

The nature of medical evidence and its inherent uncertainty for the clinical consultation: qualitative study

Frances Griffiths, Eileen Green, Maria Tsouroufli

Abstract

Objective To describe how clinicians deal with the uncertainty inherent in medical evidence in clinical consultations.

Design Qualitative study.

Setting Clinical consultations related to hormone replacement therapy, bone densitometry, and breast screening in seven general practices and three secondary care clinics in the UK NHS.

Participants Women aged 45-64.

Results 45 of the 109 relevant consultations included sufficient discussion for analysis. The consultations could be categorised into three groups: focus on certainty for now and this test, with slippage into general reassurance; a coherent account of the medical evidence for risks and benefits, but blurring of the uncertainty inherent in the evidence and giving an impression of certainty; and acknowledging the inherent uncertainty of the medical evidence and negotiating a provisional decision.

Conclusion Strategies health professionals use to cope with the uncertainty inherent in medical evidence in clinical consultations include the use of provisional decisions that allow for changing priorities and circumstances over time, to avoid slippage into general reassurance from a particular test result, and to avoid the creation of a myth of certainty.

Introduction

Clinicians have access to a growing body of good clinical research evidence informing them about the effectiveness of many medical interventions. However robust the research, clinicians face the dilemma of applying this evidence to individual patients.¹ This is the uncertainty inherent in the nature of medical evidence. For example, randomised controlled trials of hormone replacement therapy² report on the number of extra breast cancers identified in a large number of women receiving treatment compared with those not receiving treatment, but they cannot tell us which women will develop the extra cancers. This dilemma between the nature of medical evidence and individual patient care is central to medicine's history and will not disappear, as they are essential to each other. Diseases always manifest themselves in patients' bodies and minds, and in seeking to understand, treat, and predict the outcome of disease, clinicians need to move their focus from the individual to more generalised research.³

Clinicians recognise this dilemma and have reflected on this in relation to their clinical practice⁴ and the need for research methods that give more attention to the particular rather than to the general.⁵ We examined how health professionals talk to patients about this uncertainty, and we provide a framework for

reflecting on how they handle the dilemma of applying clinical evidence to particular patients.

Methods

We examined consultations with health professionals in both primary and secondary care where there was discussion of one or more of the interventions of hormone replacement therapy, bone densitometry, or breast screening.

All women aged 45-64 attending one of seven general practices or three specialist clinics in the UK NHS in the Midlands and north east England were invited to participate in our study.^{6 7} After consent was obtained, the healthcare professional audiotaped the consultations. We discarded those with no mention of the relevant interventions. The details of the clinics, surgeries, consultations recorded and research process, including analysis, are on bmj.com.

Overall, 109 consultations were relevant. A key emergent theme was uncertainty and how it is discussed between health professionals and women, particularly the uncertainty inherent in medical evidence when it is applied to particular patients. Through a process of discussion and comparison of data, we developed categories for how uncertainty was dealt with. The categories were developed as a tool for understanding and reflecting on what was taking place in the consultations. The results of the analysis were presented to three university based focus groups—two of doctors and one of patients—which provided feedback on the validity of the categories from their own experience.

Results

The three approaches to the uncertainty inherent in medical evidence in the consultations were certainty for now, the coherent story of certainty, and acknowledgment of the uncertainty.

The health professionals talked about certainty for now, or for this test—for example, the result of ultrasonography at the time of the procedure. However, they also slipped into general reassurance.

The health professionals wove a coherent account of the medical evidence for risks and benefits—for example, a great deal of detail, including estimates of the size of risk, was included in a discussion of hormone replacement therapy for osteoporosis. The way in which this detail was delivered, however, gave an impression of certainty, even though the health professional may have used words implying uncertainty.

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The uncertainty of outcome from using an intervention was acknowledged, including the inherent uncertainty of the medical evidence when applied to individuals. A strategy used to cope with this uncertainty was negotiating a provisional decision.

Most consultations included elements of each of the three categories. In all but four consultations, however, a dominant approach to uncertainty was identified. Of the nine health professionals who had more than one consultation, all except one (specialist registrar) used more than one approach to epistemological uncertainty.

