



Factors affecting patients' trust and confidence in GPs - Evidence from the English national GP Patient Survey

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Complete List of Authors:	Croker, Joanne; University of Exeter, Primary Care Swancutt, Dawn; University of Exeter, Primary Care Roberts, Martin; University of Exeter, Primary Care Abel, Gary; University of Cambridge, GP and Primary Care Research Unit Roland, Martin; University of Cambridge, GP and Primary Care Research Unit Campbell, John; University of Exeter, Primary Care
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4 1 **Factors affecting patients' trust and confidence in GPs -**
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10 4 Croker, Joanne E., Academic Clinical Fellow¹
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13 6 Swancutt, Dawn R., Research Fellow¹
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16 8 Roberts, Martin J., Research Fellow¹
17
18 9

19 10 Abel, Gary A., Research Associate²
20
21 11

22 12 Roland, Martin., Professor of Health Services Research²
23
24 13

25 14 Campbell, John L., Professor of General Practice and Primary Care¹
26
27 15

28 16
29 17 1. University of Exeter, Exeter, UK

30 18 2. Cambridge Centre for Health Services Research, University of Cambridge, Cambridge, UK
31
32 19

33 20 **Correspondence:**

34 21 Dr Joanne Croker

35 22 Primary Care Research Group

36 23 University of Exeter

37 24 St Luke's Campus

38 25 Magdalen Road

39 26 Exeter

40 27 EX1 2LU

41 28 01392 262740

42 29 Joanne.croker@pcmd.ac.uk
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Factors affecting patients' confidence and trust in GPs – Evidence from the English national GP Patient Survey

Abstract

Objectives

Patients' trust in General Practitioners (GPs) is fundamental to delivering effective clinical encounters. Associations between patients' trust and their perceptions of communication within the consultation have been identified, but the influence of patients' demographic characteristics on these associations is unknown.

We aimed to investigate the relative contribution of patient age, gender and ethnicity in any association between patients' ratings of interpersonal aspects of the consultation and their confidence and trust in the doctor.

Design

Secondary analysis of English national GP patient survey data (2009)

Setting

Primary Care, England, UK.

Participants

Data from year 3 of the GP patient survey: 5,660,217 questionnaires sent to patients aged 18 and over who had been registered with a general practice in England for at least six months; overall response rate 42% after adjustment for sampling design.

Outcome measures

We used binary logistic regression analysis to investigate patients' reported confidence and trust in the GP, analysing ratings of seven interpersonal aspects of the consultation, controlling for patient sociodemographic factors. Further modelling examined the

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4 62 moderating effect of age, gender and ethnicity on the relative importance of these seven
5 63 predictors.
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8 9 **Results**

10 66 Amongst 1.5 million respondents (adjusted response rate 42%), the sense of ‘being taken
11 67 seriously’ had the strongest association with confidence and trust. The relative
12 68 importance of the seven inter-personal aspects of care was similar for men and women.
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14 69 Non-white patients accorded higher priority to being given enough time than did white
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16 70 patients. Involvement of older patients in decisions regarding their care had a greater
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18 71 effect than amongst younger patients.
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21 22 23 **Conclusion**

24 74 Associations between patients’ ratings of interpersonal aspects of care and their
25 75 confidence and trust in their GP are influenced by patients’ demographic characteristics.
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27 76 Taking account of these findings could inform patient-centred service design and delivery
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29 77 and potentially enhance patients’ confidence and trust in their doctor.
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Article focus

- There are associations between patients' trust in their GP and a patient-centred approach to consultations.
- This study adds depth by considering the effect of age, gender and ethnicity on the relationship between interpersonal aspects of the consultation and patients' trust.

Key messages

- Interpersonal aspects of the consultation rated in the survey were strongly associated with reported confidence and trust in the doctor, the strongest association being with 'taking your problems seriously'.
- The relative contribution of other aspects of the consultation to reported confidence and trust varied with the age and ethnicity of the patient.
- Our observation that a sense of shared decision making was a stronger determinant of confidence and trust amongst older patients is a new finding.
- Our findings provide the potential opportunity for targeting patient care to the individual in an informed way.

Strengths and weaknesses

- No previous studies have investigated the interaction effects of patient characteristics and interpersonal aspects of the consultation on confidence and trust in such a large sample of patients in the UK.
- Inclusion and exclusion criteria, outcome measures, and the potential for selection bias, were affected by using pre-determined data. However large actual numbers of completed responses, even in under-represented subgroups, were sufficient to make precise estimates of associations.
- We did not have detailed information about the doctors being commented on, patient health status, or continuity of care. However, data relate to one particular doctor-patient interaction, allowing a focused interpretation of aspects of the consultation.

Factors affecting patients' trust and confidence in GPs - analysis of survey data

Background

Trust is central to all human relationships^[1] and, in the context of a setting characterised by vulnerability such as in a clinical consultation, may be considered as the belief of the individual placing their trust that the trustee will care for their best interests.^[2] As a component of the doctor-patient relationship^[3,4] trust stems from patient beliefs that the doctor is their ally and is competent in both clinical and interpersonal skills.^[5] Patients' trust in their General Practitioner (GP) underpins the delivery of effective clinical encounters.^[2, 6, 7] Whilst patient's trust and confidence in GPs is high,^[6] GPs in England and Wales have adopted a central role in commissioning primary health care, and in this context, the preservation of patients' confidence and trust will play a vital part in supporting future service developments.^[2, 8]

Numerous benefits may accrue from a trusting, confident doctor-patient relationship. These include the open communication of information between doctor and patient, with subsequent encouragement of patient enablement and improved adherence to medical advice;^[6,9,10] the reduction in rates of referral with associated cost reductions;^[2] and the improvement of health outcomes and better patient perceptions of health care.^[11]

The development of a trusting doctor-patient relationship is facilitated by a range of organisational and personal factors such as patient-centred approaches to care^[11,12] and improved communication;^[13-16] shared decision making;^[17-19] increased consultation length;^[20] interpersonal continuity of care^[21-23] and providing support without necessary expectation of cure;^[24] giving patients a choice of doctor;^[25,26] congruence in doctor-patient beliefs,^[27,28] and ethnicity,^[29] and patient approval of the doctor's appearance.^[30]

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4 113 Whilst previous research has investigated associations between age, gender and ethnicity
5 114 of the patient and their expression of confidence and trust in a doctor, the relative
6 115 contribution and interaction of these factors with patient perceptions of the consultation
7 116 remains unknown. To address this shortcoming we investigated the influence of these
8 117 interactions using data from the English GP Patient Survey (GPPS) undertaken in 2009.
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16 120 We aimed to investigate the relative contribution of patient age, gender and ethnicity in
17 121 any observed association between patients' ratings of interpersonal aspects of the
18 122 consultation and their reported confidence and trust in the doctor.
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24 125 **Methods**

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28 127 Data were extracted from year 3 (January to March 2009) of the GP patient survey during
29 128 which 5,660,217 questionnaires were sent to patients aged 18 years and over who had
30 129 been continuously registered with a general practice in England for at least six months.
31 130 The overall response rate was 42% after adjustment for sampling design.^[32] The year 3
32 131 GPPS data was not weighted, as associations were expected to be less vulnerable to the
33 132 effect of non-response, unlike prevalence estimates where weighting is essential. A
34 133 detailed account of the survey methodology is reported elsewhere.^[31]
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43 135 One item (Q20) of the GP patient survey invited patients to rate their most recent
44 136 consultation with a doctor at the practice in respect of seven interpersonal aspects of care
45 137 ('Giving you enough time', 'Asking about your symptoms', 'Listening to you',
46 138 'Explaining tests and treatments', 'Involving you in decisions about your care', 'Treating
47 139 you with care and concern' and 'Taking your problems seriously') using a five point
48 140 scale (5= very good to 1= very poor). The next item (Q21) invited respondents to rate
49 141 their confidence and trust in the doctor they had seen using a three point scale ('yes
50 142 definitely', 'yes to some extent', 'no not at all'). Only 3% of individuals expressed no
51 143 confidence in the doctor they had consulted. For this reason responses to this item were
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4 144 dichotomised into ‘definite’ versus ‘partial or no’ confidence and trust for the purposes of
5 145 regression analysis. Patients were asked to report their gender, age (eight categories: 18-
6 146 24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, and 85 years and over), ethnicity (sixteen
7 147 categories), and health status (five categories: Poor, Fair, Good, Very good, and
8 148 Excellent). Patient postcodes were used to attach data on rurality (two categories: Inner
9 149 city and Elsewhere) and socio-economic deprivation (in quintiles).^[33] Our main analyses
10 150 used only respondents with informative responses to all parts of Q20, Q21 and complete
11 151 data on the six demographic variables. Therefore we compared these respondents with
12 152 those with incomplete data in respect of gender, age, ethnicity and definite confidence
13 153 and trust in the doctor.
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15 155 Binary logistic regression was used throughout to model the average effect of a one point
16 156 increase in the patient’s rating of the interpersonal aspects of care on the odds of
17 157 reporting definite confidence and trust in the doctor. Initially, a ‘main effects’ model was
18 158 used to determine the effects (odds ratios) associated with patient age, gender, ethnicity
19 159 and the seven ratings of interpersonal aspects of the consultation. The null hypothesis,
20 160 that the odds ratios were equal for the seven ‘interpersonal’ ratings was tested using a
21 161 likelihood ratio test and the odds ratios were then ranked in order of size. In estimating
22 162 the ‘average effect of a one point increase’ in any of the ‘interpersonal’ ratings on the
23 163 odds of reporting definite confidence and trust we were assuming each of the ratings to be
24 164 approximately linearly related to the log odds. We verified the reasonableness of this
25 165 assumption using simple linear regressions of the observed log odds on each of the
26 166 ratings (results not shown).
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28 168 We noted that the rank order of the contribution of the seven ‘interpersonal’ ratings
29 169 followed almost exactly the order that the items appear in the survey questionnaire. Since
30 170 these items (question 19a-g) immediately precede the question addressing confidence and
31 171 trust (question 20), we explored the possibility of a question ordering effect by regressing
32 172 a later item reflecting ‘overall satisfaction with care at the surgery’ (question 25), on the
33 173 ‘interpersonal’ items, along with the sociodemographic variables.
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4 175 A second ‘interaction model’ was used to establish the moderating effects of age, gender
5 176 and ethnicity on the effects of the seven ‘interpersonal’ ratings. To facilitate easy
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7 177 comparisons, the odds ratios for the effect of a one point increase in each rating of the
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9 178 consultation on having definite confidence and trust in the doctor, were estimated and
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11 179 ranked in order of size for various age, gender and ethnic subgroups by combining the
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13 180 appropriate main and interaction terms. To simplify interpretation of the results, patient
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15 181 age was categorised into three groups (18-35, 35-64, 65 years and over) and ethnicity was
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17 182 dichotomised (white, non-white) to create 12 (=2×3×2) gender by age by ethnicity
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19 183 subgroups. The original categorisation of the data would have created 256 such
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21 184 subgroups and made interpretation too complex.

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23 186 Both regression models controlled for patients’ health status, rurality, and socio-
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25 187 economic deprivation and incorporated a random effect to account for clustering of the
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27 188 data by practice. We were unable to account for clustering by doctor as the GP patient
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29 189 survey does not ask patients to identify the individual doctor being rated. All analyses
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31 190 were performed in STATA version SE10.1 for Windows.

32 191 33 192 34 35 193 **Results**

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39 195 Of 2,163,456 patients in the sample, 296,066 (14%) had indicated that one or more of the
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41 196 aspects of the consultation were not relevant to the last time they had seen the doctor.
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43 197 Although these data were treated as missing in our analysis they should be considered
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45 198 ‘missing by design’. A further 391,138 (18%) of patients had truly missing data, leaving
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47 199 an effective sample size for analysis of 1,476,252 (26% of the 5,660,217 patients who
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49 200 were originally sent questionnaires). Individuals with complete data differed from those
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51 201 with incomplete data: more of them were male (44% vs. 38%), more were in the middle
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53 202 age groups (56% vs. 49% aged 35-64 years), slightly more were white (87% vs. 86%)
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55 203 and more reported definite confidence and trust in the doctor (73% vs. 69%). Although
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57 204 statistically significant due to the large sample size ($p < 0.001$ in all cases), these
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59 205 differences are fairly small.

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207 Whilst similar proportions of men and women reported definite confidence and trust in
208 the doctor (74% vs. 73% respectively), definite confidence and trust was more commonly
209 reported by older patients than by younger patients (Table 1); by patients from white
210 ethnic backgrounds than by non-white patients (75% vs. 61% respectively); by patients
211 living outside inner-city areas compared with those from inner-city areas (79% vs. 72%);
212 by those reporting excellent health compared with those reporting poor health (82% vs.
213 71%); and among those in areas of low deprivation compared with those in areas of high
214 deprivation (77% vs. 69%). Ratings of the seven interpersonal aspects of care were
215 strongly skewed towards favourable responses: 82-90% of responses were 'Good' or
216 'Very good'.

