



'How do you know what Aunt Martha looks like?' A video elicitation study exploring tacit clues in doctor–patient interactions

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Abstract

Rationale and objectives Theory suggests that tacit clues inform clinical judgements, but the prevalence and role of tacit clues during clinical interactions is unknown. This study explored whether doctors and patients identify information likely to be tacit clues or judgements based on tacit clues during health maintenance examinations.

Methods Qualitative analysis of video elicitation interview transcripts involving 18 community-based primary care doctors and 36 patients. Outcomes were description and analysis of tacit clues and judgements based on tacit clues mentioned by participants.

Results A total of 57 references to tacit clues and 53 references to judgements based on tacit clues were identified from patient and doctor transcripts. Non-verbal behaviours comprised the most common category of tacit clues (53% of doctor comments; 42% of patient comments). Patients mostly discussed judgements based on tacit clues that related to the doctor–patient relationship. Doctors discussed actively using non-verbal behaviours to provide patients with tacit clues about the doctor–patient relationship. They also mentioned tacit clues that informed medical judgements and decision making. Gestalt judgements based on tacit clues were common (33% of doctor comments). Several participants identified instances in which they had difficulty articulating their rationale for specific judgements. Doctors varied widely in how frequently they mentioned tacit clues.

Conclusion During video elicitation interviews, patients and doctors identified tacit clues and judgements based on these clues as playing a role during health maintenance examinations. Future research should further elucidate the role of tacit clues in medical judgements and doctor–patient relationships.

Introduction

Decades of research on clinical judgement [1–4] have shown that doctors use a wide array of cognitive strategies during clinical interactions, limiting the effectiveness of one-size-fits-all interventions [5]. Most of these strategies fall along a spectrum with analytic, deliberative approaches on one end and faster, more intuitive strategies on the other [6–8]. This article investigates whether one component of these intuitive strategies, 'tacit clues', may influence medical judgements and decisions during doctor–patient interactions. Tacit clues, a concept based on Michael Polanyi's theory of tacit knowing [9], are data that doctors or patients rely on to reach judgements or conclusions during clinical interactions, but that doctors or patients do not directly notice during interactions themselves. Understanding the

role of tacit clues during clinical interactions may clarify the links between doctors' and patients' deliberative and heuristic strategies [10,11] and so inform strategies for implementing interventions tailored to specific cognitive strategies and patient preferences.

Tacit clues are related to other kinds of 'non-analytic' or intuitive reasoning strategies in clinical medicine that have been described within different research disciplines. For example, the clinical expertise literature is built around the insight that when making judgements clinicians rely more on pattern recognition (for diagnosis) and technical skills (during procedures) than on analytic reasoning as they gain more experience [12,13]. Similarly, work by behavioural psychologists has demonstrated that as doctors gain more experience, they rely more on cognitive shortcuts or heuristics for clinical problem solving and risk

assessments, even though these strategies sometimes mislead because they are based on faulty statistical reasoning [14]. On the other hand, some kinds of judgements, especially those related to emotional or relational aspects of communication, can be made reliably based on very short segments of audio- or video-recorded doctor–patient interactions [15]. Communication scientists have demonstrated how doctors' non-verbal communication during clinical interactions unconsciously influences patients' perceptions and emotions and vice versa during clinical interactions [16,17]. Finally, neuroscientists have begun to work out an anatomic basis for the reflexive or subconscious judgements that often underlie medical judgements, and some clinicians have attempted to bring these different facets of intuitive reasoning into a unified framework [8,18].

The theory behind tacit clues in medicine has been described in detail previously [10,19,20]. The two most commonly cited examples of tacit clues are non-verbal behaviours and instances where patients or doctors make gestalt judgements or assessments without being able to precisely identify their underlying reasoning. Doctors and patients are often not explicitly aware of non-verbal behaviours during interactions even though they clearly affect patients' and providers' thoughts and actions [16,21]. In these instances non-verbal behaviours function as tacit clues for judgements. Doctors and patients often have difficulty explaining or identifying the reasons for specific judgements because during an interaction they appropriately focus on making decisions rather than on their reasoning processes [22]. In these instances judgements for which doctors or patients cannot identify or have difficulty identifying their reasoning are thought to be based on tacit clues.

