour, explanations, summarising and clarification, a direct body orientation, symmetrical legs and arms, forward lead, nodding, and gaze.[12] An observational study identified important domains of patients' perceptions — a communication and partnership approach, interest in the patient's life, health promotion, a positive approach, and a personal relationship — each of which strongly predicts different outcomes.[13,14] However, what mixture of verbal and non-verbal elements of doctor behaviour determines patients' perceptions is less clear.

The previous literature also has significant limitations, great variability in what is rated (few include even the limited variables assessed by Beck et al),[12] and outcomes. In one review of trials, meta-analysis was not possible due to the heterogeneity of interventions and outcomes,[15] and in the Cochrane Review updated in 2012 heterogeneity was also moderately high.[11]

This study aimed to explore which aspects of GPs' non-verbal and verbal communication are likely to be most important in determining patients' satisfaction and perceptions of person-centred communication in the consultation.

METHOD

Unselected GP consultations for consecutive patients were videotaped and verbal and non-verbal behaviour was rated by independent observers blind to outcome. Patients completed ratings post-consultation questionnaires using the Medical Interview Satisfaction Scale (MISS) and other scales measuring the patient-centredness of the consultation.

Participants

Participants were adult patients, or children attending with their parents, for a new or ongoing problem, that is, not those attending

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How this fits in

Communication is central to every consultation and although a range of key elements have been advocated, few previous studies have assessed the impact of a wide range of verbal and non-verbal behaviours. This study suggests that clinicians may need to pay at least as much attention to non-verbal behaviours and non-specific verbal behaviours, such as social talk and back-channelling, as traditional verbal behaviours. They should avoid optimism but maintain professional 'coolness' at the beginning of the consultation, and end the consultation with warmth, avoiding non-verbal cut-offs.

simply for a repeat prescription. There were no exclusions apart from the inability to consent or complete questionnaires; for example, those experiencing severe distress, dementia, very severe depression, or who were very severely unwell.

Recruitment

Consecutive patients were recruited by 25 GPs in general practices close to Southampton in Southern England. The GPs in turn were recruited by the local postgraduate coordinator close to the Southampton postgraduate centre. GPs were asked to recruit up to 15 consecutive patients each.

Rating of videotapes

Doctors were videotaped with the video camera pointed towards the doctor. Prior findings demonstrated that short consultation 'slices' correlate well to total ratings; this was confirmed for most items, but where poor correlations were observed (for example, for Roter items — Roter Interaction Analysis System — such as social talk), the whole consultation was used. Thus, unless specified, the first and last minutes of the consultation were rated. The middle of the consultation was not chosen to avoid examinations performed away from the camera. Ratings were blind to the questionnaire responses by a research assistant or member of the research team, using a battery of assessments. Particular assessments were chosen based on previous significant findings. Further details of rating of videotapes and descriptive data for key variables are available from the authors.

Patient questionnaires

A similar methodology was used to the previous study:[14] a post-consultation questionnaire explored the patient's perception of communication. Questionnaires were completed by participants with help from parents as appropriate, particularly for very young children, either immediately after the consultation or, more commonly, at home and then posted back.

Primary outcome. The Medical Interview Satisfaction Scale (MISS)[16] was chosen since its domains predominantly reflect communication and the doctor–patient relationship (distress–relief; communication–comfort; rapport; and compliance–intent). Patients agree or disagree on a 7-point Likert scale (very strongly agree to very strongly disagree) with items about how they rated the consultation.

Secondary outcomes. Similar 7-point Likert scales were also completed for several domains of patients' perceptions of communication previously validated:[14]

- communication and partnership;
- a 'personal' relationship;
- health promotion;
- a 'positive' approach — being definite about the problem and when it would settle; and
- interest in the effect on life.

The questionnaire also contained sociodemographic details, the short state anxiety questionnaire,[17] the Whitley Index, the number of medical problems, current medication, enablement,[18] symptom burden (Measure Yourself Medical Outcome Profile),[19] whether seeing their usual doctor, the complaint (based on *British National Formulary* chapters), and whether or not this was ongoing.