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218 The main effects binary logistic regression model, predicting the odds that a patient
219 reported definite confidence and trust in the doctor, is shown in Table 2. Although
220 increases in all seven inter-personal aspects of care predicted increased confidence and
221 trust, the odds ratios associated with these seven aspects differed significantly (likelihood
222 ratio test, $p < 0.0001$). The sense of problems having been taken seriously was the
223 strongest predictor, increasing the odds of expressing confidence and trust almost
224 threefold. More modest effects were evident in respect of treating the patient with care
225 and concern, of explaining tests and treatments, and of involving the patient in decisions
226 regarding their care. The sense of having been given enough time increased the same
227 odds by only around 20%.

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229 In investigating item ordering effects, the order of influence of the proximate items was
230 observed to be similar to the more distant items, with the exception that 'giving you
231 enough time' was ranked second (results not shown). The proximity of questions in
232 presentation therefore did not appear to be a major determinant of their rank order of
233 predictive influence.

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Table 3 shows the odds ratios, derived from the logistic regression ‘interaction’ model, for the effect of a one point increase in each rating of the consultation on reporting definite confidence and trust in the doctor. The complete regression model, along with confidence intervals and the method of deriving the odds ratios shown in Table 3, is included as a web appendix. The rank order of the estimated odds ratios highlights the relative influence of the seven aspects of the consultation on reporting definite confidence and trust. The dominance of having problems taken seriously is evident throughout the rankings. The rank orders of the contribution of the seven inter-personal aspects of care were similar for men and women. However, non-white patients, particularly those in the oldest age group, accorded higher priority to being given enough time during the consultation than did white patients. A notable difference was observed for patients aged 35 or less, who accorded lower ranking to being involved in decisions regarding their care than did older patients.

Discussion

Summary of main findings

A substantial majority of GP patient survey respondents expressed definite confidence and trust in their GP. Patients’ confidence and trust in the doctor increased with patient age, was similar for males and females, and was reported more frequently by those of white ethnicity. For all items relating to interpersonal aspects of the consultation, higher patient ratings were associated with an increased likelihood of reporting confidence and trust. Confidence and trust was most strongly associated with patients’ perceptions of having their problems taken seriously.

There was no appreciable difference between men and women in respect of the relative importance of aspects of the consultation as potential predictors of confidence and trust in their doctor. However, we observed some differences between patients in different age

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4 265 and ethnic groups: As age increases, patients who report greater trust appear to
5 266 particularly value being involved in decisions about their care; non-white patients,
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7 267 particularly those aged 65 or more, placed particular value on being given enough time
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9 268 during their consultations. The identification of some immutable patient characteristics
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11 269 associated with systematic variation in patient's confidence and trust provides the
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13 270 potential opportunity for targeting patient care in an informed way – for example by
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15 271 actively engaging older patients in decisions about their care.
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17 272 18 273 Strengths and limitations of the study 19

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22 275 We conducted a secondary analysis of data from a major national survey involving a
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24 276 large sample of patients. The inclusion and exclusion criteria and outcome measures were
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26 277 limited by using pre-determined data, however the data set was large and varied enough
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28 278 to answer the questions posed. No previous studies have investigated the interaction
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30 279 effects of patient characteristics and interpersonal aspects of the consultation on
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32 280 confidence and trust in such a large sample of patients in the UK.
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35 282 The adjusted survey response rate was 42%, with younger patients, non-white patients,
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37 283 and those living in areas of socioeconomic deprivation being under-represented amongst
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39 284 respondents.^[33] This under-representation was comparable to similar surveys conducted
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41 285 elsewhere in the world. A study of key measures within the GP patient survey found no
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43 286 evidence of non-response bias.^[32] Individuals with complete data differed from those with
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45 287 incomplete data. However, although statistically significant, these differences were small.
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47 288 We therefore recognise the potential for selection bias in our data, although believe that
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49 289 our results might reasonably reflect the wider UK population. The large actual numbers
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51 290 of completed responses, even in under-represented subgroups, were sufficient to make
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53 291 precise estimates of associations.
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56 293 We noted that the order in which the aspects of the consultation were presented in the
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58 294 patient questionnaire matched the general rank order of the estimated odds ratios for the
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60 295 relative contribution of aspects of the consultation to reporting definite confidence and

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4 296 trust. Whilst the variation in this rank ordering amongst different patient subgroups,
5 297 together with our results regarding the ‘overall satisfaction’ item suggest otherwise, it
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7 298 remains possible that question-ordering effects are important. Such effects could be tested
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9 299 in future by altering the item order.
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12 301 We did not have access to detailed information about the doctors or practices being
13 302 commented on, and are therefore unable to assess the contribution of these factors in
14 303 determining confidence and trust. Similarly, although previous research has suggested
15 304 that patient health status may be of importance,^[5,34] detailed information was not
16 305 available to us within this dataset. It was not possible to tell if patients were referring to
17 306 their usual doctor when responding to questions regarding the ‘last time you saw a
18 307 doctor’. Conclusions therefore, could not be drawn about continuity of care. However,
19 308 data relate to one particular doctor-patient interaction, allowing a focused interpretation
20 309 of aspects of the consultation within that particular consultation.
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28 310 29 30 311 Comparison with existing literature 31

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33 313 The association of patients’ confidence and trust with increasing age and with white
34 314 ethnicity, has been previously reported.^[6] Our findings add depth to the current literature
35 315 by considering the moderating effect of age, gender and ethnicity on the relationship
36 316 between interpersonal aspects of care reflected in a recent consultation, and patients’
37 317 confidence and trust in the doctor.
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44 319 Previous research has highlighted associations between patients’ confidence and trust and
45 320 several interpersonal aspects of the doctor-patient relationship within the consultation.
46 321 This includes the importance to patients of effective communication,^[17] a sense of
47 322 partnership between doctor and patient,^[35] and the patient’s perception of being given
48 323 enough time during the consultation.^[36] However, our observation that a sense of shared
49 324 decision making was a stronger determinant of confidence and trust amongst older
50 325 patients is a new finding. This contrasts with previous literature which has suggested that
51 326 older patients may prefer a focus on receiving information rather than on active
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3 327 participation.^[37,38] One explanation might be that this reflects a changing culture in which
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5 328 older people have a greater awareness of available healthcare, through media coverage
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7 329 for example. They may therefore feel more willing to be involved in decisions about
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9 330 which they have a prior awareness. It may also reflect a more holistic approach by
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11 331 doctors to support patients' involvement. The contributions of trust and of shared
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13 332 decision making in patients' evaluations of health services have previously been
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15 333 considered separately.^[39] Our findings, although based on cross sectional data with
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17 334 acknowledged potential for bias, suggest these factors are related and their effect on
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19 335 patients' perceptions and evaluations of health services are likely to be confounded.
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21 337 Implications for future research and clinical practice

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25 339 A number of the determinants of confidence and trust in doctors reported in our study
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27 340 would benefit from further investigation using qualitative approaches, including further
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29 341 exploration of patient perceptions of their problems being taken seriously. Such
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31 342 approaches might be beneficial in informing primary health care delivery and planning.
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33 343 Providing services that are responsive to the needs and aspirations of an ageing
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35 344 population,^[40] in respect of confidence and trust, might involve doctors routinely
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37 345 engaging in shared decision making with older patients during consultations.
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39 346 Highlighting of these issues in relevant undergraduate and postgraduate educational and
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41 347 training fora might be appropriate.
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45 349 We have shown that the interpersonal aspects of the consultation rated in the survey were
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47 350 strongly associated with reported confidence and trust in the doctor, the strongest
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49 351 association being with 'taking your problems seriously'. The relative contribution of
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51 352 other aspects of the consultation to reported confidence and trust varied with the age and
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53 353 ethnicity of the patient. Incorporating these findings in delivering routine care has the
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55 354 potential to support a patient-centred approach to care, tailored to the patient as an
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57 355 individual.
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359 **Ethics**

360 The Central Office for Research Ethics Committee (COREC) advised that the survey
361 does not require formal medical research ethical approval but it adheres to the Market
362 Research Society code of ethics

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364 **Conflicts of interest**

365 Nil

366

367 **Funding**

368 Department of Health

369

370 **Contributors**

371 JEC was responsible for planning the study, drafting and finalising the manuscript. DRS
372 critically revised the manuscript. MJR, GA and JEC interpreted the data and participated
373 in critical review. MR also provided critical review. JLC was responsible for supervision,
374 aided in interpretation of data and also critically revised the manuscript.

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377 **Data Sharing**

378 No additional unpublished data are available.

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491 Table 1. Sociodemographic profile of analysis sample and percentage of each subgroup
 492 reporting no confidence, partial confidence or definite confidence and trust in the doctor.

Subgroup	N	% of sample	Did you have confidence and trust in the doctor you saw?		
			No not at all (% of subgroup)	Yes to some extent (% of subgroup)	Yes definitely (% of subgroup)
Gender					
Male	651,163	44	3	23	74
Female	825,089	56	4	24	73
Age (years)					
18-24	70,435	5	7	34	60
25-34	157,753	11	7	33	60
35-44	234,768	16	5	27	68
45-54	274,851	19	4	25	71
55-64	314,986	21	3	22	76
65-74	246,692	17	1	17	81
75-84	140,851	10	1	16	83
85and over	35,916	2	1	16	82
Ethnic group					
White	1,279,862	87	3	22	75
Mixed	10,069	1	6	31	63
Asian / Asian British	79,512	5	6	35	59
Black / Black British	38,131	3	4	30	65
Chinese	6,657	<1	6	43	51
Other	62,021	4	7	32	62
Health status					
Poor	86,597	6	6	23	71
Fair	293,071	20	4	26	70
Good	537,337	36	3	26	71
Very good	429,332	29	3	22	76
Excellent	129,925	9	3	16	82
Locality					
Non-inner city	281,949	19	2	19	79
Inner city	1,194,303	81	4	25	72
Deprivation					
Lowest	267,414	18	2	21	77
Next lowest	291,191	20	3	21	76
Middle	296,938	20	3	23	74
Next highest	298,096	20	4	25	71
Highest	322,613	22	5	26	69
All	1,476,252	100	3	24	73

493 Table 2. Odds ratios (95% confidence interval) for the ‘main effects’ binary logistic
494 regression model predicting definite confidence and trust in the doctor.

	Odds Ratio	(95% CI)
Ratings of last consultation		
Q20a Giving you enough time	1.19	(1.18, 1.21)
Q20b Asking about your symptoms	1.26	(1.24, 1.28)
Q20c Listening to you	1.38	(1.36, 1.40)
Q20d Explaining tests and treatments	1.56	(1.55, 1.58)
Q20e Involving you in decisions about your care	1.51	(1.49, 1.52)
Q20f Treating you with care and concern	1.60	(1.57, 1.62)
Q20g Taking your problems seriously	2.86	(2.82, 2.89)
Patient sociodemographic factors		
Female (ref Male)	0.90	(0.89, 0.91)
Age35-64 years (ref age <35 years)	1.27	(1.25, 1.29)
Age65 years &over (ref age <35 years)	1.60	(1.58, 1.63)
Non-white ethnic group (ref White)	0.89	(0.88, 0.91)
Health status	1.12	(1.12, 1.13)
Inner city setting (ref non-inner city setting)	0.95	(0.93, 0.96)
Deprivation	0.98	(0.98, 0.99)

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Table 3. Odds ratios for the effect of a one point increase in patient ratings of interpersonal aspects of the consultation on the odds of having definite confidence and trust in the doctor, by patient age, gender and ethnicity. The odds ratios within each patient subgroup are ranked in the lower half of the table.

	Consultation aspects	All patients*	age<35				age35-64				age65+			
			White		Non-White		White		Non-White		White		Non-White	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Odds Ratios	Giving you enough time	1.19	1.17	1.11	1.38	1.31	1.15	1.09	1.36	1.29	1.33	1.26	1.56	1.48
	Asking about your symptoms	1.26	1.25	1.25	1.14	1.14	1.28	1.27	1.17	1.16	1.31	1.30	1.19	1.19
	Listening to you	1.38	1.42	1.41	1.30	1.30	1.41	1.40	1.29	1.29	1.35	1.35	1.24	1.24
	Explaining tests and treatments	1.56	1.55	1.56	1.38	1.39	1.61	1.62	1.44	1.45	1.56	1.56	1.39	1.40
	Involving you in decisions about your care	1.51	1.38	1.38	1.25	1.25	1.56	1.56	1.42	1.42	1.58	1.58	1.43	1.44
	Treating you with care and concern	1.60	1.59	1.58	1.60	1.59	1.61	1.60	1.63	1.62	1.56	1.55	1.58	1.57
	Taking your problems seriously	2.86	2.64	2.78	2.25	2.37	2.95	3.11	2.51	2.64	2.89	3.04	2.45	2.58
Rank of Importance **	Giving you enough time	7	7	7	4	4	7	7	5	5	6	7	3	3
	Asking about your symptoms	6	6	6	7	7	6	6	7	7	7	6	7	7
	Listening to you	5	4	4	5	5	5	5	6	6	5	5	6	6
	Explaining tests and treatments	3	3	3	3	3	2	2	3	3	4	3	5	5
	Involving you in decisions about your care	4	5	5	6	6	4	4	4	4	2	2	4	4
	Treating you with care and concern	2	2	2	2	2	3	3	2	2	3	4	2	2
	Taking your problems seriously	1	1	1	1	1	1	1	1	1	1	1	1	1

* Odds ratios taken from table 2

** 1 = most influential, 7 = least influential

Table A1: Odds ratios (95% confidence interval) for a binary logistic regression model predicting definite confidence and trust in the doctor and which includes interactions between age, gender and ethnicity and patients' ratings of interpersonal aspects of the consultation.