For example, doctors are likely to entertain the diagnoses of depression or diabetes in a patient who presents with weight gain and decreased libido. Doctors are unlikely to consider Cushing syndrome, a much rarer condition. Cushing syndrome often goes undiagnosed because its manifestations – weight gain, central obesity, high blood pressure, fatigue – are common and non-specific. A doctor who decides to test someone for Cushing syndrome may have difficulty articulating precise reasons for his actions because he appropriately focuses on the decision to test rather than on how particular aspects of the patient's clinical picture affect that decision [22]. The doctor likely relies on several sources of information when judging whether to test someone for Cushing syndrome. For example, the decision is influenced by whether the patient's face is round or ruddy enough to suggest a 'Cushingoid appearance', whether another explanation for weight gain and depression (e.g. recent job loss) is present, or whether the patient's obesity and high blood sugar were diagnosed simultaneously or at different points in time. The doctor is likely to consider some of these factors explicitly and others only tacitly. For example, he may act because he explicitly recognizes that the patient appears Cushingoid. Alternatively, he may be aware that the patient seems somehow different from typical obese diabetic patients without explicitly recognizing the reasons for that judgement. The patient's body habitus and round face may serve as tacit clues supporting a decision to test for Cushing syndrome. Or, the patient's blunted affect and life stressors may serve as tacit clues pointing to the diagnosis of depression, in which case the doctor would explore depression rather than considering Cushing syndrome.

Two features make the concept of tacit clues a particularly useful lens for evaluating medical judgements and decision making. Tacit clues are not confined to specific types of content. Any kind of knowledge – from judgements about emotions to assessments of medical prognosis – can function as a tacit clue if the doctor or patient takes it into account indirectly when forming an explicit judgement or assessment. In addition, the theory underlying tacit clues was developed by a medically trained scientist to explain the processes underlying scientific problem solving [23,24]. The concept of tacit clues is thus more likely to resonate with clinicians' own understanding of clinical reasoning than would related concepts developed in other disciplines.

Tacit clues may lead to more or less accurate judgements or decisions, but no one has evaluated whether tacit clues play a role during doctor–patient interactions. Tacit clues are difficult to evaluate, because by definition patients and doctors only notice them indirectly. Previous work, however, suggests that direct observation of clinical interactions may facilitate explicit identification of information that functions tacitly for the participants during an interaction [19,20]. As a first step therefore we conducted a qualitative study to evaluate whether doctors and patients identify information that might comprise tacit clues or judgements based on tacit clues during doctor–patient interactions for health maintenance examinations (HMEs). We evaluated transcripts of video elicitation interviews with patients and doctors using video-recorded HMEs in which they participated. We chose HMEs because they are a common type of outpatient visit [25] and are too brief for doctors to address all recommended preventive services [26]. HMEs therefore require multiple decisions and judgements about which topics to prioritize. Insight into how doctors and patients make decisions during HMEs will inform efforts to improve primary care efficiency without sacrificing effective communication or patient-centred care.

Based on previous literature on the kinds of information that commonly function as tacit clues [10,19,20], we hypothesized that during elicitation interviews participants would mention discussions of non-verbal behaviours that influenced clinical judgements, and that these non-verbal behaviours likely functioned as tacit clues during interactions. We also hypothesized that participants would mention judgements based on tacit clues, and that these judgements would be manifest as gestalt judgements and judgements for which participants had difficulty articulating or were unable to articulate their underlying reasoning.

Methods

We used data from an IRB-approved study of decision making in primary care. The study used video elicitation, a method in which participants are interviewed about an event while watching and reflecting on a video-recording of that event [27,28]. Doctors and patients were interviewed separately about the medical decisions they made during an HME while watching a video recording of that visit.

Data were collected from 72 video elicitation interviews involving 18 doctors and 36 patients (two per doctor). Doctor participants were recruited from six different practices. Sites were chosen to include urban, suburban and rural community-based primary care practices; university-affiliated and private practices; and internal medicine and family doctor practices in south-eastern

Michigan in the USA. A modified snowball sampling technique was used to identify practices interested in participating. Once a practice agreed to participate, doctors in that practice were asked to participate in the study. Doctor eligibility criteria were being a community-based general internist or family doctor; willingness to allow one's patients to be recruited; and willingness to be interviewed and be audio- and video-recorded.