Sample size

The sample size was calculated using an α of 0.01 and β of 0.2 using the NQuery sample size programme version 3. It was estimated that to detect a correlation of 0.25 between patient perception of communication and verbal or non-verbal communication rated in the consultation required 183 patients, or 229 allowing for 20% incomplete outcomes. Therefore 0.25 was chosen to allow for some margin of error: a correlation of 0.29 was observed between verbal behaviour and satisfaction in a similar previous UK study.[20]

Table 1. Variables (scored from videotapes) significantly associated with the mean item score of the MISS questionnaire (rated by patients after the consultation; each item scored 1–7)

Predictor variables[a]	Univariate beta coefficient[b] (95% CI)	P-value	Multivariate beta coefficient (95% CI)	P-value
Non-verbal				
Number of gestures (beginning consultation)	0.11 (0.02 to 0.19)	0.018	0.08 (0.001 to 0.15)	0.046
Degrees of lean towards the patient (beginning consultation)	0.014 (−0.001 to 0.029)	0.067	0.018 (0.002 to 0.03)	0.025
Verbal				
Back-channel prompts (beginning consultation)	0.10 (−0.02 to 0.23)	0.100	0.11 (0.02 to 0.2)	0.020
Infantilising (end consultation)	−0.39 (−0.67 to −0.11)	0.009	−0.31 (−0.86 to 0.25)	0.044
Social talk occurred during whole consultation	0.20 (−0.04 to 0.44)	0.092	0.29 (0.4 to 0.54)	0.026

[a]Unless specified, predictor variables were those rated at the beginning of the consultation. [b]Univariate analysis (n = 243) controlled for clustering by doctor. Multivariate analysis (n = 191) controlled for clustering by doctor, deprivation, type of problem, marital status, attitude to doctors, time on the history, and for all significant predictors listed. In this and subsequent tables the estimate of the beta coefficients from the model are quoted; the interpretation of these, taking the first line as the example are that for each gesture used the mean item score for satisfaction increases by 0.11 in univariate analysis and 0.08 in multivariate analysis. MISS = Medical Interview Satisfaction Scale.

Analysis

The data were analysed using SPSS (for data manipulation) and Stata (for modelling) statistical software for Windows™ using multiple linear regression, controlling for clustering by GP (Stata version 12; SPSS version 21). The linearity of associations was checked graphically and using ordered categorical variables. The dependent variables were the patients' rating of the consultations and the independent variables were ratings of the physician's behaviour (both verbal and non-verbal), as well as the rest of the data from the questionnaires.

Variables were selected manually by forward selection (to limit the development of spurious findings from automated procedures), and variables retained if there was limited inflation of standard errors, and if they were found to be significant ($P<0.05$) in multivariate analysis. All variables were then also checked manually in the final model, to ensure no variables that could be important had been overlooked (and which could have been spuriously thrown out by an automated procedure). Missing values were not imputed.

RESULTS

Patients were recruited from February until April each year from 2006 until 2010 by 25 GPs: 9/25 (36%) female; 6/25 (24%) not partners; and 5/25 (20%) working in deprived inner city areas.

Most patients could not be approached because of insufficient time to consent prior to the consultation. Of those who were approached, most agreed to participate (60%), with the remainder either not having the time or inclination to participate (35%), or because of the sensitive nature of the consultation (5%).

Of the 360 patients who initially agreed, 275 useable videotapes could be rated, and of these, 251/275 (91%) have useable questionnaire data, that is, a MISS questionnaire could be calculated.

The mean age of the index patients was 48 years, 138/215 (64%) were female, 145/223 (65%) were married, 13/197 (7%) were in receipt of sickness or disability benefit, 111/228 (49%) were in paid work, and had on average been to the doctor five times in the previous 12 months.

Patients rated both satisfaction and communication in the consultation highly: the mean item score for MISS on a 1–7 scale was 5.6 (standard deviation [SD] = 0.8), for the communication and partnership scale 5.5 (SD = 0.8), the personal relationship scale 5.1 (SD = 1.3), and the interest in life scale 5.2 (SD = 1.2).

