When nurses ignore evidence

Roger Watson

Mark Hayter

While we cannot legislate for what anyone believes, we can question what they believe. In most cases, what someone believes may be of little consequence; however, when those beliefs have the potential to influence practice and misinform patients, then we may have to take closer look.

Clearly, one person's doubt can be another person's truth. For example, the concept of a personal God is beyond the pale for many people but, generally, those who believe and those who do not believe tend to rub along quite well provided the beliefs are not extreme, expressed in offensive terms or results in people being burned at the stake. However, the veracity of the claims regarding faith are not amenable to investigation; other things are. For example, some people believe that the world is flat while, demonstrably, it is not. This is a harmless belief which says more about the believer than anything related to reality. Others believe in the power of positive thinking who, while only marginally more annoying than other people to be around, probably do no harm but who, of course, also have nothing to substantiate their views.

But what about beliefs that could lead to harming the believer and other people? Here we are referring to beliefs in un-tested and unproven remedies which we will refer to collectively as CAM (complementary and alternative medicine). That the range of these so-called therapies is extensive, and they survive and thrive on our highstreets is testament to people's desire for alternatives to mainstream healthcare. It is also testament to their gullibility. However, we can excuse some of the general public their ignorance as they may not have the necessary knowledge to assess whether something is, on the one hand, likely to work and, on the other

hand, to assess whether it is really working. And who can blame them? We are bombarded daily with conflicting health related information. One day aspirin is the miracle drug; next day it is not; and the next day it is dangerous. Likewise, depending on which day you read the newspaper, alcohol helps us to live longer/ kills us more quickly/ helps to prevent cognitive decline/ accelerates cognitive decline. These truth in these stories is obscured in the reporting and very frequently, primary sources are not referred to. Taking alcohol as an example, those of us who drink tend to take the messages that are positive and ignore the negative ones to support our continued drinking. The same happens to someone who is wary of conventional medicine and sees a positive message about a CAM; they point to this in support of their view and confuse this with support for the efficacy of a particular CAM. Argument and facts are ineffective against prejudice and we tend to waste our time pointing out to them the error of their choices, far less the error in their thinking. Extend an argument long enough with any CAM adherent and you will inevitably arrive at the pragmatic fallacy: 'well, it works for me!'. The pragmatic fallacy is compounded by reverse causation: 'I got better, therefore it worked' which is often enough to convince people that something genuinely works.

Of course, the correct source of evidence is causation: 'something works, therefore you got better' and this is especially true of therapies that cannot possibly work. A prime example is homeopathy where there is no active ingredient—nor, indeed a claim by adherents that one is present—and the purported existence of a 'memory' of the active substance by some arrangement of the water molecules is impossible. In any case, the 'active' ingredients which are subsequently diluted beyond existence are not related to any cures for the conditions being treated, rather, they mimic the symptoms thereby conferring curative properties. In the case of homeopathy there can be no causation, only reverse causation which, as we know, is not any kind of causation. Both the pragmatic fallacy and reverse causation ignore a fundamental truth which is that most minor illnesses get better spontaneously as the body

defends itself or the person wrongly attributes their improvement to a complementary therapy while simultaneously taking a range of conventional remedies.

Taking any remedy—alternative or conventional—induces the placebo effect whereby there is often a degree of improvement purely as a result of taking something and being attended to by one of many practitioners: doctors, pharmacists or alternative healers. The placebo effect is powerful, it is reported to work on animals and even sham surgery for some conditions is reported to work. The placebo effect can be tested, and this is best done using a control group against which to test the purported therapy. A control group will receive the same attention as the treatment group but without the treatment, often by way of placebo medications with no active ingredient. However, here we move from the pragmatic fallacy to the 'paradigmatic fallacy' whereby the alternative therapists claim that their remedies cannot be tested by the same methods as conventional therapies. They often claim that there is a great deal more to their therapies than simply administering a pill; therapies are 'tailored' to the specific needs of the patient. But they are wrong; people either get better or they don't; and that can be measured. No matter how much consultation and tailoring for treatments takes place there is always a point at which a person can be administered the purported treatment, or a placebo and the outcome measured and compared between sufficiently size groups of people in either treatment or control groups.

