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Communication study

Verbal and non-verbal behavior of doctors and patients in primary care consultations – How this relates to patient enablement

Teresa Pawlikowska [a,*], Wenjuan Zhang [b], Frances Griffiths [a], Jan van Dalen [c], Cees van der Vleuten [d]

[a] Warwick Medical School, The University of Warwick, UK
[b] Department of Statistics, The University of Warwick, UK
[c] Skillslab, University of Maastricht, The Netherlands
[d] Department of Educational Development and Research, University of Maastricht, The Netherlands

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ABSTRACT

Objective: To assess the relationship between observable patient and doctor verbal and non-verbal behaviors and the degree of enablement in consultations according to the Patient Enablement Instrument (PEI) (a patient-reported consultation outcome measure).
Methods: We analyzed 88 recorded routine primary care consultations. Verbal and non-verbal communications were analyzed using the Roter Interaction Analysis System (RIAS) and the Medical Interaction Process System, respectively. Consultations were categorized as patient- or doctor-centered and by whether the patient or doctor was verbally dominant using the RIAS categorizations.
Results: Consultations that were regarded as patient-centered or verbally dominated by the patient on RIAS coding were considered enabling. Socio-emotional interchange (agreements, approvals, laughter, legitimization) was associated with enablement. These features, together with task-related behavior explain up to 33% of the variance of enablement, leaving 67% unexplained. Thus, enablement appears to include aspects beyond those expressed as observable behavior.
Conclusion: For enablement consultations should be patient-centered and doctors should facilitate socio-emotional interchange. Observable behavior included in communication skills training probably contributes to only about a third of the factors that engender enablement in consultations.
Practice implications: To support patient enablement in consultations, clinicians should focus on agreements, approvals and legitimization whilst attending to patient agendas.

1. Introduction

Good communication in consultation is important to both patients [1] and doctors [2] and is seen as a marker of quality [3,4]. Stewart et al. [5] described patient-centeredness [6], as aiming at a bio-psychosocial approach, recognizing patients as experts in themselves and their experience, and involving them appropriately in consultations. Doctors should aim for this approach and use communication skills that encourage patient enablement in routine practice. However, few studies have attempted to link observed verbal and non-verbal communication within consultations to patient outcomes.

1.1. Patient enablement

The concept of patient enablement is based on the idea that patient outcome is largely influenced by how patients feel after the consultation: has the consultation increased their understanding, and/or their ability to cope with their illness? [7,8]. Patient enablement was first described in UK general practice by Howie as an aspect of consultation quality based on core values of holism and patient-centeredness [9]. Howie's idea of quality was built on the theory that greater enablement would be achieved when patients' needs were appropriately identified, acknowledged and addressed in consultations. A simple instrument was developed to measure patient enablement: the Patient Enablement Instrument (PEI, Fig. 1), which has since been validated nationally and internationally in many cross-sectional studies [9–14]. Patients complete the questionnaire after their consultation and thus record their views.

The PEI assesses patients' understanding, confidence and coping ability following consultation [9]. Another consultation outcome measure is patient satisfaction and PEI has been

* Corresponding author at: Warwick Medical School, The University of Warwick, CV4 7AL, UK. Tel.: +44 0247657 4512; fax: +44 0247657 3079.
E-mail address: Teresa.Pawlikowska@warwick.ac.uk (T. Pawlikowska).

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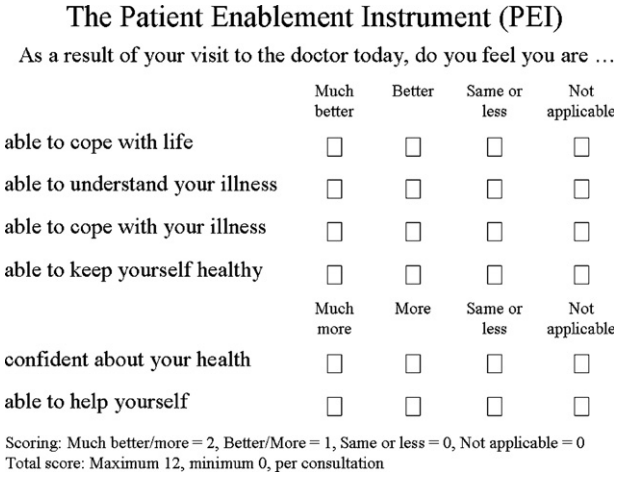

The Patient Enablement Instrument (PEI)

As a result of your visit to the doctor today, do you feel you are …

	Much better	Better	Same or less	Not applicable
able to cope with life	☐	☐	☐	☐
able to understand your illness	☐	☐	☐	☐
able to cope with your illness	☐	☐	☐	☐
able to keep yourself healthy	☐	☐	☐	☐
	Much more	**More**	**Same or less**	**Not applicable**
confident about your health	☐	☐	☐	☐
able to help yourself	☐	☐	☐	☐

Scoring: Much better/more = 2, Better/More = 1, Same or less = 0, Not applicable = 0
Total score: Maximum 12, minimum 0, per consultation

Fig. 1.

compared with the Consultation Satisfaction Questionnaire (CSQ) [15] and the Medical Interview Satisfaction Scale (MISS)[16]. The correlation between CSQ and PEI are lower (0.48) than those for CSQ and MISS (0.82) suggesting that, although correlated with satisfaction, enablement measures a different aspect of consultation outcome [17]. If satisfaction represents fulfilment of patient expectation about care, enablement can be considered to go beyond satisfaction as patients reflect on consultation outcome in terms of their own coping and understanding.