Certainty for now

Health professionals talked of certainty in relation to the results of the test they had carried out or were planning. Reassurance was given before the results were available, but with the proviso that the results were needed to be absolutely sure. For example, in two consultations women told their general practitioner about changes in their breasts. The women were examined and reassured that their breasts seemed “normal.” The women were referred to the breast clinic for further certainty from tests.

A doctor in the breast clinic emphasised the need for certainty by saying “obviously we need to know for sure” and arranged a biopsy to try and achieve that. He followed this by saying that “often we biopsy things to prove that they’re nothing . . . we get so many surprises, we’re sort of duty bound to offer you the . . . chance of biopsy.” The type of certainty being talked about is a test result for the here and now—a particular piece of tissue at this time. The mention of surprises indicates uncertainty, but only until the results of the biopsy are known.

In box 1, the doctor talks about certainty provided by the ultrasound result for the breast tissue at this time and then goes on to explain to the woman the limited nature of this certainty. Other consultations in this category did not include such explanation. The health professionals took care to tell the women that the particular tissue examined was normal, but followed this up with a reassuring phrase which was rather general—for example, “it’s perfectly normal, you’re alright!”

Coherent story of certainty

In some consultations, the health professional wove an account or explanation for the woman that was coherent, almost as a story. The intention seemed to be to provide information and explanation so that the woman could make her own decisions, although the

overall tenor of the consultations was in favour of the intervention. In some of the consultations a great deal of detailed information was provided, including numerical estimates of risk and explanations of uncertainty. From the way women responded, however, it seems this formed an unfocused backdrop for their decisions.

In box 2 both the doctor and the woman seemed to struggle with the uncertainty inherent in medical evidence. The doctor actually contradicts himself in the process of trying to provide a coherent account of the risk of osteoporosis. The woman also struggles to understand how the evidence applies to her. At one point the doctor links his explanation to the experience of the woman’s mother, a reality they both know about. However, most of what the doctor says is drawn from evidence based on populations (much of this detail has been removed for brevity). The impression this creates is one of certainty about how the evidence applies to this particular woman despite the doctor using words and phrases that include uncertainty and probability. The doctor creates a myth about the certainty of the evidence for this woman.

Consultations in general practice tended to be shorter than those in specialist clinics, with less detail given of the risk and benefits. Some general practitioners expressed certainty about the effect of hormone replacement therapy.

Acknowledging uncertainty

In box 3 the woman is concerned about the new evidence about hormone replacement therapy. She has concluded that the risks are small. The general practitioner backs up the woman’s assessment of the risk and also explains the difficulty of applying population evidence to an individual: “It’s very difficult to know whether if something happens to you whether it’s this or more likely whether it would have happened anyway.” It then becomes clear that for the woman having energy for her “young lad” is important to her and given priority over the medical risk. A provisional plan is made whereby hormone replacement therapy will be used for now but then reviewed. It is through this provisional approach that the woman and doctor have achieved some integration of future risk from the intervention including the uncertainty inherent in the medical evidence, with how things are for the woman in the current time and place.

Use of the different approaches

Analysis of the consultations by role of the health professional and type of healthcare setting indicates a link between the approach used for the uncertainty inherent in medical evidence and the healthcare site (see bmj.com). Certainty “for now” was found in the breast clinic. Weaving a coherent story of certainty predominated in the hormone replacement therapy clinic and bone clinic. General practice used all three approaches. The pattern of approach became clearer when explored in relation to the health concern discussed in the consultations (table). In all consultations where there was concern about a breast problem, health professionals used the approach of certainty for now with slippage into general reassurance. Where the result of bone densitometry

Box 1: Certainty for now and this test, with slippage into general reassurance

Woman has ultrasonography of her breasts

During ultrasonography

Doctor: Here it is looking very clear that it is an innocent kind of, er, thing. That’s why we don’t need to do any biopsy.

After ultrasonography

Doctor: The thing is, it doesn’t exclude you to getting something else some other place . . . that’s the thing. I can tell about what—what is happening today, and about these ones, which look innocent.

Box 2: Weaving a coherent account of the medical evidence for risks and benefits, but with blurring of the uncertainty inherent in the evidence and an impression of certainty

Consultation after bone densitometry

Doctor: Your bone mineral density is following the course you would, we would expect.