If it's published it must be true

Supporters of CAM often point to studies that purport to show that it works and here they often make a series of errors. First, they assume that simply because something is published that it automatically demonstrates that it works. Close inspection of the purported evidence often reveals another story. Some studies of CAM do appear to provide evidence for efficacy,

even in terms of the primary outcome – some improvement in the underlying condition. But there is always a chance that any study will throw up a positive outcome. Some studies of established treatments throw up negative outcomes. This is called regression to the mean. Except the efficacy of parachutes for jumping out of planes, most things actually don't work as well as we think, and it is only after repeated studies that the true measure of an effect can be seen. Therefore, we should not jump to conclusions based on a single study. Another trick of the CAM trade is to claim that a treatment works based on secondary outcomes. For example, a CAM may be tested for its efficacy as an analgesic (primary outcome) and satisfaction with the treatment experience (secondary outcome) may also be measured. In this situation there are four possible outcomes: i) pain and satisfaction are higher in the treatment group; ii) pain and satisfaction are worse or no higher in the treatment group; iii) pain improves but satisfaction does not; and iv) satisfaction improves but pain does not. Only outcomes i) and iii) can lead to a legitimate claim that the treatment works for pain. However, CAM studies are often reported as positive based on outcome iv) alone where there is no analgesic effect, but the patients are more satisfied. It often requires careful reading of the study report to ascertain the truth. The truth is that synthesis of the evidence regarding CAM consistently shows that claims for efficacy are false; yet these claims persist.

Nurses

Nurses are now properly educated in research methods, evidence assessment, and evidence-based practice. Belief in egg white and oxygen has been replaced by evidence-based preventative measures for pressure injury prevention and treatment; salt baths suffered the same fate. So, why do some nurses continue to believe in CAM. Think of your colleagues. How many reveal that they have regular massages, see chiropractors, osteopaths, homeopaths, use Bach's flower therapy, or are taking a course in aromatherapy or any of a wide range of unproven remedies? Some will try to explain their adherence in terms of what

these practitioners claim. Apparently, masseuses find ‘knots’ in the muscle and work on them and that you know this by the pain at that point; chiropractors can realign their postural muscles. The first claim is a classic example of reverse causation: the masseuse pokes about until he/she finds a painful point which may have been caused by anything, or a ‘tense point’ and works on it…and you believe it. There are no such things as ‘knots’ in muscles. Likewise, muscles cannot be aligned or realigned – there is simply no anatomical or physiological evidence to support these phenomena. Homeopathy and Bach’s flower therapy contain nothing, and aromatherapy makes a nice smell but does not have any other demonstrated clinical effects.

Is it wrong that nurses should hold these beliefs? Yes, holding these beliefs *per se* is wrong for an educated person but probably not harmful to patients. But if these beliefs are promoted by nurses, then that is both wrong and potentially harmful to patients. Nurses are in a position of trust and if they actively promote CAM or quietly recommend CAM to patients, even of only obliquely as in ‘I find this works’ or ‘I regularly visit…’ then is there a case to be answered. Should nursing regulatory bodies take an interest? The UK nursing regulator, the Nursing and Midwifery Council (NMC), code is quite clear when stipulating that nurses should ‘always practise in line with the best available evidence’. Section 6.1 of the NMC Code is very clear when it states that nurses should:

> **6.1** make sure that any information or advice given is evidence-based, including information relating to using any health and care products or services (NMC 2018)

Taking this at its highest – advising or appearing to advise a patient to use a therapy where there is no evidence for its effectiveness could legitimately lead to a question of competence against that practitioner.