Patient eligibility criteria were being 18 years of age or older; having an HME scheduled with a participating doctor; willingness to be interviewed and audio- and video-recorded; and ability to provide informed consent. Clinic visits involving residents, fellows or medical students were excluded. There were no upper age limits for patients' eligibility. Patients scheduled for an HME with a participating doctor were recruited in the clinic waiting room using maximum variation sampling across practices based primarily on race, age, gender and (for doctors only) years in practice and specialty [29,30]. Patient participants were paid \$50.

Video recordings of HMEs were made using a digital video camera placed in an unobtrusive area of the examination room. Shortly after each HME, patients and doctors participated in separate video elicitation interviews. One or two interviewers played the video for each participant. Using events in each video, interviewers actively probed participants about their decisions regarding prioritization of preventive services using semi-structured, open-ended questions. Interviewers and participants were both asked to pause the recording whenever they wanted to make a comment or ask a question about preventive services or the interaction more generally. Interviewers were trained to explore participants' attitudes towards preventive services and how they prioritize, implement or act on particular recommendations. Interviewers' questions were revised to explore new hypotheses that emerged from iterative analysis of initial data. Elicitation interviews were audio-recorded and transcribed using a standard protocol [31]. The primary unit of analysis for this study was the transcripts from participants' elicitation interviews. Interviews from doctors and patients were evaluated separately.

We used a template analysis approach [32], beginning with a coding scheme comprising mentions of tacit clues (i.e. non-verbal behaviours) and judgements based on tacit clues (i.e. gestalt judgements and judgements for which participants had difficulty or were unable to articulate their underlying reasoning). We used a taxonomy of non-verbal behaviours from a major textbook on this topic [33] as coding categories (Table 1). All transcripts were reviewed and coded by the primary author. A second author (JHF) then independently reviewed and coded all transcript excerpts identified by the primary author. Codes were modified through a constant comparative approach [34] during both initial coding and during discussion between the two coders to create a coding scheme that best accounted for the data. Disagreements were reconciled through discussion and consensus [35] with adjudication by the third author (MDF) when necessary. Simple inter-coder agreement before reconciliation was 90% for the patient excerpts and 79% for the provider excerpts.

During transcript review, four additional categories were identified. Two – gender and behavioural patterns – were tacit clues. Two – statements about patients' being comfortable with or being made to feel comfortable by their doctors, and statements about whether doctors took time with patients – were judgements based on tacit clues. Table 3 shows the final coding categories used in the analysis.

Table 1 Categories of non-verbal behaviours*

Category of non-verbal behaviour	Example
Environment	Lighting, physical setting
Proxemics	Distance between people, body orientation
Physical characteristics	Height, clothing, attractiveness
Gesture/body language	Pointing, shrugging shoulders, leaning forward
Touch	Hand on someone's shoulder, touching oneself
Facial expression	Smile, expression of surprise
Gaze/eye contact	Mutual gaze, looking at person vs. looking at floor
Vocal cues	Voice tone, speech rate, sigh

*Adapted from Knapp and Hall [33].

Table 2 Characteristics of doctor and patient participants

Characteristic	Doctors (<i>n</i> = 18)	Patients (<i>n</i> = 36)
Mean participants per practice (range)	3 (1–4)	6 (2–8)
Male (%)	14 (78)	14 (39)
Mean age in years (range)	40 (33–50)	47 (19–77)
Race/ethnicity		
White	15	28
African American	1	5
American Indian	0	1
Asian	1	0
Hispanic	1	0
Doctor specialty		
Internal medicine	9	–
Family practice	9	–

Results

Participant demographics are described in Table 2. Participants made 57 references to tacit clues and 53 references to judgements based on tacit clues (Table 3). Non-verbal behaviours were the most common category of tacit clue for both doctors and patients. Doctors most often mentioned gesture/body language, vocal cues and gaze/eye contact. Patients most often mentioned physical appearance, gesture/body language and vocal cues. For judgements, doctors most often mentioned gestalt judgements without specifying a basis for their assessment; patients most often mentioned judgements about the doctor making them feel comfortable and judgements about the doctor taking time with or not rushing them. Examples of these common coding categories are shown in Table 4. Participants' comments fell into two broad categories: statements relating to the doctor–patient relationship, and statements relating to judgements informing medical decision making.