Most published studies involving PEI have been cross-sectional quantitative studies which have mapped the relations of enablement with other variables. Few studies have sought to understand how enablement is engendered in consultations. Continuity of care [10] and empathy [18] are consistently correlated with high enablement but there is debate about the influence of case-mix [10,12,19] and consultation duration [10,12]. Patient-centeredness (operationalised as communication and partnership, a personal relationship, health promotion and a positive doctor attitude) was correlated with enablement in a quantitative study [20], later criticized on the grounds that the definition of patient-centredness was self-fulfilling [21]. No relationship was found between patient centeredness and enablement or satisfaction in a study of videotaped consultations [22] however operationalisation and PEI scoring differed from the original [10]. A recent quantitative study using the large UK GPAQ database found enablement was related to communication but concluded "More work is needed to understand the mechanisms by which enablement is increased" [11].

The research reported here is part of a mixed methods programme to understand how enablement works through analysis of the qualitative data (video recordings of consultations, patient commentary on the video and doctor commentary of the video) where we planned to use comparative analysis. For this to be successful, we planned to compare potentially contrasting consultations, that is those with low enablement and those with high enablement, following the approach described by Howie et al. [9] and DeCoster et al. [23].

1.2. Verbal communication

Given the objectives of the doctor–patient consultation it is likely that patient enablement is influenced by the doctor's verbal behavior, in particular socio-emotional exchange (Refs. [23,24]). We therefore hypothesized that consultations where patients felt enabled would have a higher occurrence of socio-emotional exchange than consultations where patients felt less enabled (Hypothesis 1).

1.3. Patient-centered communication

Patient-centered communication as defined by Stewart et al. [5] encompasses exploring the patient's illness experience and the disease, understanding the whole person, finding common ground, incorporating health promotion and prevention, enhancing the participants' relationship and using resources realistically. It is therefore likely that enablement is related to the degree of patient-centered communication in the consultation (Hypothesis 2). Roter operationalises patient-centered and doctor-centered communication styles with RIAS coding (the former predominantly concerned with information-giving, counseling, exploring bio-psychosocial issues, checking understanding, building rapport and partnership the latter task-focused, biomedical and administrative [24]).

1.4. Verbal dominance

Complimentarity of participants' behaviors in dyadic interactions in terms of control and affiliation is well known [25]. Studies report high patient satisfaction with high doctor affiliative behavior and low physician control behaviors [26,27]. In the RIAS, verbal dominance is assessed as the ratio of all patient utterances to all doctor utterances in a consultation [28,29]. We postulated that high patient enablement would be characterized by a higher occurrence of affiliation as well as low control behavior by doctors, and active patients (Hypothesis 3).

1.5. Global affect

A systematic review of the influence of affect on outcomes found that doctors who have a warm, friendly, reassuring manner are more effective than those who do not [30]. RIAS global affect coding has also been used to determine the relationship between positive scores to other measures, e.g., a physician–caregiver relationship scale [31], and patients' coping styles [32]. Building on this research [20,30] we hypothesized that high patient enablement would be related to physicians' positive global affect (Hypothesis 4).

1.6. Non-verbal communication

It is claimed that 80% of communication between individuals is non-verbal [33], but this area is under-researched, with few available assessment tools [34]. A recent review suggests that non-verbal behavior is especially relevant for socio-emotional exchange [35]. Doctor behaviors such as leaning forward, head nodding, sitting close together and spending less time reading notes have been associated with patient satisfaction [36]. Patients give physicians who can accurately assess body language higher satisfaction ratings [37] and patient satisfaction has been strongly associated with emotionally expressive non-verbal doctor behaviors [38]. We therefore hypothesized that emotionally supportive body language (e.g., leaning forward) would be related to patient enablement (Hypothesis 5).

Hypotheses summarized: We set out to examine what interactions and doctor skills might engender patient enablement. On the basis of previous research we hypothesized that enablement would be related to the degree of

1. socio-emotional exchange;
2. patient-centered communication;
3. patient's verbal dominance;
4. participants' positive global affect; and

5. participants' mutually supportive body language; occurring in the consultation.

2. Methods

2.1. Setting, participants and design

We undertook an observational study choosing video recording to capture all modalities of the interchange. We analyzed 88 consultation recordings which were part of a mixed methods study into patient enablement. A total of 300 patients were recruited, 100 consecutive patients attending routine appointments with each of three purposively sampled UK family doctors (Fig. 2). Informed consent was obtained and patients completed the PEI on exit. The qualitative part of the study exploring enablement was investigating potentially contrasting consultations and this, the quantitative part of the study was required to provide comparative data. Given the investigative nature of this study, and relatively small sample, a decision was taken to use extreme group analysis using score values with the cut-off point being chosen to reflect the purpose in hand (following the original development work by Howie et al. [9] and the approach by De Coster et al. [23]). A cut-off point was designated to clearly differentiate between 'low' (0–2) and 'high' (6–12) patient enablement. The median enablement score of 6 was taken as the cut-off value for the 'high' group. This cut-off point allows for maximum variation between scores to be modelled.