	Odds Ratio	(95% CI)
Ratings of last consultation		
Q20a Giving you enough time	1.17	(1.14, 1.21)
Q20b Asking about your symptoms	1.25	(1.21, 1.30)
Q20c Listening to you	1.42	(1.37, 1.47)
Q20d Explaining tests and treatments	1.55	(1.50, 1.60)
Q20e Involving you in decisions about your care	1.38	(1.34, 1.42)
Q20f Treating you with care and concern	1.59	(1.53, 1.64)
Q20g Taking your problems seriously	2.64	(2.56, 2.73)
Patient sociodemographic factors		
Female	0.90	(0.88, 0.92)
Age35-64	1.69	(1.64, 1.74)
Age65&over	2.17	(2.10, 2.25)
Non-white ethnic group	0.62	(0.60, 0.64)
Health status	1.12	(1.12, 1.13)
Innercity area	0.95	(0.93, 0.96)
Deprivation	0.98	(0.98, 0.99)
Interaction terms		
Female*Q20a	0.95	(0.93, 0.97)
Female*Q20b	0.99	(0.97, 1.02)
Female*Q20c	1.00	(0.97, 1.02)
Female*Q20d	1.01	(0.98, 1.03)
Female*Q20e	1.00	(0.98, 1.02)
Female*Q20f	0.99	(0.97, 1.02)
Female*Q20g	1.05	(1.03, 1.08)
age35_64*Q20a	0.98	(0.96, 1.01)
age35_64*Q20b	1.02	(0.98, 1.06)
age35_64*Q20c	0.99	(0.96, 1.03)
age35_64*Q20d	1.04	(1.01, 1.07)
age35_64*Q20e	1.14	(1.10, 1.17)
age35_64*Q20f	1.02	(0.98, 1.05)
age35_64*Q20g	1.12	(1.08, 1.15)
age65_over*20a	1.13	(1.10, 1.17)
age65_over*20b	1.04	(1.00, 1.09)
age65_over*20c	0.95	(0.92, 1.00)
age65_over*20d	1.00	(0.97, 1.04)
age65_over*20e	1.15	(1.11, 1.19)
age65_over*20f	0.98	(0.94, 1.03)
age65_over*20g	1.09	(1.05, 1.14)
Non-white*Q20a	1.17	(1.14, 1.21)
Non-white*Q20b	0.91	(0.88, 0.95)
Non-white*Q20c	0.92	(0.88, 0.95)
Non-white*Q20d	0.89	(0.87, 0.92)
Non-white*Q20e	0.91	(0.88, 0.93)
Non-white*Q20f	1.01	(0.97, 1.05)
Non-white*Q20g	0.85	(0.82, 0.88)

Note: Although some interaction terms are not significant at the 5% level (i.e. the 95% confidence interval contains 1.00) each block of seven interaction terms (addressing two age group effects, gender and ethnicity related interactions) was found to contribute significantly to the model (likelihood ratio tests, $p < 0.0001$ for each block).

Calculation of the odds ratios given in Table A2 and in Table 3 of the main paper

Table A1 was used to construct the odds ratios shown in Table A2 below and in Table 3 of the main paper. For example, the odds ratio for the effect of a one point increase in the rating of “Q20c Listening to you” for a non-white male patient in the 35-64 years age group was found by first identifying in Table A1 the values 1.42, 0.99 and 0.92 which are the respective odds ratios associated with that particular aspect of the consultation for male patients in the 35-64 years age group from a non-white ethnic background. The odds ratio is then calculated as $1.42 \times 0.99 \times 0.92 = 1.29$ as shown in the relevant cell of Table A2 below and in Table 3 in the main paper. The calculations were performed using the ‘`lincom`’ command in Stata, which also gave 95% confidence intervals for the odds ratios (Table A2).

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Table A2: Odds ratio (95% confidence interval) [rank within patient subgroup] for the effect of a one point increase in patient ratings of interpersonal aspects of the consultation on the odds of having definite confidence and trust in the doctor, by patient age, gender and ethnicity.

	White		Non-white	
	Male	Female	Male	Female
Age group: 18-34 years				
Q20a Giving you enough time	1.17 (1.14, 1.21) [7]	1.11 (1.08, 1.14) [7]	1.38 (1.33, 1.43) [4]	1.31 (1.27, 1.35) [4]
Q20b Asking about your symptoms	1.25 (1.21, 1.30) [6]	1.25 (1.21, 1.29) [6]	1.14 (1.10, 1.19) [7]	1.14 (1.09, 1.18) [7]
Q20c Listening to you	1.42 (1.37, 1.47) [4]	1.41 (1.37, 1.46) [4]	1.30 (1.25, 1.36) [5]	1.30 (1.24, 1.35) [5]
Q20d Explaining tests and treatments	1.55 (1.50, 1.60) [3]	1.56 (1.52, 1.60) [3]	1.38 (1.34, 1.43) [3]	1.39 (1.35, 1.44) [3]
Q20e Involving you in decisions about your care	1.38 (1.34, 1.42) [5]	1.38 (1.34, 1.42) [5]	1.25 (1.21, 1.29) [6]	1.25 (1.21, 1.29) [6]
Q20f Treating you with care and concern	1.59 (1.53, 1.64) [2]	1.58 (1.52, 1.63) [2]	1.60 (1.53, 1.67) [2]	1.59 (1.53, 1.66) [2]
Q20g Taking your problems seriously	2.64 (2.56, 2.73) [1]	2.78 (2.70, 2.87) [1]	2.25 (2.17, 2.33) [1]	2.37 (2.29, 2.45) [1]
Age group: 35-64 years				
Q20a Giving you enough time	1.15 (1.13, 1.18) [7]	1.09 (1.07, 1.12) [7]	1.36 (1.31, 1.40) [5]	1.29 (1.25, 1.33) [5]
Q20b Asking about your symptoms	1.28 (1.25, 1.31) [6]	1.27 (1.24, 1.30) [6]	1.17 (1.12, 1.21) [7]	1.16 (1.12, 1.21) [7]
Q20c Listening to you	1.41 (1.37, 1.44) [5]	1.40 (1.37, 1.44) [5]	1.29 (1.24, 1.34) [6]	1.29 (1.24, 1.33) [6]
Q20d Explaining tests and treatments	1.61 (1.58, 1.65) [2]	1.62 (1.59, 1.65) [2]	1.44 (1.40, 1.49) [3]	1.45 (1.41, 1.50) [3]
Q20e Involving you in decisions about your care	1.56 (1.53, 1.59) [4]	1.56 (1.54, 1.60) [4]	1.42 (1.37, 1.46) [4]	1.42 (1.38, 1.46) [4]
Q20f Treating you with care and concern	1.61 (1.57, 1.65) [3]	1.60 (1.56, 1.64) [3]	1.63 (1.56, 1.69) [2]	1.62 (1.56, 1.68) [2]
Q20g Taking your problems seriously	2.95 (2.88, 3.02) [1]	3.11 (3.04, 3.18) [1]	2.51 (2.43, 2.59) [1]	2.64 (2.55, 2.73) [1]
Age group: 64 years and over				
Q20a Giving you enough time	1.33 (1.30, 1.37) [6]	1.26 (1.23, 1.30) [7]	1.56 (1.51, 1.62) [3]	1.48 (1.43, 1.54) [3]
Q20b Asking about your symptoms	1.31 (1.27, 1.35) [7]	1.30 (1.26, 1.34) [6]	1.19 (1.14, 1.25) [7]	1.19 (1.13, 1.24) [7]
Q20c Listening to you	1.35 (1.31, 1.40) [5]	1.35 (1.31, 1.39) [5]	1.24 (1.19, 1.30) [6]	1.24 (1.18, 1.30) [6]
Q20d Explaining tests and treatments	1.56 (1.51, 1.60) [4]	1.56 (1.52, 1.61) [3]	1.39 (1.34, 1.45) [5]	1.40 (1.35, 1.45) [5]
Q20e Involving you in decisions about your care	1.58 (1.54, 1.62) [2]	1.58 (1.54, 1.63) [2]	1.43 (1.38, 1.49) [4]	1.44 (1.38, 1.49) [4]
Q20f Treating you with care and concern	1.56 (1.51, 1.62) [3]	1.55 (1.50, 1.60) [4]	1.58 (1.50, 1.65) [2]	1.57 (1.49, 1.64) [2]
Q20g Taking your problems seriously	2.89 (2.80, 2.98) [1]	3.04 (2.94, 3.13) [1]	2.45 (2.35, 2.56) [1]	2.58 (2.48, 2.69) [1]

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of cross-sectional studies

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5-6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	6-8
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6-7
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6-8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	6-8
Bias	9	Describe any efforts to address potential sources of bias	7-8
Study size	10	Explain how the study size was arrived at	8
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	6-8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	6-8
		(b) Describe any methods used to examine subgroups and interactions	7-8
		(c) Explain how missing data were addressed	6-8
		(d) If applicable, describe analytical methods taking account of sampling strategy	6-8
		(e) Describe any sensitivity analyses	7-8
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	8
		(b) Give reasons for non-participation at each stage	8
		(c) Consider use of a flow diagram	n/a
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	8
		(b) Indicate number of participants with missing data for each variable of interest	8
Outcome data	15*	Report numbers of outcome events or summary measures	9
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9
		(b) Report category boundaries when continuous variables were categorized	9
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	9-10
Discussion			
Key results	18	Summarise key results with reference to study objectives	10-11
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	11-12
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	12-13
Generalisability	21	Discuss the generalisability (external validity) of the study results	12-13
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	14

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Factors affecting patients' trust and confidence in GPs - Evidence from the English national GP Patient Survey

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10 4 Croker, Joanne E., Academic Clinical Fellow¹
11
12 5

13 6 Swancutt, Dawn R., Research Fellow¹
14
15 7

16 8 Roberts, Martin J., Research Fellow¹
17
18 9

19 10 Abel, Gary A., Research Associate²
20
21 11

22 12 Roland, Martin., Professor of Health Services Research²
23
24 13

25 14 Campbell, John L., Professor of General Practice and Primary Care¹
26
27 15
28 16
29 17
30 18
31 19
32 20

33 21 1. University of Exeter, Exeter, UK

34 22 2. Cambridge Centre for Health Services Research, University of Cambridge, Cambridge, UK
35
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61 48 **Correspondence:**

62 49 Dr Joanne Croker

63 50 Primary Care Research Group

64 51 University of Exeter

65 52 St Luke's Campus

66 53 Magdalen Road

67 54 Exeter

68 55 EX1 2LU

69 56 01392 262740

70 57 Joanne.croker@pcmd.ac.uk
71 58
72 59
73 60

Abstract

Objectives

Patients' trust in General Practitioners (GPs) is fundamental to effective clinical encounters. Associations between patients' trust and their perceptions of communication within the consultation have been identified, but the influence of patients' demographic characteristics on these associations is unknown.

We aimed to investigate the relative contribution of patient age, gender and ethnicity in any association between patients' ratings of interpersonal aspects of the consultation and their confidence and trust in the doctor.

Design

Secondary analysis of English national GP patient survey data (2009)

Setting

Primary Care, England, UK.

Participants

Data from year 3 of the GP patient survey: 5,660,217 questionnaires sent to patients aged 18 and over, registered with a GP in England for at least six months; overall response rate 42% after adjustment for sampling design.

Outcome measures

We used binary logistic regression analysis to investigate patients' reported confidence and trust in the GP, analysing ratings of seven interpersonal aspects of the consultation, controlling for patient sociodemographic variables. Further modelling examined moderating effects of age, gender and ethnicity on the relative importance of these seven predictors.