Patient interviews

Patients' comments were evenly distributed (median 1, range 0–6 per patient); two-thirds of patients made at least one comment. Patients' comments all concerned the doctor–patient relationship.

Discussion of non-verbal behaviour was almost always combined with judgements about whether doctors took time with patients or whether patients felt comfortable with their doctors. In this example gesture/body language supports a judgement that the doctor is taking time with the patient:

Table 3 Frequency of coded statements*

Coding category	Doctors	Patients
Tacit clues		
Gesture/Body language	11	6
Vocal cues	7	6
Gaze/eye contact	6	1
Physical appearance	3	8
Behavioural pattern [†]	3	0
Facial Expression	2	2
Gender [‡]	1	1
Environment	0	0
Proxemics	0	0
Touch [§]	0	0
Total tacit clues	33	24
Judgements based on tacit clues		
Gestalt judgement – no basis [¶]	13	7
Gestalt judgement – unsure ^{**}	5	1
Comfortable ^{††}	3	13
Taking time ^{‡‡}	1	10
Total judgements	22	31
Total coded statements	55	55

*Statements that fit into two categories were counted twice, once in each category. No comments were made about the non-verbal categories of environment, proxemics or touch.

[†]Specific behavioural patterns that influence judgements, such as frequency of visits.

[‡]Participant's gender as an influence on judgements.

[§]Touching related to physical examination was excluded.

[¶]Discussion of judgements that were not attributed to specific non-verbal behaviours, behavioural patterns, or to a participant's gender.

**Instances where participants either stated they were unsure of their reasons for making a particular judgement or stated that a particular judgement depended on information they could not precisely identify.

^{††}Statements about the doctor making the patient feel comfortable.

^{‡‡}Statements about taking time with or not rushing patients.

I never felt rushed. . . . And I didn't feel like she was like looking at – I never saw her look at her watch. . . . I never that [sic] she was thinking oh this has gotta be done, I gotta go to the next patient. I was – No I was real happy with her. 'Cause sometimes you can see the doctors like getting impatient or whatever.

Four patients commented on whether the presence or absence of a white lab coat affected their feelings about their doctor after being asked about the white coat by interviewers. Several patients mentioned judgements about their doctor without giving specific reasons for those judgements. For example, 'I feel very comfortable with how she listened to me', or 'You know, he's my kind of mild mannered, very, he'll put you at ease.' When asked to elaborate, patients often had difficulty giving more detail:

Interviewer: Is there anything in particular about the way he communicates?

Patient: It's just hard to explain, I just seem to get along with him pretty well.

A few comments about patients' own physical appearance and non-verbal behaviours did not relate to the doctor–patient relationship. Several noted the novelty of watching themselves on screen, and a few patients were surprised by aspects of their own body language or speaking style. For example, 'God, I didn't realize I talk with my hands so much.'

Doctor interviews

Doctors' comments were unevenly distributed (median 2, range 0–13 per doctor). Fourteen of 18 doctors made at least one comment and five doctors accounted for 64% of all comments. Doctors' comments dealt with both the doctor–patient relationship and medical decision making. Most doctor comments about the doctor–patient relationship involved actively considering non-verbal behaviour to develop and maintain good rapport:

I have to assess what I have to do differently to establish a good rapport, and um and so I – my introduction may be slightly different. . . . My facial expressions, my response to his comments, you know . . . should I be laughing at appropriate times to encourage him to tell me things?

Doctors also commented on being aware of how patients interpreted their non-verbal behaviours. They often mentioned

Table 4 Examples of commonly mentioned tacit clues and judgements based on tacit clues

Coding category	Example
Tacit clues	
Gesture/Body language	'You know, and sitting down and having them explaining it, and not explain in doctor terms, but in my terms. . . . Something I can understand.'
Physical appearance	'[the patient] in a biker shirt you know with his boots and his, and his beard and that look that – that he's ah, he's a skeptic . . . he's here reluctant – I gotta prove myself to him, every point I make has to have some basis, and something he can understand.'
Vocal cues	'She's also the kind of [patient] that if um you um try to cut her short she'll make it harder for ya, so you kinda let her talk a little bit. . . . if I cut her short she'll kinda raise her voice and keep talking kind of thing.'
Judgements based on tacit clues	
Gestalt – no basis mentioned	'She was very jittery.'
Comfortable	'See he sits there, and he just talks to me like there's nothing special going on, you know, and he makes me feel comfortable. That's why I like him.'
Taking time	'He's a very conscientious doctor. He doesn't hur- hurry you in and hurry you out.'