2.2. Instruments and measures

PEI was the dependent variable in this study. The PEI questionnaire has high response and completion rates (typically around 80% in various countries [10,12,39]) and has been found to be reliable [9,12,39,40] with Cronbach's alpha coefficient reported at >0.8 [10,12,39]. Howie's large UK study in primary care found the average PEI score to be 3.1 (minimum score 0, maximum 12) [10].

The Roter Interaction Analysis System (RIAS) is a well-known instrument for consultation analysis which is used to distinguish task-related and socio-emotional communication. Roter has developed an operational definition of patient-centered communication using RIAS [28,29,41].

Verbal interaction was analyzed using the Roter Interaction Analysis System (RIAS), which has demonstrable reliability and validity [42], and is widely used in studies of doctor–patient communication [43]. Each complete thought or utterance ("the smallest discriminable speech unit to which a classification can be assigned") expressed by either participant was coded directly from the recording into one of 40 mutually exclusive and exhaustive codes (covering bio-medical tasks of consultation, socio-emotional affective input and process-oriented talk). We used codes as defined in the handbook and did not group codes, e.g., empathy and legitimization are often coalesced, but empathy has been shown to be important for enablement [18] so we kept them separate.

Following earlier studies [28,29,44], we assessed patient-centered interaction as the ratio of codes relating to psycho-social and socio-emotional interchange (partnership-building, psycho-social information and counseling, relationship building, social talk, patient questions and doctor open questions) to codes furthering bio-medical issues (the sum of all bio-medical information and counseling, doctor's closed questions and orientations): a ratio >1 was taken as a patient-centered consultation.

We also assessed verbal dominance following previous studies [28,29,44,45] by calculating the sum of all doctor statements divided by the sum of all patient statements taking a score of 1 to signify an equal contribution. We measured global affect on a 6-point semantic differential scale for both participants covering: interest/attentiveness, friendliness/warmth, responsiveness/engagement, sympathy/empathy, hurried/rushed, anxiety/nervousness, anger/irritability and dominance/assertiveness [46] as used in previous studies [31,44,47].

The non-verbal component of consultations was rated using a 12-item, 5 point Likert scale from the Medical Interaction Process System (MIPS) [48]. Categories for kinesic content were used to capture body language comprising: posture, body lean, eye contact, shoulders, hand positioning for both participants, and separately for the doctor: touching the patient and reading and

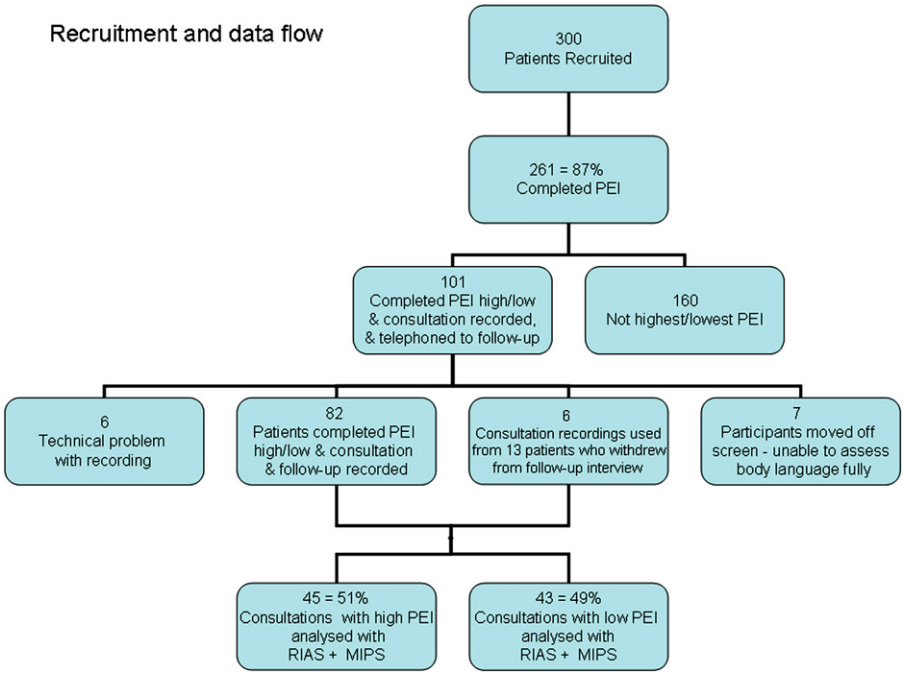

Fig. 2.

writing activity. These non-verbal categories were adapted from Mehrabian [49] and a coder with previous experience of MIPS followed the original coding protocol [48]. Inter-rater reliability for all measures was assessed by independently double-coding a 20% random sample.