Results

Amongst 1.5 million respondents (adjusted response rate 42%), the sense of ‘being taken seriously’ had the strongest association with confidence and trust. The relative importance of the seven inter-personal aspects of care was similar for men and women. Non-white patients accorded higher priority to being given enough time than did white patients. Involvement in decisions regarding their care was more strongly associated with reports of confidence and trust for older patients than for younger patients

Conclusion

Associations between patients’ ratings of interpersonal aspects of care and their confidence and trust in their GP are influenced by patients’ demographic characteristics. Taking account of these findings could inform patient-centred service design and delivery and potentially enhance patients’ confidence and trust in their doctor.

Article focus

- There are associations between patients' trust in their GP and a patient-centred approach to consultations.
- This study adds depth by considering the effect of age, gender and ethnicity on the relationship between interpersonal aspects of the consultation and patients' trust.

Key messages

- Interpersonal aspects of the consultation rated in the survey were strongly associated with reported confidence and trust in the doctor, the strongest association being with 'taking your problems seriously'.
- The relative contribution of other aspects of the consultation to reported confidence and trust varied with the age and ethnicity of the patient.
- Our observation that a sense of shared decision making was a stronger determinant of confidence and trust amongst older patients is a new finding.
- Our findings provide the potential opportunity for targeting patient care to the individual in an informed way.

Strengths and weaknesses

- No previous studies have investigated the interaction effects of patient characteristics and interpersonal aspects of the consultation on confidence and trust in such a large sample of patients in the UK.
- Inclusion and exclusion criteria, outcome measures, and the potential for selection bias, were affected by using pre-determined data. However large actual numbers of completed responses, even in under-represented subgroups, were sufficient to make precise estimates of associations.
- We did not have detailed information about the doctors being commented on, patient health status, or continuity of care. However, data relate to one particular doctor-patient interaction, allowing a focused interpretation of aspects of the consultation.

Factors affecting patients' trust and confidence in GPs - analysis of survey data

Background

Trust is central to all human relationships^[1] and, in the context of a setting characterised by vulnerability such as in a clinical consultation, may be considered as the belief of the individual placing their trust that the trustee will care for their best interests.^[2] As a component of the doctor-patient relationship^[3,4] trust stems from patient beliefs that the doctor is their ally and is competent in both clinical and interpersonal skills.^[5] Patients' trust in their General Practitioner (GP) underpins the delivery of effective clinical encounters.^[2,6,7] It cannot be assumed but needs to be developed.^[8] Whilst patients' trust in GPs is high,^[6] GPs in England and Wales have adopted a central role in commissioning primary health care, and in this context, the preservation of patients' confidence and trust will play a vital part in supporting future service developments.^[2,9]

Numerous benefits may accrue from a trusting, confident doctor-patient relationship. These include the open communication of information between doctor and patient, with subsequent encouragement of patient enablement and improved adherence to medical advice;^[6,10,11] the reduction in rates of referral with associated cost reductions;^[2] and the improvement of health outcomes and better patient perceptions of health care.^[12]

The development of a trusting doctor-patient relationship is facilitated by a range of organisational and personal variables such as patient-centred approaches to care^[12,13] and improved communication;^[14-17] shared decision making;^[18-20] increased consultation length;^[21] interpersonal continuity of care^[22-24] and providing support without necessary expectation of cure;^[25] giving patients a choice of doctor;^[26,27] congruence in doctor-patient beliefs,^[28,29] and ethnicity,^[30] and patient approval of the doctor's appearance.^[31] Whilst previous research has investigated associations between age, gender and ethnicity of the patient and their expression of trust in a doctor, the relative

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4 111 contribution and interaction of these variables with patient perceptions of the consultation
5 112 remains unknown. To address this shortcoming we investigated the influence of these
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7 113 interactions using data from the English GP Patient Survey (GPPS) undertaken in 2009.
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12 116 We aimed to investigate the relative contribution of patient age, gender and ethnicity in
13 117 any observed association between patients' ratings of interpersonal aspects of the
14 118 consultation and their reported confidence and trust in the doctor.
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21 121 **Methods**

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24 123 Data were extracted from year 3 (January to March 2009) of the GP patient survey during
25 124 which 5,660,217 questionnaires were sent to patients aged 18 years and over who had
26 125 been continuously registered with a general practice in England for at least six months.
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28 126 The overall response rate was 42% after adjustment for sampling design.^[33] The year 3
29 127 GPPS data was not weighted, as associations were expected to be less vulnerable to the
30 128 effect of non-response, unlike prevalence estimates where weighting is essential. A
31 129 detailed account of the survey methodology is reported elsewhere.^[32]
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39 131 One item (Q20) of the GP patient survey invited patients to rate their most recent
40 132 consultation with a doctor at the practice in respect of seven interpersonal aspects of care
41 133 ('Giving you enough time', 'Asking about your symptoms', 'Listening to you',
42 134 'Explaining tests and treatments', 'Involving you in decisions about your care', 'Treating
43 135 you with care and concern' and 'Taking your problems seriously') using a five point
44 136 scale (5= very good to 1= very poor). The next item (Q21) invited respondents to rate
45 137 their confidence and trust in the doctor they had seen using a three point scale ('yes
46 138 definitely', 'yes to some extent', 'no not at all'). Only 3% of individuals expressed no
47 139 confidence in the doctor they had consulted. For this reason responses to this item were
48 140 dichotomised into 'definite' versus 'partial or no' confidence and trust, allowing
49 141 individuals reporting definite confidence and trust to be distinguished from those
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4 142 reporting less confidence and trust, for the purposes of analysis. Patients were asked to
5 143 report their gender, age (eight categories: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-
6 144 84, and 85 years and over), ethnicity (sixteen categories), and their perceived health
7 145 status (five categories: Poor, Fair, Good, Very good, and Excellent). Patient postcodes
8 146 were used to attach data on rurality (two categories: Inner city and Elsewhere) and socio-
9 147 economic deprivation (in quintiles).^[34] Our main analyses used only respondents who
10 148 provided informative responses; with ratings, as opposed to responding with ‘doesn’t
11 149 apply’, to all parts of Q20 and Q21; and with complete data on the six demographic
12 150 variables. Therefore we compared these respondents with those with incomplete data in
13 151 respect of gender, age, ethnicity and definite confidence and trust in the doctor.
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23 153 Binary logistic regression was used throughout to model the average effect of a one point
24 154 increase in the patient’s rating of the interpersonal aspects of care on the odds of
25 155 reporting definite confidence and trust in the doctor. Initially, a ‘main effects’ model was
26 156 used to determine the effects (odds ratios) associated with patient age, gender, ethnicity
27 157 and the seven ratings of interpersonal aspects of the consultation. The null hypothesis,
28 158 that the odds ratios were equal for the seven ‘interpersonal’ ratings was tested using a
29 159 likelihood ratio test and the odds ratios were then ranked in order of size.
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35 160 We noted that the rank order of the contribution of the seven ‘interpersonal’ ratings
36 161 followed almost exactly the order that the items appear in the survey questionnaire. Since
37 162 these items (question 19a-g) immediately precede the question addressing confidence and
38 163 trust (question 20), we explored the possibility of a question ordering effect by regressing
39 164 a later item reflecting ‘overall satisfaction with care’ (question 25), on the ‘interpersonal’
40 165 items, along with the sociodemographic variables.
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48 167 A second ‘interaction model’ was used to establish the moderating effects of age, gender
49 168 and ethnicity on the effects of the seven ‘interpersonal’ ratings. To facilitate easy
50 169 comparisons, the odds ratios for the effect of a one point increase in each rating of the
51 170 consultation on having definite confidence and trust in the doctor, were estimated and
52 171 ranked in order of size for various age, gender and ethnic subgroups by combining the
53 172 appropriate main and interaction terms. To simplify interpretation of the results, patient
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4 173 age was categorised into three groups (18-35, 35-64, 65 years and over) and ethnicity was
5 174 dichotomised (white, non-white) to create 12 (=2×3×2) gender by age by ethnicity
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7 175 subgroups. The original categorisation of the data would have created 256 such
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9 176 subgroups and made interpretation too complex.

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12 178 Both regression models controlled for patients' perceived health status, their rurality, and
13 179 socio-economic deprivation and incorporated a random effect to account for clustering of
14 180 the data by practice. We were unable to account for clustering by doctor as the GP patient
15 181 survey does not ask patients to identify the individual doctor being rated. All analyses
16 182 were performed in STATA version SE10.1 for Windows.

17 183 18 184 19 185 **Results**

20 186
21 187 Of 2,163,456 patients in the sample, 296,066 (14%) had indicated that one or more of the
22 188 aspects of the consultation were not relevant to the last time they had seen the doctor.
23 189 Although these data were treated as missing in our analysis they should be considered
24 190 'missing by design'. A further 391,138 (18%) of patients had truly missing data, leaving
25 191 an effective sample size for analysis of 1,476,252 (26% of the 5,660,217 patients who
26 192 were originally sent questionnaires). Individuals with complete data differed from those
27 193 with incomplete data: more of them were male (44% vs. 38%), more were in the middle
28 194 age groups (56% vs. 49% aged 35-64 years), slightly more were white (87% vs. 86%)
29 195 and more reported definite confidence and trust in the doctor (73% vs. 69%). Although
30 196 statistically significant due to the large sample size ($p < 0.001$ in all cases), these
31 197 differences are fairly small.

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33 199 Whilst similar proportions of men and women reported definite confidence and trust in
34 200 the doctor (74% vs. 73% respectively), definite confidence and trust was more commonly
35 201 reported by older patients than by younger patients (Table 1); by patients from white
36 202 ethnic backgrounds than by non-white patients (75% vs. 61% respectively); by patients
37 203 living outside inner-city areas compared with those from inner-city areas (79% vs. 72%);

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4 204 by those reporting excellent health compared with those reporting poor health (82% vs.
5 205 71%); and among those in areas of low deprivation compared with those in areas of high
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7 206 deprivation (77% vs. 69%). Ratings of the seven interpersonal aspects of care were
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9 207 strongly skewed towards favourable responses: 82-90% of responses were 'Good' or
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11 208 'Very good'.
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14 210 The main effects binary logistic regression model, predicting the odds that a patient
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16 211 reported definite confidence and trust in the doctor, is shown in Table 2. Although
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18 212 increases in all seven inter-personal aspects of care predicted increased confidence and
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20 213 trust, the odds ratios associated with these seven aspects differed significantly (likelihood
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22 214 ratio test, $p < 0.0001$). The sense of problems having been taken seriously was the
23
24 215 strongest predictor, increasing the odds of expressing confidence and trust almost
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26 216 threefold. More modest effects were evident in respect of treating the patient with care
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28 217 and concern, of explaining tests and treatments, and of involving the patient in decisions
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30 218 regarding their care. The sense of having been given enough time increased the same
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32 219 odds by only around 20%.
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35 221 In investigating item ordering effects, the order of influence of the aspects of the
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37 222 consultation on the proximate confidence and trust item, was observed to be similar to
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39 223 the order of influence of the aspects of care on the more distant satisfaction item, with the
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41 224 exception that 'giving you enough time' was ranked second (results not shown). The
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43 225 proximity of questions in presentation therefore did not appear to be a major determinant
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45 226 of their rank order of predictive influence.
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48 228 Table 3 shows the odds ratios, derived from the logistic regression 'interaction' model,
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50 229 for the effect of a one point increase in each rating of the consultation on reporting
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52 230 definite confidence and trust in the doctor. The complete regression model, along with
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54 231 confidence intervals and the method of deriving the odds ratios shown in Table 3, is
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56 232 included as a web appendix. The rank order of the estimated odds ratios highlights the
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58 233 relative influence of the seven aspects of the consultation on reporting definite confidence
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234 and trust. The dominance of having problems taken seriously is evident throughout the
235 rankings. The rank orders of the contribution of the seven inter-personal aspects of care
236 were similar for men and women. However, non-white patients, particularly those in the
237 oldest age group, accorded higher priority to being given enough time during the
238 consultation than did white patients. A notable difference was observed for patients aged
239 35 or less, who accorded lower ranking to being involved in decisions regarding their
240 care than did older patients.

243 Discussion

245 Summary of main findings

247 A substantial majority of GP patient survey respondents expressed definite confidence
248 and trust in their GP. Patients' confidence and trust in the doctor increased with patient
249 age, was similar for males and females, and was reported more frequently by those of
250 white ethnicity. For all items relating to interpersonal aspects of the consultation, higher
251 patient ratings were associated with an increased likelihood of reporting confidence and
252 trust. Confidence and trust was most strongly associated with patients' perceptions of
253 having their problems taken seriously.