Table 1 shows the results for the MISS questionnaire. Patients' rating of satisfaction (mean item score on the MISS questionnaire, scaled 1–7) increased with slight lean towards the patient, the number of gestures, and 'back-channel prompts' (such as saying 'mmm', 'ah ha', and so on), at the beginning. Social talk at some point in the consultation was

Table 2. Variables associated with patient rating of a communication and partnership approach

Predictor variables[a]	Univariate	P-value	Multivariate	P-value
Non-verbal				
Number of gestures (beginning consultation)	0.09 (0.01 to 0.17)	0.030	0.09 (0.03 to 0.16)	0.009
Physical contact occurred during whole consultation	0.90 (0.15 to 1.65)	0.021	1.59 (0.25 to 2.93)	0.022
Non-verbal cut-off occurred (end consultation)	−1.92 (−2.64 to −1.20)	<0.001	−1.82 (−2.91 to −0.72)	0.002
Verbal				
Psychosocial talk occurred in the whole consultation	0.10 (−0.02 to 0.23)	0.100	−0.20 (−0.39 to −0.01)	0.040
Social talk occurred during whole consultation	0.24 (−0.01 to 0.49)	0.059	0.43 (0.14 to 0.73)	0.006

Univariate (n = 239) controlling for clustering by doctor. Multivariate (n = 214) controlling for clustering by doctor, deprivation, type of problem, attitude to doctors, and for all significant predictors listed.

Table 3. Variables associated with patient rating of a personal relationship

Predictor variables	Univariate	P-value	Multivariate	P-value
Non-verbal				
Non-verbal cut-off occurred (end consultation)	−3.25 (−5.08 to −1.42)	0.001	−3.02 (−4.77 to −1.27)	0.002
Verbal				
Social talk occurred during whole consultation	0.40 (−0.11 to 0.91)	0.115	0.49 (0.16 to 0.83)	0.006
Evidence that patient history not known during whole consultation	−1.26 (−1.78 to −0.73)	<0.001	−0.70 (−1.23 to −0.17)	0.012
Overall impression Optimistic (beginning consultation)	−0.02 (−0.17 to 0.14)	0.809	−0.17 (−0.27 to −0.06)	0.003
Aloof (end consultation)	−0.40 (−0.62 to −0.19)	0.001	−0.23 (−0.46 to 0.00)	0.05
Dominant (end consultation)	−0.05 (−0.15 to 0.04)	0.267	−0.14 (−0.20 to −0.07)	<0.001

Univariate (n = 242) controlling for clustering by doctor. Multivariate (n = 213) controlling for clustering by doctor, type of problem, attitude to doctors, time on history, and for all significant predictors listed.

associated with increased satisfaction, and infantilising (being patronising) at the end of the consultation was associated with a negative impact.

Tables 2–4 document the associations for the key communication domains. Information on the perception of health promotion, a positive approach, and enablement domains are shown in Appendices 1–3. Variables with estimates

that were either significant in both univariate analysis and multivariate analysis, or significant in multivariate analysis but a consistent direction in both univariate and multivariate analysis, are highlighted in Table 5. The pattern of findings in Table 5 suggest being aloof, dominant, or infantilising at the end of the consultation, or using non-verbal cut-offs were associated with several domains of negative perceptions of communication by patients. The negative effect of being aloof or infantilising at the end of the consultation must be put in the context that for only a minority of consultations was there a negative rating: 23/268 (9%), and 32/268 (12%), respectively. Being physically engaged (using gestures or appropriate touch) and socially engaged (social talk) had positive effects. At the beginning of the consultation being supportive was helpful, but optimism was not. Conversely, being professionally aloof at the beginning of the consultation was helpful; suggesting a cool but supportive listening approach, without injecting artificial optimism at too early a stage, could be optimal.

DISCUSSION

Summary

This exploratory study is one of the largest to assess a range of verbal and non-verbal behaviours. It suggests that several non-verbal behaviours and non-specific verbal behaviours, such as social talk and back-channelling, may impact more than traditional verbal behaviours. It also proposes that a changing consultation dynamic may be important — from being professionally supportive but 'cooler' at the beginning to being warmer and avoiding non-verbal cut-offs at the end.