consciously using non-verbal behaviours as a way to provide tacit clues *for patients* that patients would notice indirectly when assessing the doctor–patient relationship. For instance, one doctor mentioned that ‘sitting down and having your eyes at the level at or below the patient was so important’ because it allowed him to ‘convey an honest position of humility as opposed to a position of superiority’.

One doctor was particularly attuned to how non-verbal behaviours affected the doctor–patient relationship and provided tacit clues for patients; this doctor made nearly one-fourth of all doctor comments about non-verbal behaviours. This participant noted ‘I’ll use my body a lot, I mean, I’m pretty focused about it’ and ‘you’re also going to see ability to steer the conversation. I mean you can do it non-verbally’. These comments suggested that this doctor had given the role of non-verbal behaviour in doctor–patient interactions considerable thought:

... see how I slow down the pace of the patient. You ... find yourself doing that as you read the patient. You have to pace the dialogue to the patient.

It’s nice to see that I don’t look rushed in the room. Although in my mind, I’m whirling. Okay, so I sit down, I try to relax and look relaxed.

This [video] is interesting, because I’m, I’m even though she’s talking I’m not looking at her, I’m, I’m semi-listening to her. Which is good feedback for me because I should probably kind of probably look at her face more ... she knows that I’m paying attention, I’m nodding and I’m okay with that, but I should probably look at her more.

Comments by other doctors often focused on how tacit clues influenced their medical judgements. For example: ‘There’s usually some concern that [the patient is] wondering about. ... and they won’t come out and tell you that ... you got [to] dig at it. ... I mean you can feel it if there’s something there’, or ‘when you have a patient that comes in and everything is wrong with her, so that to me is a red flag to like start looking for evidence of depression’. Several doctors mentioned that they commonly relied on gestalt judgements about patients. Such judgements may be of a patient’s mental state – ‘if someone’s horribly depressed you can tell’ – or physical health – ‘It’s mostly looking at the patient. Do they look healthy?’ Doctors typically discussed these judgements in general, and rarely mentioned specific decisions during the video-recorded encounter that were influenced by tacit clues or judgements based on tacit clues.

Doctors did identify instances in which they were unsure of or could not articulate their reasoning process: ‘I think I kinda sensed, ya, I mean he’s kinda a quiet guy and I don’t know, maybe I just interpret that as he’s listening and wants more information’, or ‘I probably cue on some things I’m not even conscious of’. One doctor discussed how his decision to defer addressing a patient’s depression depended on important but hard-to-articulate clues:

I know the first place that she’ll stop [if she has real emotional trouble] will be [my office] and that’s probably a more appropriate time to try to do something with her depression ... and you go well that’s pretty smug, ... get off your high horse Dr ____, how do you know all this stuff? Well because I know. I mean, it’s here. How do you know what Aunt Martha looks like? Because you know what she looks like, you’ve seen her lots of times. I can’t describe every

detail as to why I know that, but I’ve been down the road long enough to know ...

This doctor explicitly recognizes that he makes judgements based on tacit clues; that is, clues he recognizes indirectly but cannot articulate, and uses the analogy of facial recognition – one of Polanyi’s paradigmatic examples of tacit knowing [9] – to emphasize his point.

Discussion

These results demonstrate that during video elicitation interviews of HMEs both doctors and patients identified tacit clues as well as judgements based on tacit clues. Non-verbal behaviour was the most common category of tacit clue mentioned by both patients and doctors. The number of tacit clues and judgements identified per interview was relatively low.