255 There was no appreciable difference between men and women in respect of the relative
256 importance of aspects of the consultation as potential predictors of confidence and trust in
257 their doctor. However, we observed some differences between patients in different age
258 and ethnic groups: As age increases, patients who report greater trust appear to
259 particularly value being involved in decisions about their care; non-white patients,
260 particularly those aged 65 or more, placed particular value on being given enough time
261 during their consultations. The identification of some immutable patient characteristics
262 associated with systematic variation in patient's confidence and trust provides the

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4 263 potential opportunity for targeting patient care in an informed way – for example by
5 264 actively engaging older patients in decisions about their care.
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8 9 266 Strengths and limitations of the study

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12 268 We conducted a secondary analysis of data from a major national survey involving a
13 269 large sample of patients. The inclusion and exclusion criteria and outcome measures were
14 270 limited by using pre-determined data, however the data set was large and varied enough
15 271 to answer the questions posed. No previous studies have investigated the interaction
16 272 effects of patient characteristics and interpersonal aspects of the consultation on
17 273 confidence and trust in such a large sample of patients in the UK.
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21 275 The adjusted survey response rate was 42%, with younger patients, non-white patients,
22 276 and those living in areas of socioeconomic deprivation being under-represented amongst
23 277 respondents.^[34] This under-representation was comparable to similar surveys conducted
24 278 elsewhere in the world.^[35-37] A study of key measures within the GP patient survey found
25 279 no evidence of non-response bias.^[32] Individuals with complete data differed from those
26 280 with incomplete data. However, although statistically significant, these differences were
27 281 small. We therefore recognise the potential for selection bias in our data, although believe
28 282 that our results might reasonably reflect the wider UK population. The large actual
29 283 numbers of completed responses, even in under-represented subgroups, were sufficient to
30 284 make precise estimates of associations.
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33 286 We noted that the order in which the aspects of the consultation were presented in the
34 287 patient questionnaire matched the general rank order of the estimated odds ratios for the
35 288 relative contribution of aspects of the consultation to reporting definite confidence and
36 289 trust. Whilst the variation in this rank ordering amongst different patient subgroups,
37 290 together with our results regarding the ‘overall satisfaction’ item suggest otherwise, it
38 291 remains possible that question-ordering effects are important. Such effects could be tested
39 292 in future by altering the item order.
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4 294 We did not have access to detailed information about the doctors or practices being
5 295 commented on, and are therefore unable to assess the contribution of these variables in
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7 296 determining confidence and trust. Similarly, although previous research has suggested
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9 297 that the objective health status of patients may be of importance,^[6,38] detailed information
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11 298 was not available to us within this dataset. It was not possible to tell if patients were
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13 299 referring to their usual doctor when responding to questions regarding the ‘last time you
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15 300 saw a doctor’. Conclusions therefore, could not be drawn about continuity of care.
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17 301 However, data relate to one particular doctor-patient interaction, allowing a focused
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19 302 interpretation of aspects of the consultation within that particular consultation.
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22 304 The relationship between the concepts of confidence and trust has previously been
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24 305 explored, with a distinction between the two concepts being suggested, based on an
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26 306 individual’s perception of the situation.^[39] Luhmann’s work proposes that where
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28 307 confidence exists within a relationship, alternatives may not be considered, outcomes
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30 308 judged ‘inevitable’, and, if confidence is disappointed, blame attributed externally. In
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32 309 contrast, Luhmann suggests that where trust characterises a relationship, choice may be
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34 310 inherent, variable outcomes accepted, and disappointment characterised by internal rather
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36 311 than external attribution of blame. In the context of healthcare, Luhmann suggests that
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38 312 familiarity (for example between doctor and patient) may be an important determinant of
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40 313 whether the relationship is characterised by trust or confidence. Developing these ideas,
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42 314 some researchers have suggested that patients’ trust in health care practitioners may relate
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44 315 to interpersonal familiarity, and that patients’ trust in healthcare systems is often greatest
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46 316 where systems are long established and known to the individual patient.^[40] In situations
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48 317 characterised by lack of familiarity, patients may simply have to exercise faith in an
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50 318 individual practitioner or in the healthcare system.^[39]
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53 320 The two concepts were, however, conflated in the wording of the General Practice Patient
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55 321 Survey: “Did you have confidence and trust in the doctor you saw?” We were therefore
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57 322 unable to distinguish between confidence and trust in our investigation. Complex
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59 323 systems, such as the primary health care system in the UK, have been considered by some
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3 324 to require the exercise of confidence and trust as a pre-requisite for effective engagement
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5 325 with, and use of, the system.^[41,42]
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8 9 327 Comparison with existing literature 10 11 328

12 329 The association of patients' trust with increasing age and with white ethnicity, has been
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14 330 previously reported.^[6] Our findings add depth to the current literature by considering the
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16 331 moderating effect of age, gender and ethnicity on the relationship between interpersonal
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18 332 aspects of care reflected in a recent consultation, and patients' confidence and trust in the
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20 333 doctor.
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23 335 Previous research has highlighted associations between patients' trust and several
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25 336 interpersonal aspects of the doctor-patient relationship within the consultation. This
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27 337 includes the importance to patients of effective communication,^[18] a sense of partnership
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29 338 between doctor and patient,^[43] and the patient's perception of being given enough time
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31 339 during the consultation.^[44] However, our observation that a sense of shared decision
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33 340 making was a stronger determinant of reported confidence and trust amongst older
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35 341 patients is a new finding. This contrasts with previous literature which has suggested that
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37 342 older patients may prefer a focus on receiving information rather than on active
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39 343 participation.^[45,46] One explanation might be that this reflects a changing culture in which
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41 344 older people have a greater awareness of available healthcare, through media coverage
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43 345 for example. They may therefore feel more willing to be involved in decisions about
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45 346 which they have a prior awareness. It may also reflect a more holistic approach by
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47 347 doctors to support patients' involvement. The contributions of trust and of shared
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49 348 decision making in patients' evaluations of health services have previously been
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51 349 considered separately.^[47] Our findings, although based on cross sectional data with
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53 350 acknowledged potential for bias, suggest these variables are related and their effect on
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55 351 patients' perceptions and evaluations of health services are likely to be confounded.
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58 59 353 Implications for future research and clinical practice 60 354

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4 355 A number of the determinants of confidence and trust in doctors reported in our study
5 356 would benefit from further investigation using qualitative approaches, including further
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7 357 exploration of patient perceptions of their problems being taken seriously. Such
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9 358 approaches might be beneficial in informing patient centred primary health care delivery
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11 359 and planning.^[48] Providing services that are responsive to the needs and aspirations of an
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13 360 ageing population,^[49] in respect of confidence and trust, might involve doctors routinely
14 361 engaging in shared decision making with older patients during consultations.
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16 362 Highlighting of these issues in relevant undergraduate and postgraduate educational and
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18 363 training fora might be appropriate.
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21 365 We have shown that the interpersonal aspects of the consultation rated in the survey were
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23 366 strongly associated with reported confidence and trust in the doctor, the strongest
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25 367 association being with ‘taking your problems seriously’. The relative contribution of
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27 368 other aspects of the consultation to reported confidence and trust varied with the age and
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29 369 ethnicity of the patient. Incorporating these findings in delivering routine care has the
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31 370 potential to support a patient-centred approach to care, tailored to the patient as an
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33 371 individual.
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38 375 **Ethics**

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40 376 The Central Office for Research Ethics Committee (COREC) advised that the survey
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42 377 does not require formal medical research ethical approval but it adheres to the Market
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44 378 Research Society code of ethics
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47 380 **Conflicts of interest**

48
49 381 Nil
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51 382

52 383 **Funding**

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54 384 Department of Health
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Contributors

JEC was responsible for planning the study, drafting and finalising the manuscript. DRS critically revised the manuscript. MJR, GA and JEC interpreted the data and participated in critical review. MR also provided critical review. JLC was responsible for supervision, aided in interpretation of data and also critically revised the manuscript.

Data sharing

No additional data available.

For peer review only

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534 Table 1. Sociodemographic profile of analysis sample and percentage of each subgroup
 535 reporting no confidence, partial confidence or definite confidence and trust in the doctor.

Subgroup	N	% of sample	Did you have confidence and trust in the doctor you saw?		
			No not at all (% of subgroup)	Yes to some extent (% of subgroup)	Yes definitely (% of subgroup)
Gender					
Male	651,163	44	3	23	74
Female	825,089	56	4	24	73
Age (years)					
18-24	70,435	5	7	34	60
25-34	157,753	11	7	33	60
35-44	234,768	16	5	27	68
45-54	274,851	19	4	25	71
55-64	314,986	21	3	22	76
65-74	246,692	17	1	17	81
75-84	140,851	10	1	16	83
85and over	35,916	2	1	16	82
Ethnic group					
White	1,279,862	87	3	22	75
Mixed	10,069	1	6	31	63
Asian / Asian British	79,512	5	6	35	59
Black / Black British	38,131	3	4	30	65
Chinese	6,657	<1	6	43	51
Other	62,021	4	7	32	62
Perceived health status					
Poor	86,597	6	6	23	71
Fair	293,071	20	4	26	70
Good	537,337	36	3	26	71
Very good	429,332	29	3	22	76
Excellent	129,925	9	3	16	82
Locality					
Non-inner city	281,949	19	2	19	79
Inner city	1,194,303	81	4	25	72
Deprivation					
Lowest	267,414	18	2	21	77
Next lowest	291,191	20	3	21	76
Middle	296,938	20	3	23	74
Next highest	298,096	20	4	25	71
Highest	322,613	22	5	26	69
All	1,476,252	100	3	24	73

536 Table 2. Odds ratios (95% confidence interval) for the ‘main effects’ binary logistic
537 regression model predicting definite confidence and trust in the doctor.

	Odds Ratio	(95% CI)
Ratings of last consultation		
Q20a Giving you enough time	1.19	(1.18, 1.21)
Q20b Asking about your symptoms	1.26	(1.24, 1.28)
Q20c Listening to you	1.38	(1.36, 1.40)
Q20d Explaining tests and treatments	1.56	(1.55, 1.58)
Q20e Involving you in decisions about your care	1.51	(1.49, 1.52)
Q20f Treating you with care and concern	1.60	(1.57, 1.62)
Q20g Taking your problems seriously	2.86	(2.82, 2.89)
Patient sociodemographic variables		
Female (ref Male)	0.90	(0.89, 0.91)
Age35-64 years (ref age <35 years)	1.27	(1.25, 1.29)
Age65 years &over (ref age <35 years)	1.60	(1.58, 1.63)
Non-white ethnic group (ref White)	0.89	(0.88, 0.91)
Perceived health status	1.12	(1.12, 1.13)
Inner city setting (ref non-inner city setting)	0.95	(0.93, 0.96)
Deprivation	0.98	(0.98, 0.99)

538

539 Table 3. Odds ratios for the effect of a one point increase in patient ratings of interpersonal aspects of the consultation on the odds of
 540 having definite confidence and trust in the doctor, by patient age, gender and ethnicity. The odds ratios within each patient subgroup
 541 are ranked in the lower half of the table.

Consultation aspects	All patients*	age<35				age35-64				age65+				
		White Male	White Female	Non-White Male	Non-White Female	White Male	White Female	Non-White Male	Non-White Female	White Male	White Female	Non-White Male	Non-White Female	
Odds Ratios	Giving you enough time	1.19	1.17	1.11	1.38	1.31	1.15	1.09	1.36	1.29	1.33	1.26	1.56	1.48
	Asking about your symptoms	1.26	1.25	1.25	1.14	1.14	1.28	1.27	1.17	1.16	1.31	1.30	1.19	1.19
	Listening to you	1.38	1.42	1.41	1.30	1.30	1.41	1.40	1.29	1.29	1.35	1.35	1.24	1.24
	Explaining tests and treatments	1.56	1.55	1.56	1.38	1.39	1.61	1.62	1.44	1.45	1.56	1.56	1.39	1.40
	Involving you in decisions about your care	1.51	1.38	1.38	1.25	1.25	1.56	1.56	1.42	1.42	1.58	1.58	1.43	1.44
	Treating you with care and concern	1.60	1.59	1.58	1.60	1.59	1.61	1.60	1.63	1.62	1.56	1.55	1.58	1.57
	Taking your problems seriously	2.86	2.64	2.78	2.25	2.37	2.95	3.11	2.51	2.64	2.89	3.04	2.45	2.58
Rank of Importance **	Giving you enough time	7	7	7	4	4	7	7	5	5	6	7	3	3
	Asking about your symptoms	6	6	6	7	7	6	6	7	7	7	6	7	7
	Listening to you	5	4	4	5	5	5	5	6	6	5	5	6	6
	Explaining tests and treatments	3	3	3	3	3	2	2	3	3	4	3	5	5
	Involving you in decisions about your care	4	5	5	6	6	4	4	4	4	2	2	4	4
	Treating you with care and concern	2	2	2	2	2	3	3	2	2	3	4	2	2
	Taking your problems seriously	1	1	1	1	1	1	1	1	1	1	1	1	1

542 * Odds ratios taken from table 2

543 ** 1 = most influential, 7 = least influential

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4 1 **Factors affecting patients' trust and confidence in GPs -**
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6 2 **Evidence from the English national GP Patient Survey**
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10 4 Croker, Joanne E., Academic Clinical Fellow¹
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13 6 Swancutt, Dawn R., Research Fellow¹
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16 8 Roberts, Martin J., Research Fellow¹
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19 10 Abel, Gary A., Research Associate²
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22 12 Roland, Martin., Professor of Health Services Research²
23
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25 14 Campbell, John L., Professor of General Practice and Primary Care¹
26
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28 16
29 17 1. University of Exeter, Exeter, UK

30 18 2. Cambridge Centre for Health Services Research, University of Cambridge, Cambridge, UK
31
32 19

33 20 **Correspondence:**

34 21 Dr Joanne Croker

35 22 Primary Care Research Group

36 23 University of Exeter

37 24 St Luke's Campus

38 25 Magdalen Road

39 26 Exeter

40 27 EX1 2LU

41 28 01392 262740

42 29 Joanne.croker@pcmd.ac.uk
43
44 30
45 31

Factors affecting patients' confidence and trust in GPs – Evidence from the English national GP Patient Survey

Abstract

Objectives

Patients' trust in General Practitioners (GPs) is fundamental to ~~delivering~~ effective clinical encounters. Associations between patients' trust and their perceptions of communication within the consultation have been identified, but the influence of patients' demographic characteristics on these associations is unknown.