2.3. Data analysis

Coded data were analyzed using Genstat (See Appendix for details). We modelled the data using logistic regression with the binary indicator of the patient enablement status (high or low) as the dependent variable and the other factors (RIAS verbal, global affect and non-verbal MIPS coding) as independent variables. Removal of highly inter-correlated independent variable components reduced the original 60 components to 14 (9 RIAS, 3 body language and 2 global) which were included in the full logistic model. Parameter estimates returned by the forward, backward and combination step-wise procedures were not significantly different, indicating the absence of co-linearity in the data.

3. Results

Patient flow through the study is shown in Fig. 2. Of the 101 consultations with the highest and lowest enablement scores, 88 recordings were available for analysis. Characteristics of patients are shown in Table 1 and of doctors in Table 2.

The inter-relater reliability for RIAS coding was generally high, giving mean intra-class correlation coefficients of 0.94 (range 0.72–0.99) overall, 0.78 (0.57–0.93) for global affect, and 0.69 (0.24–0.98) for body language.

3.1. Communication and interactions between patient and doctor important for enablement

We performed a logistic regression analysis of patient enablement as the dependent variable on the RIAS-coded verbal communication behaviors for both doctor and patient. Next we added global affect coding and finally body language coding to the model. After removing the correlated variables, our logistic regression model consisted of 9 RIAS, 3 body language and 2 global affect independent variables. Of these, 4 terms relating to socio-emotional interchange (agreements, approvals, laughter, legitimization) and two task-related behaviors (patient counseling, patients' requests for services) were selected as being statistically significant for predicting enablement together with 1 body language code: 33% of the variance of enablement could be explained in the final model by these 6 verbal RIAS codes and 1 body language code. Table 3 shows details and indicates whether these codes originated with patient, doctor, or both participants. Table 4 gives the RIAS codes that were related to enablement with examples of quotes. Task-related behavior associated with enablement was patient education and counseling by the doctor, with "relaxed hands" (implying that the doctor was attentive and not using a keyboard or writing) and patients requesting services: these codes are agenda focused. In addition, 4 socio-emotional codes: agreements, approvals, laughter (both participants), and legitimization (doctors) were found to be important for enablement.

Table 1
Patient characteristics and self-defined needs.

Patient characteristic or self defined needs	Value
Age, mean (SD), y	51.2 (18.9)
Male, no. (%)	111 (42.5%)
Female, no. (%)	150 (57.5%)
Acute medical	127 (48.7%)
Chronic medical	122 (46.7%)
Psychological	30 (11.5%)
Social	12 (4.6%)
Administrative	16 (6.1%)
Other undefined	24 (9.1%)
Patient enablement score, mean (SD)	4.36 (3.56)

$N = 261$, patients could nominate multiple needs.

Table 2
Characteristics of doctors, their practice and recruitment.

Characteristic	GP1	GP2	GP3
Age	50	40	37
Gender	Female	Male	Male
Years since appointment in study practice	22	9	3
Location of surgery	Rural	Town	Rural
PEI score, mean (SD)	5.34 (3.94)	4.24 (3.36)	3.50 (3.12)
Number of patients completing PEI	88	82	91
Number of patients completing data collection	32	26	24
Number of GP sessions	9	9	9

Note: An analysis of variance comparing the mean PEI score for three GPs gives an F value of 6.31 with 2 and 260 degrees of freedom, is significant, indicating a difference. Mean PEI in a large UK study was 3.1 [8].

3.2. Patient-centeredness

The relationship between the summary measure of patient-centeredness operationalised with RIAS [28,29] and enablement score is presented in Table 5.

We found that 89% of patient-centered consultations had high enablement scores, whilst 24% of consultations scoring low on patient-centeredness achieved high PEI scores. The Chi-square test shows a highly significant relationship (32.8, DF = 1, $p < .001$).

3.3. Verbal dominance

Table 6 presents the relationship between verbal dominance and enablement.

In our sample, 71% of consultations in which the patient was verbally dominant had high enablement scores, whereas only 38% of doctor-dominant consultations achieved high PEI scores. The

Table 3
Verbal and non verbal codes (RIAS, Body Language and Global Affect).

Source of communication	Type of variable	DF	Chi squared pr.	R squared	Cumulative R squared
Counseling regarding medical condition or therapeutic regimen doctor only	RIAS task	1	0.004	0.070	0.070
Showing agreement or understanding doctor & patient	RIAS socio-emotional	1	0.006	0.062	0.132
Giving compliments/approvals doctor & patient	RIAS socio-emotional	1	0.028	0.040	0.172
Requesting services patient only	RIAS task	1	0.040	0.034	0.206
Laughing, joking doctor & patient	RIAS socio-emotional	1	0.052	0.031	0.237
Making legitimising statements doctor only	RIAS socio-emotional	1	0.042	0.034	0.271
Relaxed doctor hands (not busy writing, etc.)	MIPS body language	1	0.006	0.061	0.332

R^2 is the proportion of variability in a data set that is accounted for by a statistical model.

Table 4
Examples of verbal interchange coded in RIAS and found to be important for enablement.