Patient: Right.

Doctor: It is going down, you would expect that at this point in the menopause.

Patient: So it's not abnormal then or anything?

Doctor: It's not abnormal.

(The woman's mother has osteoporosis. The doctor explains:)

A woman with a close female relative has 30% chance of having osteoporosis just 'cos you know they're related . . .

(The doctor then suggests she considers taking calcium and vitamin D and taking hormone replacement therapy. The woman says "I've never really been very keen on HRT." The doctor then examines her and continues:)

With the constant, bone loss starts just round the very beginning that the hormones start to change, what we call the perimenopause and then you're likely to lose bone well totally predictably to lose bone for about 10 years after the menopause so it will start to gradually come down. At the moment the results are normal, you have normal bone mineral density but err after about 10 years it's going to drop into the below normal range, you can't be certain, but it's predictable, err, and it's obviously what's happened to your mum . . .

(A further detailed explanation followed of the role of hormone replacement therapy, its benefits and risks, including numerical expressions of risk, with the woman saying little until the doctor says:)

Effectively the choice is yours.

Patient: Right.

Doctor: Err, it doesn't suit everybody, really the only way to know if it's going to suit you is to try for a time.

Patient: Mmmh, do you really think that I need to be on it then?

Doctor: Err.

Patient: Do you think that if I don't go on it I'm going to end up more with osteoporosis.

Doctor: I think you'll continue, you will continue to lose bone, it's quite a difficult decision to take because you're decision now, really you're trying to take a decision now to improve your health when you're in your 70s and 80s with osteoporosis.

(The doctor explains further. The consultation ends with the doctor saying:)

Anyway the choice is yours.

Patient: All right thank you for your time.

and subsequent management was discussed, which in some consultations included use of hormone replacement therapy, most of the consultations used a coherent story of certainty. In the one consultation on this health issue that did not use this approach, further test results were awaited. A coherent story of certainty was also used for consultations where hormone replacement therapy was initiated for other reasons. The health issues were discussed in specialist clinics and in general practice and by both doctors and nurses.

When reviewing the use of hormone replacement therapy or restarting therapy after a break, acknowledging uncertainty predominated. Some health professionals, however, wove a coherent story of certainty

(see table). The consultations on this health issue were all recorded in general practice. No pattern was apparent linking the category of the consultation and whether the review was initiated by the woman or by the health professional.

Discussion

To achieve good communication between health professionals and patients, health professionals need strategies for coping with the dilemma of applying medical evidence to individual patients. These strategies could include using provisional decisions that allow for changing priorities and circumstances over time, avoiding slippage into general reassurance from a particular test result, and avoiding the creation of a myth of certainty.

Box 3: Acknowledging the inherent uncertainty of the medical evidence and negotiating a provisional decision

Woman is concerned about taking hormone replacement therapy

Patient: I've been having 'em, HRT patches and in the middle of the year there was a new finding.

Doctor: Right, the scare.

Patient: Right, so when they've finished I thought, I'd try to do without them.

Doctor: Right.

Patient: And I've been considering it and considering it—what I want to know is do you think—what's your opinion on it—when we talked about—when we talked about it earlier we weighed up all the pros and cons.

Doctor: Yes. Yes.

Patient: Is there a history of cancer, is there a history of heart problems—no history of cancer—but a history of heart problems so we decided it offered some a sort of protection to—but it seems to have taken a change—and then when I sort of thought about it later the percentage is quite small really isn't it.

Doctor: Yes.

Patient: When we, sort out how many people we're talking about it isn't large so I think that, I think that I'll go ahead with some more. Is that what, is that what you would advise, do you think it isn't—it isn't a big risk.

Doctor: No. It's certainly not a big risk—how long were you been on HRT for?

Patient: Oh not long—less than a year.

Doctor: OK, that's important because there's also risks associated with time that you're on HRT, so basically the longer you're on, the risk goes up, particularly if you're looking at breast cancer, but having said that you're absolutely right, the risk is still very small so any risk that there is only affects a very tiny minority of women and of course it's very difficult to know whether if something happens to you whether it's this or more likely whether it would have happened anyway.

Patient: And I was thinking of the quality of my life as well—my young lad I really need a bit more energy.