Patients and doctors not surprisingly discussed tacit clues and judgements based on tacit clues very differently. Patients’ comments almost all related to how they relied on tacit clues to establish and assess the doctor–patient relationship. Patients were very attuned, for example, to body language that suggested a doctor was pressed for time. Doctors, on the other hand, often discussed information, especially non-verbal behaviours, that they deliberately employed as tacit clues for patients in order to influence patients’ assessments of the doctor–patient relationship. Several doctors adjusted their posture or speech to improve rapport or communication, for example, and patients’ comments suggest that during video elicitation interviews patients did recognize these tacit clues as influencing how they judged the doctor–patient relationship. Doctors also discussed how judgements based on tacit clues affected their medical decision making, but made very few comments about the kinds of medical decisions and judgements that were influenced by tacit clues or judgements based on tacit clues. The judgements doctors did mention mostly involved judgements about patients’ emotional or psychological states rather than decisions about medical management or decisions about specific preventive services.

One important finding was the uneven distribution of doctors’ comments about tacit clues and judgements based on them. The finding that many doctors made infrequent or no reference to tacit clues is consistent with the definition of tacit clues, which tend to be overlooked because they are not noticed directly. One possible explanation is that doctors have different levels of sensitivity to tacit clues. This hypothesis would be consistent with existing research, demonstrating that doctors have different levels of non-verbal sensitivity (measured by their ability to recognize people’s emotions from video clips) [36,37]. Some doctors and patients thus likely have more insight into the role of tacit clues than others. The doctor who was conscious of providing tacit clues to patients had particularly sophisticated insight into how tacit clues could function in the doctor–patient relationship.

Another important finding was that many participants had difficulty articulating specific reasons for their judgements. Doctors sometimes had difficulty articulating how they judged whether a patient was depressed, and patients sometimes had difficulty explaining why they felt comfortable with their doctors. These results, which are consistent with our initial hypothesis, suggest that many judgements depend on tacit clues in ways that are taken for granted and hard to specify. The question ‘Is my patient sick?’

is analogous to the question ‘How do you know what Aunt Martha looks like?’ In both cases, the participant can be fairly confident about his ability to recognize a sick patient or Aunt Martha, but has difficulty articulating the information and tacit clues that make this recognition possible. This study did not address whether relying on tacit clues led to more or less accurate judgements or to better or worse medical decisions, but only whether participants recognized tacit clues or judgements based on tacit clues as important during HMEs.

Our study has several limitations. It is an exploratory analysis that illustrates the types of tacit clues that doctors’ and patients’ rely on during interactions and the presence of judgements based on those clues. Our study was not designed to test specific hypotheses about how tacit clues affect medical decision making. In addition, the elicitation interviews were not designed specifically to identify tacit clues and so interviewers did not, for example, prompt participants to elaborate further when they reported difficulty articulating reasons for particular actions or judgements. The interviews were, however, designed to evaluate decision-making strategies, so participants’ comments are likely a reasonable reflection of the role tacit clues play during clinical interactions. We did not have enough data to determine whether the number of tacit clues identified by doctors during elicitation interviews was due to the doctor alone or to a specific doctor–patient dyad, except in the case of the outlier doctor.

While our results suggest that video elicitation is a promising method for prompting participants to explicitly identify tacit clues that inform medical judgements, our study did not compare the utility of this method to other approaches such as traditional interviews, ethnography or focus groups. Our finding that many doctors made infrequent or, in some cases, no reference to tacit clues or judgements based on tacit clues may be an artefact of the video elicitation method. An important next step would be to compare video elicitation with these more traditional knowledge elicitation methods in order to determine effective methods for clarifying the role of tacit clues in medical judgements, and in particular for determining whether video elicitation prompts participants to recognize explicitly clues that are not explicitly identified using other methods.

Our results show that tacit clues play a role in many judgements during HMEs, and that some of these clues can be identified using video elicitation interviews. Neither doctors nor patients always fully appreciate how or why they make certain judgements in the examination room, and doctors vary substantially in how often they recognize the role of tacit clues during clinical interactions. HMEs involve common but important decisions that are frequently complicated, because they require prioritizing competing demands while maintaining relationships over time. If patients and doctors depend on tacit clues for judgements during HMEs, then they also likely depend on tacit clues during other kinds of clinical interactions.

Methods such as video elicitation that involve direct observation of clinical interactions can complement traditional approaches for evaluating clinical judgements. These methods can inform interventions designed to improve both medical decision making and the doctor–patient relationship by providing a more complete understanding of the kinds of information – tacit and explicit, accurate and misleading – on which doctors and patients depend during clinical interactions.

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