Source of communication RIAS code	Type of RIAS variable	Example
Counseling regarding medical condition or therapeutic regimen	Task doctor only	Doctor "...its about getting you to understand yourself...the first exercise I want you to do is..." SN1023 High PEI
Showing agreement or understanding	Socio-emotional	Doctor "it won't make you ignore damaging something at the bottom of your back, which is your fear, isn't it? Patient "It is, yes, 'cos if I see something at work I just go and pick it up..." SN1019 High PEI
Giving compliments/approvals	Socio-emotional	Doctor "Given the anxiety of (lists a sequence of patient events)...you've done remarkably well" SN3060 High PEI
Requesting services	Task patient only	Patient "I've got a bit bronchial I think, I've caught a slight chill, its infected...I'd like something to shift it off my chest...". "its green and infected.. I'd like some Penicillin to shift it off" SN 3070 High PEI
Laughing, joking	Socio-emotional	Patient: "...I don't think its right (Pause) (giggling)" Doctor "I can tell you its not right!" (Patient laughs) SN 1054 High PEI
Making legitimising statements	Socio-emotional	Doctor "Your version of events sounds very plausible" (commenting on patient's feelings) SN 2059 High PEI

Table 5
Cross tabulation of patient centeredness and PEI score.

PEI	High patient-centered (%)	Low patient-centered (%)
High	42 (89%)	10 (24%)
Low	5 (11%)	31 (76%)

Table 6
Cross tabulation of verbal dominance and PEI score.

PEI	Dr dominant (%)	Patient dominant (%)
High	20 (38%)	25 (71%)
Low	33 (62%)	10 (29%)

Chi-square test shows a highly significant relationship (9.58, DF = 1, $p < .01$).

3.4. Global affect

The multivariate logistic regression analysis for enablement as the dependent variable in terms of global affect ratings alone showed that doctor friendliness/warmth (1 DF, 0.018 F pr, 0.046 R^2) and patient empathy (1 DF, 0.002 F pr, 0.076 R^2) were important for predicting enablement. However, this effect was not statistically significant when tested in the overall model with verbal and non-verbal activity.

3.5. Non-verbal communication

The multivariate logistic regression analysis for enablement in terms of body language alone against enablement demonstrated that a relaxed doctor in terms of hand movements with low reading and writing activity were associated with enablement. We also tried to group body language according to mirroring (same score for both participants) and complimentarity (subtracting scores) [50,51], but found no relation to enablement.

4. Discussion and conclusion

4.1. Discussion

4.1.1. Overview of consultation analysis and enablement outcome

A systematic review of doctor–patient communication found that explanation, education, positive reinforcement, empathy, friendliness (amongst others) and open body language were positively associated with health outcomes [52]. We found that patient enablement was facilitated by socio-emotional connection and information exchange related to the patient's agenda. Observable behaviors accounted for up to 33% of the variance of enablement. However the majority of enablement (67%) remains unexplained by aspects of the consultation we were able to observe and label with the selected instruments. Apparently, patient enablement is an outcome measure of consultation quality which captures nuances other than those measured by these frequently used instruments (RIAS and MIPS), especially relational aspects of the interchange. Patient centeredness and verbal dominance were often important for enablement, but not for all patients.

4.1.2. Communication and interactions between patient and doctor important for enablement

The four verbal socio-emotional behaviors associated with enablement in our study indicate agreement or understanding (laughter implying connection and a personal element of recognition). The importance of legitimizing statements, the doctor acknowledging patient's feelings, also supports personal recognition in consultation. Our results emphasize the importance of reciprocity and recognition, and as reported elsewhere [20,53,54] we found supportive positive talk is enabling.

The two verbal tasks associated with enablement (doctors counseling patients and patients explicitly requesting services) relate to agenda closure. The importance of agenda closure for enablement was reinforced by our qualitative analysis [53,54], and concurs with other studies [24].

Other studies have found that medical information affects quality ratings, and that verbal attentiveness is an important socio-emotional variable [24,47].

4.1.3. Patient-centeredness

The hypothesis that higher patient enablement was related to patient-centeredness operationalised as the balance between socio-emotional and biomedical interactions was supported. However, patient enablement embraces a holistic patient-centered definition of consultation quality, and we were mindful of the debate concerning definition and measurement of patient-centeredness, and relating it to outcomes such as enablement [6,29]. By analogy Roter has reported [28] that consultations with a "consumerist" pattern (active patients asking questions and information-giving doctors) scored most highly on patient-centeredness, and also engendered doctor satisfaction. A later study also using RIAS [29] found satisfaction for family physicians was linked to patient-centeredness echoing our findings. We found that 4 socio-emotional codes specifically denoting patient-centeredness were important for enablement, and the other task-related codes associated with enablement can be considered patient-centered as they address the patient's agenda.

4.1.4. Verbal dominance

In most enabling consultations the patient was verbally dominant. This finding suggests that doctors should invite the patient to contribute to the consultation. However, in a substantial proportion of enabling consultations the doctor was dominant, suggesting that this behavior was felt to be appropriate by some patients. Other work has shown that patients vary in their ability and desire to be active partners [55], so a flexible approach optimizes outcome [56,57].