We aimed to investigate the relative contribution of patient age, gender and ethnicity in any association between patients' ratings of interpersonal aspects of the consultation and their confidence and trust in the doctor.

Design

Secondary analysis of English national GP patient survey data (2009)

Setting

Primary Care, England, UK.

Participants

Data from year 3 of the GP patient survey: 5,660,217 questionnaires sent to patients aged 18 and over, ~~who had been~~ registered with a general practice GP in England for at least six months; overall response rate 42% after adjustment for sampling design.

Outcome measures

We used binary logistic regression analysis to investigate patients' reported confidence and trust in the GP, analysing ratings of seven interpersonal aspects of the consultation, controlling for patient sociodemographic variables. Further modelling examined ~~the~~

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4 62 | moderating effects of age, gender and ethnicity on the relative importance of these seven
5 63 predictors.
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7 64

65 **Results**

66 Amongst 1.5 million respondents (adjusted response rate 42%), the sense of ‘being taken
67 seriously’ had the strongest association with confidence and trust. The relative
68 importance of the seven inter-personal aspects of care was similar for men and women.
69 Non-white patients accorded higher priority to being given enough time than did white
70 patients. Involvement ~~of older patients~~ in decisions regarding their care was more
71 strongly associated with reports of confidence and trust for older patients than for
72 younger patients had a greater effect than amongst younger patients.
73

74 **Conclusion**

75 Associations between patients’ ratings of interpersonal aspects of care and their
76 confidence and trust in their GP are influenced by patients’ demographic characteristics.
77 Taking account of these findings could inform patient-centred service design and delivery
78 and potentially enhance patients’ confidence and trust in their doctor.

Article focus

- There are associations between patients' trust in their GP and a patient-centred approach to consultations.
- This study adds depth by considering the effect of age, gender and ethnicity on the relationship between interpersonal aspects of the consultation and patients' trust.

Key messages

- Interpersonal aspects of the consultation rated in the survey were strongly associated with reported confidence and trust in the doctor, the strongest association being with 'taking your problems seriously'.
- The relative contribution of other aspects of the consultation to reported confidence and trust varied with the age and ethnicity of the patient.
- Our observation that a sense of shared decision making was a stronger determinant of confidence and trust amongst older patients is a new finding.
- Our findings provide the potential opportunity for targeting patient care to the individual in an informed way.

Strengths and weaknesses

- No previous studies have investigated the interaction effects of patient characteristics and interpersonal aspects of the consultation on confidence and trust in such a large sample of patients in the UK.
- Inclusion and exclusion criteria, outcome measures, and the potential for selection bias, were affected by using pre-determined data. However large actual numbers of completed responses, even in under-represented subgroups, were sufficient to make precise estimates of associations.
- We did not have detailed information about the doctors being commented on, patient health status, or continuity of care. However, data relate to one particular doctor-patient interaction, allowing a focused interpretation of aspects of the consultation.

Factors affecting patients' trust and confidence in GPs - analysis of survey data

Background

Trust is central to all human relationships^[1] and, in the context of a setting characterised by vulnerability such as in a clinical consultation, may be considered as the belief of the individual placing their trust that the trustee will care for their best interests.^[2] As a component of the doctor-patient relationship^[3,4] trust stems from patient beliefs that the doctor is their ally and is competent in both clinical and interpersonal skills.^[5] Patients' trust in their General Practitioner (GP) underpins the delivery of effective clinical encounters.^[2,6,7] It cannot be assumed but needs to be developed.^[8] Whilst patient's trust ~~and confidence~~ in GPs is high,^[6] GPs in England and Wales have adopted a central role in commissioning primary health care, and in this context, the preservation of patients' confidence and trust will play a vital part in supporting future service developments.^[2,9]

Numerous benefits may accrue from a trusting, confident doctor-patient relationship. These include the open communication of information between doctor and patient, with subsequent encouragement of patient enablement and improved adherence to medical advice;^[6,10,11] the reduction in rates of referral with associated cost reductions;^[2] and the improvement of health outcomes and better patient perceptions of health care.^[12]

The development of a trusting doctor-patient relationship is facilitated by a range of organisational and personal factors—variables such as patient-centred approaches to care^[12,13] and improved communication;^[14-17] shared decision making,^[18-20] increased consultation length,^[21] interpersonal continuity of care^[22-24] and providing support without necessary expectation of cure;^[25] giving patients a choice of doctor;^[26,27] congruence in doctor-patient beliefs,^[28,29] and ethnicity,^[30] and patient approval of the doctor's appearance.^[31]

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4 115 Whilst previous research has investigated associations between age, gender and ethnicity
5 116 of the patient and their expression of ~~confidence and~~ trust in a doctor, the relative
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7 117 contribution and interaction of these ~~factors~~ variables with patient perceptions of the
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9 118 consultation remains unknown. To address this shortcoming we investigated the influence
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11 119 of these interactions using data from the English GP Patient Survey (GPPS) undertaken in
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13 120 2009.^[32,33]

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16 122 We aimed to investigate the relative contribution of patient age, gender and ethnicity in
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18 123 any observed association between patients' ratings of interpersonal aspects of the
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20 124 consultation and their reported confidence and trust in the doctor.

125 126 127 **Methods**

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129 129 Data were extracted from year 3 (January to March 2009) of the GP patient survey during
130
131 130 which 5,660,217 questionnaires were sent to patients aged 18 years and over who had
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133 131 been continuously registered with a general practice in England for at least six months.
134
135 132 The overall response rate was 42% after adjustment for sampling design.^[33] The year 3
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137 133 GPPS data was not weighted, as associations were expected to be less vulnerable to the
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139 134 effect of non-response, unlike prevalence estimates where weighting is essential. A
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141 135 detailed account of the survey methodology is reported elsewhere.^[32]

142
143 137 One item (Q20) of the GP patient survey invited patients to rate their most recent
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145 138 consultation with a doctor at the practice in respect of seven interpersonal aspects of care
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140 139 ('Giving you enough time', 'Asking about your symptoms', 'Listening to you',
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142 140 'Explaining tests and treatments', 'Involving you in decisions about your care', 'Treating
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144 141 you with care and concern' and 'Taking your problems seriously') using a five point
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146 142 scale (5= very good to 1= very poor). The next item (Q21) invited respondents to rate
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148 143 their confidence and trust in the doctor they had seen using a three point scale ('yes
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150 144 definitely', 'yes to some extent', 'no not at all'). Only 3% of individuals expressed no
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152 145 confidence in the doctor they had consulted. For this reason responses to this item were

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4 146 | dichotomised into ‘definite’ versus ‘partial or no’ confidence and trust, allowing
5 147 | individuals reporting definite confidence and trust to be distinguished from those
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7 148 | reporting less confidence and trust, for the purposes of analysis. Patients were asked to
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9 149 | report their gender, age (eight categories: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-
10
11 150 | 84, and 85 years and over), ethnicity (sixteen categories), and their perceived health
12
13 151 | status (five categories: Poor, Fair, Good, Very good, and Excellent). Patient postcodes
14
15 152 | were used to attach data on rurality (two categories: Inner city and Elsewhere) and socio-
16
17 153 | economic deprivation (in quintiles).^[34] Our main analyses used only respondents who
18
19 154 | provided informative responses; with ratings, as opposed to responding with ‘doesn’t
20
21 155 | apply’, to all parts of Q20 and Q21; and with complete data on the six demographic
22
23 156 | variables. Therefore we compared these respondents with those with incomplete data in
24
25 157 | respect of gender, age, ethnicity and definite confidence and trust in the doctor.
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29 159 | Binary logistic regression was used throughout to model the average effect of a one point
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31 160 | increase in the patient’s rating of the interpersonal aspects of care on the odds of
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33 161 | reporting definite confidence and trust in the doctor. Initially, a ‘main effects’ model was
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35 162 | used to determine the effects (odds ratios) associated with patient age, gender, ethnicity
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37 163 | and the seven ratings of interpersonal aspects of the consultation. The null hypothesis,
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39 164 | that the odds ratios were equal for the seven ‘interpersonal’ ratings was tested using a
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41 165 | likelihood ratio test and the odds ratios were then ranked in order of size. ~~In estimating~~
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43 166 | ~~the ‘average effect of a one point increase’ in any of the ‘interpersonal’ ratings on the~~
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45 167 | ~~odds of reporting definite confidence and trust we were assuming each of the ratings to be~~
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47 168 | ~~approximately linearly related to the log odds. We verified the reasonableness of this~~
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49 169 | ~~assumption using simple linear regressions of the observed log odds on each of the~~
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51 170 | ~~ratings (results not shown).~~
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55 172 | We noted that the rank order of the contribution of the seven ‘interpersonal’ ratings
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57 173 | followed almost exactly the order that the items appear in the survey questionnaire. Since
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59 174 | these items (question 19a-g) immediately precede the question addressing confidence and
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175 | trust (question 20), we explored the possibility of a question ordering effect by regressing

176 | a later item reflecting ‘overall satisfaction with care ~~at the surgery~~’ (question 25), on the
177 | ‘interpersonal’ items, along with the sociodemographic variables.

178
179 | A second ‘interaction model’ was used to establish the moderating effects of age, gender
180 | and ethnicity on the effects of the seven ‘interpersonal’ ratings. To facilitate easy
181 | comparisons, the odds ratios for the effect of a one point increase in each rating of the
182 | consultation on having definite confidence and trust in the doctor, were estimated and
183 | ranked in order of size for various age, gender and ethnic subgroups by combining the
184 | appropriate main and interaction terms. To simplify interpretation of the results, patient
185 | age was categorised into three groups (18-35, 35-64, 65 years and over) and ethnicity was
186 | dichotomised (white, non-white) to create 12 (=2×3×2) gender by age by ethnicity
187 | subgroups. The original categorisation of the data would have created 256 such
188 | subgroups and made interpretation too complex.

189
190 | Both regression models controlled for patients’ perceived health status, their rurality, and
191 | socio-economic deprivation and incorporated a random effect to account for clustering of
192 | the data by practice. We were unable to account for clustering by doctor as the GP patient
193 | survey does not ask patients to identify the individual doctor being rated. All analyses
194 | were performed in STATA version SE10.1 for Windows.

197 | **Results**

198
199 | Of 2,163,456 patients in the sample, 296,066 (14%) had indicated that one or more of the
200 | aspects of the consultation were not relevant to the last time they had seen the doctor.
201 | Although these data were treated as missing in our analysis they should be considered
202 | ‘missing by design’. A further 391,138 (18%) of patients had truly missing data, leaving
203 | an effective sample size for analysis of 1,476,252 (26% of the 5,660,217 patients who
204 | were originally sent questionnaires). Individuals with complete data differed from those
205 | with incomplete data: more of them were male (44% vs. 38%), more were in the middle
206 | age groups (56% vs. 49% aged 35-64 years), slightly more were white (87% vs. 86%)

207 and more reported definite confidence and trust in the doctor (73% vs. 69%). Although
208 statistically significant due to the large sample size ($p<0.001$ in all cases), these
209 differences are fairly small.

210
211 Whilst similar proportions of men and women reported definite confidence and trust in
212 the doctor (74% vs. 73% respectively), definite confidence and trust was more commonly
213 reported by older patients than by younger patients (Table 1); by patients from white
214 ethnic backgrounds than by non-white patients (75% vs. 61% respectively); by patients
215 living outside inner-city areas compared with those from inner-city areas (79% vs. 72%);
216 by those reporting excellent health compared with those reporting poor health (82% vs.
217 71%); and among those in areas of low deprivation compared with those in areas of high
218 deprivation (77% vs. 69%). Ratings of the seven interpersonal aspects of care were
219 strongly skewed towards favourable responses: 82-90% of responses were ‘Good’ or
220 ‘Very good’.