Doctor: Well that's important too (laughing).

(The discussion continues and blood pressure is checked. Towards the end of the consultation the doctor says:)

So I'll just give you some more now—and then what we do . . . if you're happy with them you can either come and see one of us or see (practice nurse) in six months for the next lot.

Categories of approaches to uncertainty inherent in nature of medical evidence by health issue

Health issue	Focus on certainty for now and this test, with slippage into general reassurance	Weaving coherent account of medical evidence for risks and benefits, but with blurring of uncertainty inherent in evidence and impression of certainty	Acknowledging uncertainty of outcome from using intervention including inherent uncertainty of medical evidence, and coping with this uncertainty through a negotiated provisional decision
Concern about breast lump or positive screening result	7	—	—
Bone densitometry result and subsequent management	—	9	1
Starting hormone replacement therapy	—	4	—
Review of hormone replacement therapy or restarting after break	—	5	13
Requesting information or referral for screening (mammography or bone densitometry)	—	1	1

Table excludes four consultations that were not categorised.

We studied how health professionals and women have been dealing with the dilemma of uncertainty inherent in medical evidence in relation to medical interventions focused on women at midlife. The recorded consultations include examples where the doctor was attempting to communicate risk in ways that are known to be unhelpful to patients,⁸ particularly when weaving a coherent story of certainty. Training in clinical communication, including how to communicate risk, is important. Many successful models exist for such training. Our research does not suggest a new model, but highlights the importance of including in existing models an awareness of the dilemma involved in applying medical evidence to individual patients and strategies to cope with this.

The data reveal a danger of creating a myth of certainty around what is inherently uncertain through the way the medical evidence is presented and discussed. This seems to be particularly so when there is a test result, such as for bone densitometry, or where an intervention such as hormone replacement therapy is being initiated. This way of presenting evidence about a medical intervention reinforces the idea of medicine as a precise science independent of context and people with the ability to predict outcome, which has become incorporated into lay models of illness.⁹ Apparent certainty can be persuasive and can lead to health professionals changing their understanding of the evidence

to fit the story they are presenting to the patient. Part of learning to communicate well about risks and benefits of health interventions, and so truly to include patients in decision making, may be to fully recognise the uncertainties inherent in clinical evidence and not to hide this from patients. Health professionals would then stop reinforcing the myth of medicine as a science of certainty and prediction and could work creatively with its uncertainties alongside patients.

Reassurance is appropriate where there are high levels of anxiety, such as in breast clinics; however, it is also possible to be clear about the temporary and tissue specific nature of the test result. Patients may seek certainty from health professionals because they feel vulnerable at that time or because they believe the myth of medical certainty. Health professionals are in a position of influence with patients, so in responding to a desire for certainty they should critically reflect on the effect this may have on their patient now and in the future, such as building an expectation of certainty of outcome from medical interventions. The assessment of how much to emphasise certainty or not for each patient should be explicit in the training of medical communication skills.

The major types of evidence used in clinical medicine cannot be directly applied to an individual, so health professionals will continue to face the dilemma this creates. Through the teaching of training in communication skills and the design of healthcare systems it is important to enable health professionals to make provisional decisions with individual patients. This approach to decision making has the most potential for a continuing acknowledgment of the inherent uncertainty in medical evidence, an uncertainty which will remain even with progress in basing medical interventions on robust research evidence.

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What is already known on this topic

Uncertainty about outcome for an individual patient is intrinsic to the nature of medical evidence

This creates a dilemma that will always be present

Communicating evidence to patients is a key part of clinical consultations, with a growing evidence base of how it is best achieved

What this study adds

A dilemma for health professionals is creating a myth of certainty around what is inherently uncertain