4.1.5. Global affect

Considering global affect alone, a friendly, warm, sympathetic doctor appeared important for enablement which agrees with other studies [29,58]. However this failed to contribute significantly in the final model, in contrast to other work. Empathy has been associated with enablement [18,59,60] but empathic speech was not prominent in the analysis perhaps because it was embedded implicitly elsewhere. Eide et al. [61] has reported that empathy may be channeled into information giving, expressing concern and reassurance, which may have been the case here. Others have found global affect ratings [42] to be powerful predictors of variance [31,44,47]. Our hypothesis (3) that positive global affect would be associated with enablement was not supported, perhaps because coding this domain showed the most variability. In contrast, when studying communication with hypertensive patients, Bensing and Dronkers [47] found that global affect had the highest predictive power for quality, and Cox et al. [31] reported strong associations for liking and friendliness, with understanding and reducing distress.

4.1.6. Non-verbal communication

Relaxed doctor hands, e.g., not busy writing, were related to enablement. Other studies have linked body language with satisfaction [36,38,62] but operationalisation of "desirable" body language remains problematic [52,63], probably because it is so context-dependent and individually specific. This could account for the smaller contribution of body language to variance in our study which meant our hypothesis 5 was not supported. Comparatively few studies relate body language and outcome, but open body language has been linked with rapport and satisfaction [52].

4.1.7. Strengths and limitations

A strength of the study is that findings relate to real-life rather than abstracted simulations, as we studied routine practice capturing a range of patients, problems and enablement outcomes. We dichotomised enablement to produce a binary variable (high or low) to simplify the analysis and interpretation, and allow comparison with our qualitative exploration of these consultations. This could be viewed as a limitation because of the loss of data 'in the middle'. Studies on enablement usually find a negatively skewed distribution, and as we were interested in exploring factors engendering enablement we needed to ensure that we captured high enablement in our data. The qualitative part of the study was investigating potentially contrasting consultation styles and we needed to ensure that we captured the two extreme enablement groups in our data. This allows for maximum variation between scores to be modelled. For this reason we recruited doctors who were skilled in communication in order to 'lift the national ceiling' and ensure consultations with high patient enablement were included. However, even amongst these skilled doctors, we found enablement was highly variable therefore our selected consultations also produced some low-enablement encounters. The case-mix was similar to that reported elsewhere [64] and reliability was comparable to other studies [29,31,65]. Other elements, e.g., age and gender are known to be important but were not addressed in the current study.

This was an exploratory study and we do not know how generalisable our findings are to other settings. Larger studies are needed to test this. We have tried to achieve balance by explicitly preserving the connection between consultations and codes in analysis, rather than opting for more complex transformations which could make interpretation difficult. Frequency of an utterance does not imply utility, and the meaning of a coded utterance may differ according to where it comes in the consultation. We did not test these aspects with our approach. Clearly more research is needed to capture these more subtle aspects of the interaction. Dialogue is fluid, contextual and multi-purpose, and in codification there is an inevitable tension between data capture and these elements. RIAS and MIPS have been extensively used and validated [42,48], and we used them to explore potential synergy between verbal and non-verbal input, but they have the limitations of codification, and possible rater bias. This was ameliorated by keeping to accepted definitions and double-coding. However a new perspective on the analysis may be achieved by considering sequence to explore further the relational interaction between patient and physician and increasing the frequency at which body language is coded as it was coded with much less frequency throughout the consultation compared with the verbal coding of each utterance. This approach may reveal greater nuances in behavior during a consultation.

4.2. Conclusion

Enablement is facilitated by appropriate information exchange (e.g., closing patient agendas), personal connection (embodied in agreements, approvals, laughter, and legitimization), an engaged patient and an attentive doctor. However, these observable verbal and non-verbal aspects account for only 33% of the variance of enablement. We therefore conclude that patient enablement is affected by more elements of the interpersonal exchange than are measurable by these instruments. Further research to clarify the unexplained variance in enablement is needed.

4.3. Practice implications

Our study suggests that patient enablement can be enhanced by doctors addressing patient agendas and employing behaviors that facilitate personal connection such as agreements, approvals and legitimisation.

Conflict of interest

None.

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We confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

Ethical permission was granted by the appropriate local ethics committee.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.pec.2011.04.019.