221
222 The main effects binary logistic regression model, predicting the odds that a patient
223 reported definite confidence and trust in the doctor, is shown in Table 2. Although
224 increases in all seven inter-personal aspects of care predicted increased confidence and
225 trust, the odds ratios associated with these seven aspects differed significantly (likelihood
226 ratio test, $p<0.0001$). The sense of problems having been taken seriously was the
227 strongest predictor, increasing the odds of expressing confidence and trust almost
228 threefold. More modest effects were evident in respect of treating the patient with care
229 and concern, of explaining tests and treatments, and of involving the patient in decisions
230 regarding their care. The sense of having been given enough time increased the same
231 odds by only around 20%.

232
233 In investigating item ordering effects, the order of influence of the aspects of the
234 consultation on the proximate confidence and trust items was observed to be similar
235 to the order of influence of the aspects of care on the more distant satisfaction items,
236 with the exception that ‘giving you enough time’ was ranked second (results not shown).

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3 237 The proximity of questions in presentation therefore did not appear to be a major
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5 238 determinant of their rank order of predictive influence.
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10 240 Table 3 shows the odds ratios, derived from the logistic regression ‘interaction’ model,
11 241 for the effect of a one point increase in each rating of the consultation on reporting
12 242 definite confidence and trust in the doctor. The complete regression model, along with
13 243 confidence intervals and the method of deriving the odds ratios shown in Table 3, is
14 244 included as a web appendix. The rank order of the estimated odds ratios highlights the
15 245 relative influence of the seven aspects of the consultation on reporting definite confidence
16 246 and trust. The dominance of having problems taken seriously is evident throughout the
17 247 rankings. The rank orders of the contribution of the seven inter-personal aspects of care
18 248 were similar for men and women. However, non-white patients, particularly those in the
19 249 oldest age group, accorded higher priority to being given enough time during the
20 250 consultation than did white patients. A notable difference was observed for patients aged
21 251 35 or less, who accorded lower ranking to being involved in decisions regarding their
22 252 care than did older patients.
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35 255 **Discussion**

36 256

37 257 Summary of main findings

38 258

39 259 A substantial majority of GP patient survey respondents expressed definite confidence
40 260 and trust in their GP. Patients’ confidence and trust in the doctor increased with patient
41 261 age, was similar for males and females, and was reported more frequently by those of
42 262 white ethnicity. For all items relating to interpersonal aspects of the consultation, higher
43 263 patient ratings were associated with an increased likelihood of reporting confidence and
44 264 trust. Confidence and trust was most strongly associated with patients’ perceptions of
45 265 having their problems taken seriously.
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267 There was no appreciable difference between men and women in respect of the relative
268 importance of aspects of the consultation as potential predictors of confidence and trust in
269 their doctor. However, we observed some differences between patients in different age
270 and ethnic groups: As age increases, patients who report greater trust appear to
271 particularly value being involved in decisions about their care; non-white patients,
272 particularly those aged 65 or more, placed particular value on being given enough time
273 during their consultations. The identification of some immutable patient characteristics
274 associated with systematic variation in patient's confidence and trust provides the
275 potential opportunity for targeting patient care in an informed way – for example by
276 actively engaging older patients in decisions about their care.

277

278 Strengths and limitations of the study

279

280 We conducted a secondary analysis of data from a major national survey involving a
281 large sample of patients. The inclusion and exclusion criteria and outcome measures were
282 limited by using pre-determined data, however the data set was large and varied enough
283 to answer the questions posed. No previous studies have investigated the interaction
284 effects of patient characteristics and interpersonal aspects of the consultation on
285 confidence and trust in such a large sample of patients in the UK.

286

287 The adjusted survey response rate was 42%, with younger patients, non-white patients,
288 and those living in areas of socioeconomic deprivation being under-represented amongst
289 respondents.^[34] This under-representation was comparable to similar surveys conducted
290 elsewhere in the world.^[35-37] A study of key measures within the GP patient survey found
291 no evidence of non-response bias.^[32] Individuals with complete data differed from those
292 with incomplete data. However, although statistically significant, these differences were
293 small. We therefore recognise the potential for selection bias in our data, although believe
294 that our results might reasonably reflect the wider UK population. The large actual
295 numbers of completed responses, even in under-represented subgroups, were sufficient to
296 make precise estimates of associations.

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4 297
5 298 We noted that the order in which the aspects of the consultation were presented in the
6
7 299 patient questionnaire matched the general rank order of the estimated odds ratios for the
8
9 300 relative contribution of aspects of the consultation to reporting definite confidence and
10
11 301 trust. Whilst the variation in this rank ordering amongst different patient subgroups,
12
13 302 together with our results regarding the ‘overall satisfaction’ item suggest otherwise, it
14
15 303 remains possible that question-ordering effects are important. Such effects could be tested
16
17 304 in future by altering the item order.

18 305
19 306 We did not have access to detailed information about the doctors or practices being
20
21 307 commented on, and are therefore unable to assess the contribution of these [factors](#)
22
23 308 [variables](#) in determining confidence and trust. Similarly, although previous research has
24
25 309 suggested that [the objective patient health status of patients](#) may be of importance,^[6,38]
26
27 310 detailed information was not available to us within this dataset. It was not possible to tell
28
29 311 if patients were referring to their usual doctor when responding to questions regarding the
30
31 312 ‘last time you saw a doctor’. Conclusions therefore, could not be drawn about continuity
32
33 313 of care. However, data relate to one particular doctor-patient interaction, allowing a
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35 314 focused interpretation of aspects of the consultation within that particular consultation.

36 315
37 316 [The relationship between the concepts of confidence and trust has previously been](#)
38
39 317 [explored, with a distinction between the two concepts being suggested, based on an](#)
40
41 318 [individual’s perception of the situation.](#)^[39] [Luhmann’s work proposes that where](#)
42
43 319 [confidence exists within a relationship, alternatives may not be considered, outcomes](#)
44
45 320 [judged ‘inevitable’, and, if confidence is disappointed, blame attributed externally. In](#)
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47 321 [contrast, Luhmann suggests that where trust characterises a relationship, choice may be](#)
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49 322 [inherent, variable outcomes accepted, and disappointment characterised by internal rather](#)
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51 323 [than external attribution of blame. In the context of healthcare, Luhmann suggests that](#)
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53 324 [familiarity \(for example between doctor and patient\) may be an important determinant of](#)
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55 325 [whether the relationship is characterised by trust or confidence. Developing these ideas,](#)
56
57 326 [some researchers have suggested that patients’ trust in health care practitioners may relate](#)
58
59 327 [to interpersonal familiarity, and that patients’ trust in healthcare systems is often greatest](#)
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4 328 where systems are long established and known to the individual patient.^[40] In situations
5 329 characterised by lack of familiarity, patients may simply have to exercise faith in an
6
7 330 individual practitioner or in the healthcare system.^[39]
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9 331

10 332 The two concepts were, however, conflated in the wording of the General Practice Patient
11 333 Survey: “Did you have confidence and trust in the doctor you saw?” We were therefore
12
13 334 unable to distinguish between confidence and trust in our investigation. Complex
14
15 335 systems, such as the primary health care system in the UK, have been considered by some
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17 336 to require the exercise of confidence and trust as a pre-requisite for effective engagement
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19 337 with, and use of, the system.^[41,42]
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21 338

22 23 339 Comparison with existing literature

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25
26 341 The association of patients’ ~~confidence and~~ trust with increasing age and with white
27
28 342 ethnicity, has been previously reported.^[6] Our findings add depth to the current literature
29
30 343 by considering the moderating effect of age, gender and ethnicity on the relationship
31
32 344 between interpersonal aspects of care reflected in a recent consultation, and patients’
33
34 345 confidence and trust in the doctor.
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36 346

37 347 Previous research has highlighted associations between patients’ ~~confidence and~~ trust and
38
39 348 several interpersonal aspects of the doctor-patient relationship within the consultation.
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41 349 This includes the importance to patients of effective communication,^[18] a sense of
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43 350 partnership between doctor and patient,^[43] and the patient’s perception of being given
44
45 351 enough time during the consultation.^[44] However, our observation that a sense of shared
46
47 352 decision making was a stronger determinant of reported confidence and trust amongst
48
49 353 older patients is a new finding. This contrasts with previous literature which has
50
51 354 suggested that older patients may prefer a focus on receiving information rather than on
52
53 355 active participation.^[45,46] One explanation might be that this reflects a changing culture in
54
55 356 which older people have a greater awareness of available healthcare, through media
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57 357 coverage for example. They may therefore feel more willing to be involved in decisions
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59 358 about which they have a prior awareness. It may also reflect a more holistic approach by
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4 359 doctors to support patients' involvement. The contributions of trust and of shared
5
6 360 decision making in patients' evaluations of health services have previously been
7
8 361 considered separately.^[47] Our findings, although based on cross sectional data with
9
10 362 acknowledged potential for bias, suggest these factors-variables are related and their
11
12 363 effect on patients' perceptions and evaluations of health services are likely to be
13
14 364 confounded.

15 16 365 17 366 Implications for future research and clinical practice

18 367
19 368 A number of the determinants of confidence and trust in doctors reported in our study
20
21 369 would benefit from further investigation using qualitative approaches, including further
22
23 370 exploration of patient perceptions of their problems being taken seriously. Such
24
25 371 approaches might be beneficial in informing patient centred primary health care delivery
26
27 372 and planning.^[48] Providing services that are responsive to the needs and aspirations of an
28
29 373 ageing population,^[49] in respect of confidence and trust, might involve doctors routinely
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31 374 engaging in shared decision making with older patients during consultations.
32
33 375 Highlighting of these issues in relevant undergraduate and postgraduate educational and
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35 376 training fora might be appropriate.

36 377
37 378 We have shown that the interpersonal aspects of the consultation rated in the survey were
38
39 379 strongly associated with reported confidence and trust in the doctor, the strongest
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41 380 association being with 'taking your problems seriously'. The relative contribution of
42
43 381 other aspects of the consultation to reported confidence and trust varied with the age and
44
45 382 ethnicity of the patient. Incorporating these findings in delivering routine care has the
46
47 383 potential to support a patient-centred approach to care, tailored to the patient as an
48
49 384 individual.

50 385 51 386 52 387 53 388 **Ethics**

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4 389 The Central Office for Research Ethics Committee (COREC) advised that the survey
5 390 does not require formal medical research ethical approval but it adheres to the Market
6
7 391 Research Society code of ethics
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9 392

10
11 393 **Conflicts of interest**

12 394 Nil
13
14 395

15
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18
19 398

20
21 399 | **Contributors**

22 400
23 401 JEC was responsible for planning the study, drafting and finalising the manuscript. DRS
24 402 critically revised the manuscript. MJR, GA and JEC interpreted the data and participated
25 403 in critical review. MR also provided critical review. JLC was responsible for supervision,
26 404 aided in interpretation of data and also critically revised the manuscript.
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545 Table 1. Sociodemographic profile of analysis sample and percentage of each subgroup
 546 reporting no confidence, partial confidence or definite confidence and trust in the doctor.

Subgroup	N	% of sample	Did you have confidence and trust in the doctor you saw?		
			No not at all (% of subgroup)	Yes to some extent (% of subgroup)	Yes definitely (% of subgroup)
Gender					
Male	651,163	44	3	23	74
Female	825,089	56	4	24	73
Age (years)					
18-24	70,435	5	7	34	60
25-34	157,753	11	7	33	60
35-44	234,768	16	5	27	68
45-54	274,851	19	4	25	71
55-64	314,986	21	3	22	76
65-74	246,692	17	1	17	81
75-84	140,851	10	1	16	83
85and over	35,916	2	1	16	82
Ethnic group					
White	1,279,862	87	3	22	75
Mixed	10,069	1	6	31	63
Asian / Asian British	79,512	5	6	35	59
Black / Black British	38,131	3	4	30	65
Chinese	6,657	<1	6	43	51
Other	62,021	4	7	32	62
Perceived health status					
Poor	86,597	6	6	23	71
Fair	293,071	20	4	26	70
Good	537,337	36	3	26	71
Very good	429,332	29	3	22	76
Excellent	129,925	9	3	16	82
Locality					
Non-inner city	281,949	19	2	19	79
Inner city	1,194,303	81	4	25	72
Deprivation					
Lowest	267,414	18	2	21	77
Next lowest	291,191	20	3	21	76
Middle	296,938	20	3	23	74
Next highest	298,096	20	4	25	71
Highest	322,613	22	5	26	69
All	1,476,252	100	3	24	73

547 Table 2. Odds ratios (95% confidence interval) for the ‘main effects’ binary logistic
548 regression model predicting definite confidence and trust in the doctor.