Strengths and limitations

This was one of the largest studies to assess a very broad range of verbal and non-verbal behaviours in primary care.

The main potential limitations of this study are confounding and type I errors. Type I error is less likely for variables that had multiple associations, and more likely for variables only associated with one outcome and only in multivariate analysis (for example, the rate of speech) or with mixed effects (for example, lean towards the patient and being definite about the nature of the problem). Confounding was controlled as necessary for age, sex of the doctor, type of problem, being in receipt of sickness and unemployment benefit, whether the patient was seeing their usual doctor, and attitudes to doctors.

Table 4. Variables associated with patient rating of perceived interest of the doctor in their life

Predictor variables	Univariate	P-value	Multivariate	P-value
Non-verbal				
Non-verbal cut-off occurred (end consultation)	−1.69 (−2.62 to −0.76)	0.001	−2.42 (−4.60 to −0.25)	0.030
Verbal Joke or laugh during the whole consultation	0.37 (0.01 to 0.74)	0.047	0.40 (0.05 to 0.76)	0.027
Overall impression Supportive (beginning consultation)	0.07 (−0.11 to 0.24)	0.451	0.29 (0.17 to 0.41)	<0.001
Optimistic (beginning consultation)	−0.04 (−0.16 to 0.09)	0.565	−0.17 (−0.27 to −0.06)	0.002
Aloof (end consultation)	−0.14 (−0.28 to −0.01)	0.040	−0.30 (−0.59 to −0.01)	0.041
Aloof (beginning consultation)	0.17 (0.09 to 0.26)	<0.001	0.33 (0.22 to 0.44)	<0.001
Infantilising (end consultation)	−0.57 (−1.12 to −0.01)	0.046	−0.61 (−1.12 to −0.10)	0.020

Univariate (n = 216) controlling for clustering by doctor. Multivariate (n = 211) controlling for clustering by doctor, type of problem, and for all significant predictors listed.

Table 5. Summary of significant positive (beneficial outcome) and negative (adverse outcome) associations of key variables and whether the variable rating refers to the beginning, end, or whole consultation

Predictor variables	Satisfaction (MISS)	Personal relationship	Interest in life	Health promotion	Positive approach	Communication/ partnership	Enable
Optimistic (beginning)		Negative	Negative				
Not knowing patient (whole)		Negative[a]					
Aloof (end)		Negative[a]	Negative[a]	Negative	Negative		
Dominant (end)		Negative	Negative				
Infantilising (end)	Negative[a]		Negative[a]	Negative			
Psychosocial talk (whole)					Negative	Negative	
Mismatch rate/tone of speech (end)							Negative
Open questions (end)					Negative		
Non-verbal cut-off (end)		Negative[a]	Negative[a]			Negative[a]	
Supportive (beginning)			Positive				
Gestures (beginning)	Positive[a]					Positive[a]	
Physical contact (whole)					Positive[a]	Positive[a]	
Social talk (whole)	Positive[a]	Positive[a]			Positive[a]	Positive[a]	
Joke/laugh (whole)			Positive[a]				
Back-channelling (beginning)	Positive						
Aloof (beginning)			Positive[a]				
Lean (beginning)	Positive						Negative
Definite about problem					Positive		Negative

[a]Variables with estimates that were either significant in both univariate analysis and multivariate analysis or significant in multivariate analysis but a consistent direction in both univariate and multivariate analysis. MISS = Medical Interview Satisfaction Scale.

Even with the range of variables controlled for it is difficult to deal with residual confounding, and there is also the danger of over-fitting. However variables, such as non-verbal cut-offs or being aloof or infantilising, which were significant and had similar estimates in both univariate and multivariate analysis (that is, stable estimates and less likely to be confounded), provide stronger evidence of causality.