References

[1] Laine C, Davidoff F, Lewis CE, Nelson EC, Nelson E, Kessler RC, et al. Important elements of outpatient care: a comparison of patients' and physicians' opinions. Ann Intern Med 1996;125:640–5.
[2] Zandbelt LC, Smets EM, Oort FJ, Godfried MH, de Haes HC. Satisfaction with the outpatient encounter: a comparison of patients' and physicians' views. J Gen Intern Med 2004;19:1088–95.
[3] GMC. Good Medical Practice. Updated 2009. Available from: http://www.gmc-uk.org/guidance/good_medical_practice/GMC_GMP.pdf [accessed 14.02.11].
[4] Makoul G. Essential elements of communication in medical encounters: the Kalamazoo consensus statement. Acad Med 2001;76:390–3.
[5] Stewart M, Brown J, Weston W, McWhinney I, McWilliam C, Freeman T. Patient-centred medicine transforming the clinical method, second ed, Abingdon: Radcliffe Medical Press Ltd.; 2003.
[6] Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. Soc Sci Med 2000;51:1087–110.
[7] Lazarus R. Patterns of adjustment. New York: McGraw-Hill; 1976.
[8] Cox T. Stress. London: Macmillan; 1981.
[9] Howie J, Heaney D, Maxwell M. Measuring quality in general practice. Occas Pap R Coll Gen Pract 1997;75:32.
[10] Howie J, Heaney D, Maxwell M, Walker J, Freeman G, Rai H. Quality at general practice consultations: cross-sectional survey. Brit Med J 1999;319:738–43.
[11] Mead N, Bower P, Roland M. Factors associated with enablement in general practice: cross-sectional study using routinely collected data. Br J Gen Pract 2008;58:346–52.
[12] Pawlikowska TRB, Walker JJ, Nowak PR, Szumilo-Grzesik W. Patient involvement in assessing consultation quality: a quantitative study of the patient enablement instrument in Poland. Health Expect 2010;13:13–23.
[13] Ozvacić Adzić Z, Katić M, Kern J, Lazić D, Cerovecki Nekić V, Soldo D. Patient, physician, and practice characteristics related to patient enablement in general practice in Croatia: cross-sectional survey study. Croat Med J 2008;49:813–23.
[14] Jaturapatporn D, Dellow A. Does family medicine training in Thailand affect patient satisfaction with primary care doctors? BMC Fam Pract 2007;8 (March 29).
[15] Baker R. Development of a questionnaire to assess patients' satisfaction with consultations in general practice. Br J Gen Pract 1990;40:487–90.
[16] Wolf M, Putnam S, James S, Stiles W. The Medical Interview Satisfaction Scale: development of a scale to measure patient perceptions of physician behaviour. J Behav Med 1978;1.
[17] Howie J, Heaney D, Maxwell M, Walker J. A comparison of a patient enablement instrument (PEI) against two established satisfaction scales as an outcome measure of primary care consultations. Fam Pract 1998;15:165–71.
[18] Mercer S, Reilly D, Watt G. The importance of empathy in the enablement of patients attending the Glasgow Homoeopathic Hospital. Br J Gen Pract 2002;52:901–5.
[19] Mercer S, Watt G. The inverse care law: clinical primary care encounters in deprived and affluent areas of Scotland. Ann Fam Med 2007;5:503–10.
[20] Little P, Everitt H, Williamson I, Warner G, Moore M, Gould C, et al. Observational study of effect of patient centredness and positive approach on outcomes of general practice consultations. Brit Med J 2001;323:908–11.
[21] Skelton J. What is patient centredness? Brit Med J 2001;322:1544.
[22] Mead N, Bower P. Measuring patient-centredness: a comparison of three observation-based instruments. Patient Educ Couns 2000;39:71–80.
[23] DeCoster J, Iselin A, Gallicci M. A conceptual and empirical examination of justifications for dichotomozation. Psychol Methods 2009;14:349–66.
[24] Roter D, Hall J. Doctors talking with patients/patients talking with doctors. Improving communication in medical visits, 2nd revised ed, Westport: Praeger Publishers Inc., U.S.; 2006.
[25] Markey P, Funder D, Ozer D. Complementarity of interpersonal behaviors in dyadic interactions. Pers Soc Psychol Bull 2003;29:1082–90.
[26] Bertakis K, Roter DSMP. The relationship of physician medical interview style to patient satisfaction. Fam Pract 1991;32:175–81.
[27] Kiesler D, Auerbach S. Integrating measurement of control and affiliation in studies of physician–patient interaction: the interpersonal circumplex. Patient Educ Couns 2003;57:1707.
[28] Roter D, Stewart M, Putnam S, Lipkin M, Stiles W, Inui TS. Communication patterns of primary care physicians. J Amer Med Assoc 1997;277:350–6.
[29] Paasche-Orlow M, Roter D. The communication patterns of internal medicine and family practice physicians. J Am Board Fam Med 2003;16:485–93.
[30] Di Blasi Z, Harkness E, Ernst E, Georgiou A, Kleijnen J. Influence of context effects on health outcomes: a systematic review. Lancet 2001;357:757–62.
[31] Cox E, Smith MA, Brown R, Fitzpatrick M. Assessment of the physician–caregiver relationship scales (PCRS). Patient Educ Couns 2008;70:69–78.
[32] Ong L, Visser M, van Zuuren F, Rietbroek R, Lammes F, de Haes H. Cancer patients' coping styles and doctor patient communication. Psycho-oncology 1999;8:155–66.
[33] Mehrabian A. Communication without words. Psychol Today 1968;2:52–5.
