Human nature and clinical freedom, barriers to evidence-based practice?

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The perceived threat to clinical freedom offered by evidence-based practice is neither logical nor surprising. Resistance to change and to authority is part of human nature. When we make decisions based upon good quality information we are inconsistent and biased. Human nature offers many challenges to evidence-based practice. Can we do a better job of promoting evidence-based practice? And even if we find and use the evidence, will we make consistent unbiased decisions?

Recently, an evidence-based approach has focused upon health promotion highlighting areas where there is or is not evidence of effectiveness.[1] It is interesting to reverse the view and consider whether lessons from behavioural studies have been learned by those promoting evidence-based practice. Human nature may be a barrier to wider uptake of evidence-based practice; the phrase 'evidence-based' may be a barrier in itself.

Proponents of evidence-based practice want us to develop the skills to find and evaluate relevant evidence to help us in our daily clinical work. Experts in ivory towers talk about search strategies, critical appraisal and meta-analyses. Others worry about how it might limit their freedoms. The focus of evidence-based practice is not experts telling clinicians what they can or cannot do, but on us improving the quality of each decision we make. So how good are we at making good quality decisions? What is the real challenge to evidence-based practice, clinical freedom or human nature?

Consistency

Clinicians are not consistent in their referral decisions. The American Child Health Association study in 1934 took 1000 children and after an initial screening on need for tonsillectomy repeatedly sent children previously screened negatively for further assessments.[2] Each time about 45% of the children were assessed as requiring tonsillectomy. The screeners were not diagnosing on objective individual patient factors but perhaps on their expectation that 45% of the children they saw would require tonsillectomy.

An attempt was made to replicate this study using case scenarios in questionnaires in the 1990s examining grommet placement, ordering radiography and emergency room referral by paediatricians.[3] For placement of grommets clinicians wanted to act on cases previously assessed as less in need of action. The tendency to act was close to significance for ordering radiography and not significant for emergency room referral. Clearly these paediatricians performed more consistently in some areas than others.

Many dentists appear to use diagnostic criteria which differ from those they believe they use when making restorative treatment decisions.[4,5] Dentists show wide variations in restorative treatment decisions[6,7] and in decisions on removal of asymptomatic third molars.[8,9]

Bias

Even if clinicians do act consistently it is possible that their decisions are consistently biased. People put different values on gains and losses. Tversky and Kahneman gave people the two identical problems (with the same probabilities of life and death outcomes — see figure 1) but framed the outcome choices as either lives saved or as deaths.[10] Most people wanted to avoid taking risks with gains which could be safeguarded, but would take risks with losses which might be avoided; this is a framing effect. If people are given identical options but different words are used to emphasise a gain rather than a loss, then a different response is given by a large proportion of the population under study. Such a change in response appears to be inconsistent.

Interestingly, a health promoting message which framed outcomes of not performing regular self-examination as lost opportunities (rather than emphasising gains from performing self-examination) led to increased self-confidence in ability to self-examine.[11] It may be that the best way to convince dentists to practice evidence-based care is to point out opportunities they are missing.

Expert and novice clinicians show framing effect and other systematic biases. These include biased estimates of base rates (eg surgeons are more likely to diagnose jaundice as caused by gall stones, while physicians think of infection or drug reaction).[12] Few of us search out evidence to confirm the estimates on which we make clinical decisions. What are the published rates for complications following removal of wisdom teeth? Decisions are often biased by how recently a case with similar symptoms was seen (and the ultimate diagnosis of that case).[13]

As humans we sometime appear to act irrationally. But further investigation of reasons why we make our decisions show that wider factors come into play than balancing estimations of probabilities of outcomes. Professional assessment of patient expectations,[14] patient preferences, reputation with colleagues or patients, beliefs about potential benefits and ethical considerations all affect dentists' treatment decisions.[15]

Given the number of factors brought together in each judgement call it is not surprising that dentists show wide variations in restorative treatment or wisdom tooth extraction decisions. Nor is it surprising that clinicians naturally distrust trust decision aids which use less factors to make decisions than the clinician does.[16] This distrust combined with the perceived insult of the clinician's powers of judgement inflame claims of restriction of clinical freedom. An excellent paper which suggested that lingual retraction should be avoided for removal of wisdom teeth[17] challenged the intuitive judge-

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Fig. 1 Illustration of the framing effect[10]

Problem 1
Imagine that the US is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programmes to combat the disease have been proposed. Assume that the exact scientific consequences of the programmes are as follows:

If Programme A is adopted, 200 people will be saved
If Programme B is adopted, there is a 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved.

Which of the two programmes would you favour?

Problem 2
Imagine that the US is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programmes to combat the disease have been proposed. Assume that the exact scientific consequences of the programmes are as follows:

If Programme C is adopted, 400 people will be die
If Programme D is adopted, there is a 1/3 probability that nobody will die, and 2/3 probability that 600 people will die.

Which of the two programmes would you favour?

For Problem 1, A was chosen by 72% B was chosen by 28%
For Problem 2, C was chosen by 22% D was chosen by 78%

ment of a speciality. In 99 out of 100 cases there is no permanent sensory disturbance. The decision to use lingual nerve protection is justified by 99% of the outcomes and only challenged by an unfavourable outcome 1% of the time. This is outcome bias, where the decision made is rated well where the outcome proves favourable.[18] The backlash to a paper challenging normal practice in the UK was part of human nature.

It has been suggested that evidence-based medicine is 'possibly an acceptable limitation...to clinical freedom'.[19] So what is clinical freedom? I would suggest that clinical freedom is 'a clinician's perception of their freedom to make clinical decision's which they believe to be in the best interests of each and every patient they see'.

Evidence-based practice — 'the ability to track down, critically appraise and incorporate evidence into clinical practice'[20] should not be seen as a threat to clinical freedom. It offers an opportunity to improve decision making based on an individual patient's signs, symptoms, needs and preferences. Evidence-based practice should help to clarify what courses of action are available, and which of these courses is in the patient's best interests. Evidence-based practice may be the current in-phrase but it should be more accurately described as patient-centred practice.

There are plenty of psychological barriers to good quality decision making without engaging in a battle over clinical freedom. The marketing of evidence-based practice should focus more on bringing the evidence to patient-centred practice. Clinicians should be encouraged to focus on the individual first (which is what many clinicians see as the basis of clinical freedom) and then apply the evidence to the patient's circumstances. It is to be hoped that the quality of clinical decisions can be improved without battling over clinical freedom. Even when all of the evidence is available difficult clinical decisions will remain.

If the criteria we use to make decisions are not those we believe we use; if we use the same criteria but make different decisions in the same circumstances; if we are biased by outcomes of recent similar cases or outcomes for the majority of the cases; if framing of choices as gains or losses affects our judgement and if we have differing perceptions of patients' expectations, then what are the chances that evidence-based practice will change the way we work for the better?

I offer two challenges for promoters of evidence-based practice. The first challenge is a simple marketing issue: change the name of evidence-based practice to one which emphasises improvement (or better still 'maintenance at optimal levels') of clinical judgement based on individual patient signs, symptoms, needs and preferences. The second challenge is to track down, critically appraise and then use evidence on changing human behaviour.

Even if these challenges are overcome and the evidence-based approach is widely practised we may still make biased decisions, that appears to be part of human nature. It may prove to be a barrier that cannot be overcome.

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