Conversely, concerns about confounding are stronger when the estimates are unstable, hence variables with more consistent estimates were highlighted. Type II error (β) is also possible, even though this is one of the largest studies to assess such a complete range of variables (very large studies are challenging due to the very intensive nature of the video assessment). Reverse causality is likely to be relevant for some variables, for example, psychosocial talk (which is likely to occur in consultations with more distress and emotion expressed) was associated with negative perception of communication. Although Rosenthal *et al* have shown that naïve raters can use their scales reliably,[21–23] judgements about each item will inevitably be subjective, although the impact of a single rater's judgement was minimised by using several raters. Similarly, despite using the Stewart method which has an extensive manual,[2] the estimation of reliability in this study suggests that for many variables reliability is only likely to be moderate, and so the associations may have been underestimated. Booking interval was not controlled for but total time in the consultations was not an important predictor.

These results should be confirmed in a wider group of GPs: although patients from GPs working in deprived areas had slightly higher MISS ratings and a 'positive' doctor approach, and partners had higher ratings than non-partners, these variables were controlled for in analysis. Selection bias potentially applies to both doctor and patient: Mead and Bower suggested that doctors who consider themselves to be good communicators, are thus likely to have better verbal communication skills and are more likely to take part, which will have potentially underestimated the importance of verbal skills.[24] Patients with a sensitive nature to their problem/s are more reluctant to be filmed, and it is in such areas where patient-centredness is likely to be most important.[24]

Recruitment and rating of videotapes was slow due to the day-to-day running being coordinated each year by medical students as part of their research projects, and students could only provide concentrated input for 1–2 months per year. The requirement to use students in part reflects the difficulty of obtaining funding for this research. Furthermore, due to the logistic requirement to approach patients and obtain consent, a large proportion of consultations were not recorded.

Comparison with existing literature

Several variables in the current study were apparently important but only at the end of the consultation. The importance of avoiding non-verbal cut-offs supports Mehrabian,[25,26] and suggests that non-verbal cut-offs give the patient the impression that the doctors communication skills are poor and that the doctor is not interested in their life. As might be expected, avoiding any sense of distance at the end of the consultation, such as aloof or infantilising/patronising,[22,23] was powerful, although few doctor consultations in this study were judged to be very aloof or infantilising. The apparently surprising findings of some benefit from being 'aloof' and not overly optimistic at the beginning of the consultation suggests a changing dynamic throughout the consultation. This may reflect the importance early in the consultation of a cooler but supportive professional manner in helping patients feel listened to. The use of gestures and touch, that is, appropriate physical contact, are both supported by previous work,[26,27] and were consistent between univariate and multivariate analysis.

The use of social conversations was important and is one of the central measures in the Roter interaction analysis system[28,29] Where there was social conversation, patients were more likely to feel there was a communication and partnership approach, a personal relationship, and that the doctor was positive. Some of this may be reverse causality given that patients who know their doctor better are more likely to be engaged in social conversation and vice versa. However, controlling for whether this was the patient's normal doctor did not modify the estimates, so reverse causality seems a less likely explanation. As expected demonstrating knowledge of the patient and their history was relevant for patients having a sense of a personal relationship, and this finding was also not affected by whether the doctor was the patient's usual doctor. This highlights the importance when the GP is not the usual doctor of quickly checking the key elements of the patient's past history.

Conventional approaches in conceptualising verbal aspects of patient-centredness — exploring the disease, understanding the person as a whole, and finding common ground — were not strong findings. This is closer to Mead and Bower who found very limited associations,[24] but the correlations in Kinnersley et al's study were also not large.[20] This may reflect the limited range of GPs — studies of communication tend to enlist those already most interested in communication — but the range of scores for verbal communication perhaps makes this explanation less likely.

Implications for research and practice

Given the exploratory nature of this study, and the likely self-selection of GPs, very firm recommendations cannot be made. However, if these results can be confirmed, they suggest that health professionals should pay attention to non-verbal skills in the consultation, particularly the use of gestures and physical contact, and to non-specific verbal elements such as back-channel prompts and social conversation. A professionally cool approach may be helpful at the beginning of the consultation, but not at the end where a warmer approach and particular care to avoid non-verbal cut-offs are needed.