[34] Gorawara-Bhat R, Cook M, Sachs G. Non-verbal communication in doctor–elderly patient transactions (NDEPT): development of a tool. Patient Educ Couns 2007;66:223–34.
[35] Roter D, Frankel R, Hall J, Sluyter D. The expression of emotion through nonverbal behaviour in medical visits: mechanisms and outcomes. J Gen Intern Med 2006;21:S28–34.
[36] Hall J, Harrigan J, Rosenthal R. Nonverbal behaviour in clinician–patient interaction. Appl Prev Psychol 1995;4:21–37.
[37] Di Matteo M, Taranta A, Friedman H, Prince L. Predicting patient satisfaction from physician's non-verbal skills. Med Care 1980;18:376–87.
[38] Griffin C, Wilson J, Langer S, Haist S. House staff nonverbal communication skills and standardized patient satisfaction. J Gen Intern Med 2003;18:170–4.
[39] Lam CLK, Yuen NYK, Mercer SWWW. A pilot study on the validity and reliability of the Patient enablement Instrument (PEI) in a Chinese population. Fam Pract 2010;27:395–403.
[40] Pawlikowska T, Nowak P, Szumilo-Grzesik W, Walker J. Primary care reform: a pilot study to test the evaluative potential of the patient enablement instrument in Poland. Fam Pract 2002;19:197–201.
[41] Cooper LA, Roter DL, Johnson RL, Ford DE, Steinwachs DMNRP. Patient-centered communication, ratings of care, and concordance of patient and physician race. Ann Intern Med 2003;139:907–15.
[42] Roter D, Larson S. The Roter interaction analysis system (RIAS): utility and flexibility for analysis of medical interactions. Patient Educ Couns 2002;46:243–51.
[43] Roter D, Larson S. 2008. http://www.rias.org/.in [accessed 16.02.11].
[44] Cooper L, Roter D, Johnson R, Ford D, Steinwachs D. Patient-centered communication: ratings of care, and concordance. Ann Intern Med 2003;139:907–15.
[45] Neal R, Ali N, Atkin K, Allgar V, Ali S, Coleman T. Communication between South Asian patients and GPs: comparative study using the Roter interactional analysis system. Br J Gen Pract 2005;56:869–75.
[46] Roter D. Roter interaction analysis system – a handbook; 2006.
[47] Bensing J, Dronkers J. Instrumental and affective aspects of physician behaviour. Med Care 1992;30:283–97.
[48] Ford S, Hall A, Ratcliffe D, Fallowfield L. The medical interaction process system (MIPS): an instrument for analysing interviews of oncologists and patients with cancer. Soc Sci Med 2000;50:553–66.
[49] Mehrabian A. Nonverbal communication. New York: Aldine–Atherton; 1972.
[50] Street R, Buller D. Nonverbal response patterns in physician–patient interactions: a functional analysis. J Nonverbal Behav 1987;11:234–53.
[51] Tiedens L, Jimenez M. Assimilation for affiliation and contrast for control: complementary self-construals. J Pers Soc Psychol 2003;85:234–53.
[52] Beck RS, Daughtridge R, Sloane PD. Physician–patient communication in the primary care office: a systematic review. J Am Board Fam Med 2002;15:25.
[53] Pawlikowska T, Griffiths F, van Dalen J, van der Vleuten C. The patients' perspective on enabling medical consultations: a qualitative study, submitted for publication.
[54] Pawlikowska T, Griffiths F, van Dalen J, van der Vleuten C. The doctors' perspective on enabling medical consultations (presented AACH Miami 2009 F4741), submitted for publication.
[55] de Haes H. Dilemmas in patient centeredness and shared decision making: a case for vulnerability. Patient Educ Couns 2006;62:291–8.
[56] Graugaard P, Eide H, Finset A. Interaction analysis of physician–patient communication: the influence of trait anxiety on communication and outcome. Patient Educ Couns 2003;49:149–56.
[57] Schmid Mast M, Hall J, Roter D. Caring and dominance affect participants' perceptions and behaviors during a virtual medical visit. J Gen Intern Med 2008;23:523–7.
[58] Mercer S, Reynolds W. Empathy and quality of care. Br J Gen Pract 2002;52: S9–13.
[59] Mercer S, Howie J. CQI-2 – a new measure of holistic interpersonal care in primary care consultations. Br J Gen Pract 2006;56:262–8.
[60] Price S, Mercer S, MacPherson H. Practitioner empathy, patient enablement and health outcomes: a prospective study of acupuncture patients. Patient Educ Couns 2006;63:239–45.
[61] Eide H, Frankel R, Haaversen A, Vaupel K, Graugaard P, Finset A. Listening for feelings: identifying and coding empathic and potential empathic opportunities in medical dialogues. Patient Educ Couns 2004;54:291–7.
[62] Di Matteo M, Hays R, Prince L. Relationship of physician's non-verbal communication skills to patient satisfaction, appointment noncompliance, and physician workload. Health Psychol 1986;5:581–94.
[63] Schmid Mast M. On the importance of non-verbal communication in the physician–patient interaction. Patient Educ Couns 2007;67:315–8.
[64] Mead N, Bower P, Hann M. The impact of general practitioners' patient-centredness on patients' post-consultation satisfaction and enablement. Soc Sci Med 2002;55:283–99.
[65] Beach M, Roter D, Rubin H, Frankel R, Levinson W, Ford D. Is physician self-disclosure related to patient evaluation of office visits? J Gen Intern Med 2004;19:905–10.