	Odds Ratio	(95% CI)
Ratings of last consultation		
Q20a Giving you enough time	1.19	(1.18, 1.21)
Q20b Asking about your symptoms	1.26	(1.24, 1.28)
Q20c Listening to you	1.38	(1.36, 1.40)
Q20d Explaining tests and treatments	1.56	(1.55, 1.58)
Q20e Involving you in decisions about your care	1.51	(1.49, 1.52)
Q20f Treating you with care and concern	1.60	(1.57, 1.62)
Q20g Taking your problems seriously	2.86	(2.82, 2.89)
Patient sociodemographic factors/variables		
Female (ref Male)	0.90	(0.89, 0.91)
Age35-64 years (ref age <35 years)	1.27	(1.25, 1.29)
Age65 years &over (ref age <35 years)	1.60	(1.58, 1.63)
Non-white ethnic group (ref White)	0.89	(0.88, 0.91)
<u>Perceived health status</u>	1.12	(1.12, 1.13)
Inner city setting (ref non-inner city setting)	0.95	(0.93, 0.96)
Deprivation	0.98	(0.98, 0.99)

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550 Table 3. Odds ratios for the effect of a one point increase in patient ratings of interpersonal aspects of the consultation on the odds of
 551 having definite confidence and trust in the doctor, by patient age, gender and ethnicity. The odds ratios within each patient subgroup
 552 are ranked in the lower half of the table.

	Consultation aspects	All patients*	age<35				age35-64				age65+			
			White		Non-White		White		Non-White		White		Non-White	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Odds Ratios	Giving you enough time	1.19	1.17	1.11	1.38	1.31	1.15	1.09	1.36	1.29	1.33	1.26	1.56	1.48
	Asking about your symptoms	1.26	1.25	1.25	1.14	1.14	1.28	1.27	1.17	1.16	1.31	1.30	1.19	1.19
	Listening to you	1.38	1.42	1.41	1.30	1.30	1.41	1.40	1.29	1.29	1.35	1.35	1.24	1.24
	Explaining tests and treatments	1.56	1.55	1.56	1.38	1.39	1.61	1.62	1.44	1.45	1.56	1.56	1.39	1.40
	Involving you in decisions about your care	1.51	1.38	1.38	1.25	1.25	1.56	1.56	1.42	1.42	1.58	1.58	1.43	1.44
	Treating you with care and concern	1.60	1.59	1.58	1.60	1.59	1.61	1.60	1.63	1.62	1.56	1.55	1.58	1.57
	Taking your problems seriously	2.86	2.64	2.78	2.25	2.37	2.95	3.11	2.51	2.64	2.89	3.04	2.45	2.58
Rank of Importance **	Giving you enough time	7	7	7	4	4	7	7	5	5	6	7	3	3
	Asking about your symptoms	6	6	6	7	7	6	6	7	7	7	6	7	7
	Listening to you	5	4	4	5	5	5	5	6	6	5	5	6	6
	Explaining tests and treatments	3	3	3	3	3	2	2	3	3	4	3	5	5
	Involving you in decisions about your care	4	5	5	6	6	4	4	4	4	2	2	4	4
	Treating you with care and concern	2	2	2	2	2	3	3	2	2	3	4	2	2
	Taking your problems seriously	1	1	1	1	1	1	1	1	1	1	1	1	1

553 * Odds ratios taken from table 2

554 ** 1 = most influential, 7 = least influential

Table A1: Odds ratios (95% confidence interval) for a binary logistic regression model predicting definite confidence and trust in the doctor and which includes interactions between age, gender and ethnicity and patients' ratings of interpersonal aspects of the consultation.

	Odds Ratio	(95% CI)
Ratings of last consultation		
Q20a Giving you enough time	1.17	(1.14, 1.21)
Q20b Asking about your symptoms	1.25	(1.21, 1.30)
Q20c Listening to you	1.42	(1.37, 1.47)
Q20d Explaining tests and treatments	1.55	(1.50, 1.60)
Q20e Involving you in decisions about your care	1.38	(1.34, 1.42)
Q20f Treating you with care and concern	1.59	(1.53, 1.64)
Q20g Taking your problems seriously	2.64	(2.56, 2.73)
Patient sociodemographic factors		
Female	0.90	(0.88, 0.92)
Age35-64	1.69	(1.64, 1.74)
Age65&over	2.17	(2.10, 2.25)
Non-white ethnic group	0.62	(0.60, 0.64)
Perceived health status	1.12	(1.12, 1.13)
Innercity area	0.95	(0.93, 0.96)
Deprivation	0.98	(0.98, 0.99)
Interaction terms		
Female*Q20a	0.95	(0.93, 0.97)
Female*Q20b	0.99	(0.97, 1.02)
Female*Q20c	1.00	(0.97, 1.02)
Female*Q20d	1.01	(0.98, 1.03)
Female*Q20e	1.00	(0.98, 1.02)
Female*Q20f	0.99	(0.97, 1.02)
Female*Q20g	1.05	(1.03, 1.08)
age35_64*Q20a	0.98	(0.96, 1.01)
age35_64*Q20b	1.02	(0.98, 1.06)
age35_64*Q20c	0.99	(0.96, 1.03)
age35_64*Q20d	1.04	(1.01, 1.07)
age35_64*Q20e	1.14	(1.10, 1.17)
age35_64*Q20f	1.02	(0.98, 1.05)
age35_64*Q20g	1.12	(1.08, 1.15)
age65_over*Q20a	1.13	(1.10, 1.17)
age65_over*Q20b	1.04	(1.00, 1.09)
age65_over*Q20c	0.95	(0.92, 1.00)
age65_over*Q20d	1.00	(0.97, 1.04)
age65_over*Q20e	1.15	(1.11, 1.19)
age65_over*Q20f	0.98	(0.94, 1.03)
age65_over*Q20g	1.09	(1.05, 1.14)
Non-white*Q20a	1.17	(1.14, 1.21)
Non-white*Q20b	0.91	(0.88, 0.95)
Non-white*Q20c	0.92	(0.88, 0.95)
Non-white*Q20d	0.89	(0.87, 0.92)
Non-white*Q20e	0.91	(0.88, 0.93)
Non-white*Q20f	1.01	(0.97, 1.05)
Non-white*Q20g	0.85	(0.82, 0.88)

Note: Although some interaction terms are not significant at the 5% level (i.e. the 95% confidence interval contains 1.00) each block of seven interaction terms (addressing two age group effects, gender and ethnicity related interactions) was found to contribute significantly to the model (likelihood ratio tests, $p < 0.0001$ for each block).

Calculation of the odds ratios given in Table A2 and in Table 3 of the main paper

1
2 Table A1 was used to construct the odds ratios shown in Table A2 below and in Table 3 of the main paper.
3 For example, the odds ratio for the effect of a one point increase in the rating of “Q20c Listening to you” for
4 a non-white male patient in the 35-64 years age group was found by first identifying in Table A1 the values
5 1.42, 0.99 and 0.92 which are the respective odds ratios associated with that particular aspect of the
6 consultation for male patients in the 35-64 years age group from a non-white ethnic background. The odds
7 ratio is then calculated as $1.42 \times 0.99 \times 0.92 = 1.29$ as shown in the relevant cell of Table A2 below and in
8 Table 3 in the main paper. The calculations were performed using the ‘lincom’ command in Stata, which
9 also gave 95% confidence intervals for the odds ratios (Table A2).
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Table A2: Odds ratio (95% confidence interval) [rank within patient subgroup] for the effect of a one point increase in patient ratings of interpersonal aspects of the consultation on the odds of having definite confidence and trust in the doctor, by patient age, gender and ethnicity

	White		Non-white	
	Male	Female	Male	Female
Age group: 18-34 years				
Q20a Giving you enough time	1.17 (1.14, 1.21) [7]	1.11 (1.08, 1.14) [7]	1.38 (1.33, 1.43) [4]	1.31 (1.27, 1.35) [4]
Q20b Asking about your symptoms	1.25 (1.21, 1.30) [6]	1.25 (1.21, 1.29) [6]	1.14 (1.10, 1.19) [7]	1.14 (1.09, 1.18) [7]
Q20c Listening to you	1.42 (1.37, 1.47) [4]	1.41 (1.37, 1.46) [4]	1.30 (1.25, 1.36) [5]	1.30 (1.24, 1.35) [5]
Q20d Explaining tests and treatments	1.55 (1.50, 1.60) [3]	1.56 (1.52, 1.60) [3]	1.38 (1.34, 1.43) [3]	1.39 (1.35, 1.44) [3]
Q20e Involving you in decisions about your care	1.38 (1.34, 1.42) [5]	1.38 (1.34, 1.42) [5]	1.25 (1.21, 1.29) [6]	1.25 (1.21, 1.29) [6]
Q20f Treating you with care and concern	1.59 (1.53, 1.64) [2]	1.58 (1.52, 1.63) [2]	1.60 (1.53, 1.67) [2]	1.59 (1.53, 1.66) [2]
Q20g Taking your problems seriously	2.64 (2.56, 2.73) [1]	2.78 (2.70, 2.87) [1]	2.25 (2.17, 2.33) [1]	2.37 (2.29, 2.45) [1]
Age group: 35-64 years				
Q20a Giving you enough time	1.15 (1.13, 1.18) [7]	1.09 (1.07, 1.12) [7]	1.36 (1.31, 1.40) [5]	1.29 (1.25, 1.33) [5]
Q20b Asking about your symptoms	1.28 (1.25, 1.31) [6]	1.27 (1.24, 1.30) [6]	1.17 (1.12, 1.21) [7]	1.16 (1.12, 1.21) [7]
Q20c Listening to you	1.41 (1.37, 1.44) [5]	1.40 (1.37, 1.44) [5]	1.29 (1.24, 1.34) [6]	1.29 (1.24, 1.33) [6]
Q20d Explaining tests and treatments	1.61 (1.58, 1.65) [2]	1.62 (1.59, 1.65) [2]	1.44 (1.40, 1.49) [3]	1.45 (1.41, 1.50) [3]
Q20e Involving you in decisions about your care	1.56 (1.53, 1.59) [4]	1.56 (1.54, 1.60) [4]	1.42 (1.37, 1.46) [4]	1.42 (1.38, 1.46) [4]
Q20f Treating you with care and concern	1.61 (1.57, 1.65) [3]	1.60 (1.56, 1.64) [3]	1.63 (1.56, 1.69) [2]	1.62 (1.56, 1.68) [2]
Q20g Taking your problems seriously	2.95 (2.88, 3.02) [1]	3.11 (3.04, 3.18) [1]	2.51 (2.43, 2.59) [1]	2.64 (2.55, 2.73) [1]
Age group: 64 years and over				
Q20a Giving you enough time	1.33 (1.30, 1.37) [6]	1.26 (1.23, 1.30) [7]	1.56 (1.51, 1.62) [3]	1.48 (1.43, 1.54) [3]
Q20b Asking about your symptoms	1.31 (1.27, 1.35) [7]	1.30 (1.26, 1.34) [6]	1.19 (1.14, 1.25) [7]	1.19 (1.13, 1.24) [7]
Q20c Listening to you	1.35 (1.31, 1.40) [5]	1.35 (1.31, 1.39) [5]	1.24 (1.19, 1.30) [6]	1.24 (1.18, 1.30) [6]
Q20d Explaining tests and treatments	1.56 (1.51, 1.60) [4]	1.56 (1.52, 1.61) [3]	1.39 (1.34, 1.45) [5]	1.40 (1.35, 1.45) [5]
Q20e Involving you in decisions about your care	1.58 (1.54, 1.62) [2]	1.58 (1.54, 1.63) [2]	1.43 (1.38, 1.49) [4]	1.44 (1.38, 1.49) [4]
Q20f Treating you with care and concern	1.56 (1.51, 1.62) [3]	1.55 (1.50, 1.60) [4]	1.58 (1.50, 1.65) [2]	1.57 (1.49, 1.64) [2]
Q20g Taking your problems seriously	2.89 (2.80, 2.98) [1]	3.04 (2.94, 3.13) [1]	2.45 (2.35, 2.56) [1]	2.58 (2.48, 2.69) [1]

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STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5-6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	6-8
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6-7
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6-8
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	6-8
Bias	9	Describe any efforts to address potential sources of bias	7-8
Study size	10	Explain how the study size was arrived at	8
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	6-8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	6-8
		(b) Describe any methods used to examine subgroups and interactions	7-8
		(c) Explain how missing data were addressed	6-8
		(d) If applicable, describe analytical methods taking account of sampling strategy	6-8
		(e) Describe any sensitivity analyses	7-8
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	8
		(b) Give reasons for non-participation at each stage	8
		(c) Consider use of a flow diagram	n/a
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	8
		(b) Indicate number of participants with missing data for each variable of interest	8
Outcome data	15*	Report numbers of outcome events or summary measures	9
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9
		(b) Report category boundaries when continuous variables were categorized	9
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	n/a
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	9-10
Discussion			
Key results	18	Summarise key results with reference to study objectives	10-11
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	11-12
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	12-13
Generalisability	21	Discuss the generalisability (external validity) of the study results	12-13
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	14

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.