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Appendix 1. Variables associated with patient rating of health promotion

Predictor variables	Univariate	P-value	Multivariate	P-value
Non verbal				
Non verbal cut–off occurred (end consultation)	−2.28 (−3.20 to −1.37)	<0.001	−2.89 (−5.35 to −0.43)	0.023
Object manipulation (end consultation)	−0.13 (−0.27 to 0.01)	0.074	−0.21 (−0.38 to −0.04)	0.020
Computer use (beginning and end combined)	−0.34 (−0.70 to 0.02)	0.066	−0.59 (−1.02 to −0.16)	0.010
Verbal				
Feedback examination (findings unsolicited)	0.001 (−0.08 to 0.08)	0.976	0.41 (0.13 to 0.68)	0.006
Overall impression				
Aloof (beginning consultation)	0.07 (−0.17 to 0.31)	0.546	0.34 (0.21 to 0.48)	<0.001
Aloof (end consultation)	−0.04 (−0.36 to 0.29)	0.816	−0.28 (−0.49 to −0.07)	0.011
Infantilising (end consultation)	−0.34 (−0.88 to 0.20)	0.210	−0.69 (−1.15 to −0.23)	0.005

Univariate (n = 224) controlling for clustering by doctor. Multivariate (n = 195) controlling for clustering by doctor, type of problem, history time, total number of medical problems, and for all significant predictors listed.

Appendix 2. Variables associated with patient rating of the doctor being positive about the problem and its natural history

Predictor variables	Univariate	P-value	Multivariate	P-value
Non verbal				
Negative facial expression (end consultation)	−2.13 (−3.53 to −0.72)	0.005	−2.06 (−3.61 to −0.52)	0.011
Lean towards the patient (end consultation)	−0.01 (−0.02 to 0.01)	0.002	−0.02 (−0.03 to −0.01)	0.006
Physical contact occurred during whole consultation	2.39 (0.53 to 4.23)	0.014	2.52 (0.03 to 5.00)	0.047
Negative head movement (beginning consultation)	1.05 (0.58 to 1.52)	<0.001	1.22 (0.62 to 1.82)	<0.001
Verbal				
How definite about natural history	0.12 (−0.01 to 0.25)	0.077	0.13 (0.02 to 0.23)	0.021
Social talk during whole consultation	0.28 (−0.14 to 0.70)	0.177	0.62 (0.10 to 1.13)	0.021
Psychosocial talk during whole consultation	−0.20 (−0.48 to 0.07)	0.135	−0.55 (−0.88 to −0.22)	0.002
Open questions (end consultation)	−1.23 (−2.69 to 0.23)	0.095	−1.35 (−2.65 to −0.04)	0.044
Overall impression				
Aloof (beginning consultation)	0.01 (−0.28 to 0.29)	0.968	0.17 (0.05 to 0.29)	0.007
Aloof (end consultation)	−0.18 (−0.64 to 0.29)	0.437	−0.34 (−0.64 to −0.04)	0.026

Univariate controlling for clustering by doctor. Multivariate controlling for clustering by doctor, type of problem, deprived practice, state anxiety and for all significant predictors listed.

Appendix 3. Variables associated with patient rating of enablement

Predictor variables	Univariate	*P*-value	Multivariate	*P*-value
Non verbal				
Lean (beginning consultation)	−0.01 (−0.02 to 0.00)	0.041	−0.01 (−0.02 to 0.00)	0.045
Match of rate of speech (end consultation)	−1.08 (−1.94 to − 0.21)	0.017	−1.92 (−3.22 to −0.62)	0.006
Match of patient and doctor tone (beginning consultation)	−0.19 (−0.53 to 0.15)	0.262	−0.35 (−0.52 to 0.17)	0.001
Verbal				
Feedback examination	−0.01 (−0.05 to 0.02)	0.463	−0.04 (−0.07 to −0.01)	0.013
Definite about the problem	−0.03 (−0.06 to −0.01)	0.167	−0.05 (−0.09 to −0.02)	0.005
Overall impression				
Hostile (beginning consultation)	−0.62 (−1.00 to −0.24)	0.003	−0.39 (−0.59 to −0.18)	0.001

Univariate (n = 234) controlling for clustering by doctor. Multivariate (n = 206) controlling for clustering by doctor, type of problem, deprived practice, attitude to doctors and for all significant predictors listed.