This may be avoided by negotiating provisional decisions

- 1 Fox RC. Medical uncertainty revisited. In: Bendelow G, Carpenter M, Vautier C, Williams S, eds. *Gender, health and healing: the public/private divide*. London: Routledge, 2002:236-53.
- 2 Writing Group for the Women's Health Initiative Investigators. Risks and benefits of estrogen plus progestin in healthy postmenopausal women. *JAMA* 2002;288:321-33.
- 3 Rosenberger NR. The process of discourse: usages of a Japanese medical term. *Soc Sci Med* 1992;34:237-47.
- 4 Willis J. *The paradox of progress*. Oxford: Radcliffe Medical Press, 1995.
- 5 McWhinney IR. An acquaintance with particulars . . . *Fam Med* 1989; 21:296-8.
- 6 Green E, Thompson D, Griffiths FE. Narratives of risk: women at midlife, medical "experts" and health technologies. *Health Risk Soc* 2002;4:243-86.
- 7 Griffiths FE, Green EE, Bendelow G, Backett-Milburn K. *Innovative health technologies at women's midlife; theory and diversity among women and experts*. Swindon: Economic and Social Research Council, 2003.
- 8 Edwards A, Elwyn G, Mulley A. Explaining risks: turning numerical data into meaningful pictures. *BMJ* 2002;324:827-30.
- 9 Griffiths F, Green E. A normal biological process? Brittle bones, HRT and the patient-doctor encounter. In: Williams SJ, Birke L, Bendelow GA, eds. *Debating biology: sociological reflections on health medicine and society*. London: Routledge, 2003:210-22.

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Commentary: Uncertainty, consultation, and the context of medical care

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Although the ascendancy of evidence based medicine obscures the uncertainty inherent in patient care, this uncertainty remains a defining fact of medical life. Griffiths et al listened to health professionals and identified three distinct approaches that were used in consultations—two of which they judged to understate the risk level of patients.¹ They recommend that health professionals should be trained to communicate with their patients without recourse to the myth of medical certainty.

The authors produced a distribution of approaches to consultation across several health professionals, settings, and health issues, and draw some intriguing inferences. Their findings also generate further research questions, especially about the relation between the context of medical care and the strategies used by health professionals in consultations. The potential to improve the communication of risk through training may be mitigated by factors external to the doctor-patient relationship—specifically, by extra clinical functions of the healthcare system. For example, in the case of mammography and other types of screening, where patients' anxiety levels are often high, the troublesome "certainty for now," approach is surely an attempt to reassure the patient, as suggested by Griffiths et al. This reassurance may, in fact, ameliorate a difficult situation for both the patient and the health professional. It is possible, moreover, that the promise of certainty (and in most cases, relief) motivates women to have the screening at all. Assuming that doctors (and health officials) seek to encourage women to undergo mammography, might not they be offering the security of knowing as a reward for the anxiety (and for some, discomfort or expense) of the test? In other words, the choice of an unsatisfactory approach to consultation might be strategic from a population health perspective. This particular rhetoric of uncertainty may serve to bring women to the consulting room in the first place.

Again, as the authors point out, continuous access to general practitioners seems a condition for the preferred "acknowledging uncertainty" approach to risk communication. The study data indicate, however, that whereas general practitioners use non-optimal strategies as often as they "acknowledge uncertainty," they are more likely to acknowledge this uncertainty in the

consultations for reviewing use of hormone replacement therapy or restarting the therapy after a break. Why, then, is periodic review conducive to acknowledging uncertainty when periodic screenings apparently are not? It is possible that the distributional implications of the test results of screening lead both doctors and patients to vest them with greater certainty. Screening sorts patients into categories—not only for treatment planning but also for the allocation of scarce healthcare resources. Screening, in other words, serves as a gatekeeper in many healthcare systems and legitimises the distribution of medical care among patients whose actual medical condition is in some ways unknowable.

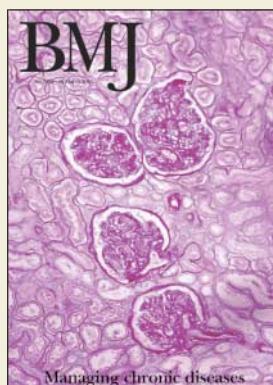
Griffiths et al suggest many avenues for further investigation. A contextual focus, shared by the research questions above, might discover that the communication of uncertainty is shaped by the functions of the larger healthcare system. This would complicate, but by no means obviate the need for, the training of health professionals to talk about risk.

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- 1 Griffiths F, Green E, Tsourouffi M. The nature of medical evidence and its inherent uncertainty for the clinical consultation: qualitative study. *BMJ* 2005;330:511-5.

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Managing chronic diseases



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