

INVITED CONCISE REVIEW

The role of hypnotherapy in evidence-based clinical practice

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The purpose of this review was to discuss the place of hypnotherapy in a modern medical world dominated by so-called evidence-based clinical practice. Hypnosis is an easily learned technique that is a valuable adjuvant to many medical, dental and psychological interventions.

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The nature of hypnosis has been debated for centuries and currently falls into two schools, 'state' or 'non-state'. The latter proposes that the subject is role-playing or enacting hypnosis at the behest of the therapist. However, the idea that hypnosis is an altered state of consciousness seems to be considerably more acceptable in the light of electroencephalographic (EEG) findings (Griffiths and Preece, 1984). Hypnosis is characterised by a pattern of dominant alpha-wave activity, sometimes accompanied by a theta component. There are other alpha states, in particular nitrous oxide sedation, and those associated with mental absorption for example in sports 'getting into the zone', meditation, daydreaming and listening to music. Neurofeedback (biofeedback employing EEG) has gained popularity in recent years, probably due to the availability of relatively inexpensive simple EEG equipment. It is not new. Melzack and Perry, 1975; investigated alpha feedback training for patients with a variety of pain problems, using EEG. The combination of hypnosis and neurofeedback was significantly better than the other treatments in the trial. However, Vernon, 2005, wrote an expansive review of neurofeedback training and concluded that 'a clear connection between neurofeedback training and enhanced performance has yet to be established'.

The American Psychological Association Division 30 has recently defined hypnosis as 'A state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response

to suggestion'. This statement is so non-descript that it could apply to anyone watching adverts on TV.

The whole point about hypnotherapy is the inclusion of the *therapist* who is able to exploit the state of hypnosis and implant beneficial 'post-hypnotic' suggestions relating to the thoughts, beliefs, perceptions, attitudes, emotions and behaviour of the subject. The therapist can deal with the problem presented by the client and also, in a general way, help to instil feelings of confidence, insight, mental strength, calmness and well-being, referred to as 'ego-strengthening'. These are features that also occur in mindfulness and cognitive behavioural therapy, both currently enjoying greater public approbation than hypnotherapy.

A patient or referring clinician can reasonably expect some evidence that hypnotherapy is effective and safe and that the evidence is based on accepted trial methods for example the randomised controlled trial (RCT).

The RCT as evidence

When the first human genome was sequenced in 2001, there was a belief that, with a little more effort, the genetic underpinning of many diseases would result in specific remedies. But the picture, like a fractal diagram, revealed genes that may or may not be expressed, more genes that cause others to be switched on or off and interact in mysterious ways. These are the days of biologics and monoclonal antibodies – seeming magic bullets but with actions that cannot be entirely predictable because every individual is different from everyone else. Probably the last time that any individual has the same genes as another is when monozygotic twins divide at the single ovum stage. After that, mutations and environmental factors come into play and their phenotypes start to diverge.

Surely no one has a set of genes that function perfectly so the potential for disease exists in everyone but held back by innumerable feedback, suppression and self-correcting mechanisms. The idea that there is a cause and effect in every disease process has to be abandoned. For example, is periodontal disease responsible for some cardiovascular disease or vice versa or simply manifestations of a problem common to both?

The RCT history goes as far back as 1948 and has been tuned to a fine art. The randomised controlled crossover double-blind trial is held to be the 'gold standard' and alone should be admitted as evidence. Some clinicians believe that the obsession with evidence-based medicine has had a stultifying effect and it has been entangled with 'value for money' especially in the UK National Institution for Health and Care Excellence (NICE). Clinicians in the UK are constantly looking over their shoulders in case the treatment they prescribe is frowned upon by NICE and therefore could lead to litigation. Of course, the need for evidence is not restricted to drugs, it covers any intervention, remedy, treatment, nostrum, corrective, restorative, stimulant, physic, operation, therapy, etc., the list is endless, and testing effectiveness is a challenge to every practitioner. Big pharmaceutical companies try very hard with large amounts of money to develop drugs that can be patented, but frequently, the differences from those already in clinical use are so small that they have to be teased out by RCTs. This is especially the case in oncology where, in order to recruit sufficient number of patients, trials have to be multicentric.

The role of the CNS

It is reasonable to assume that development of the brain is also controlled genetically and that the wide variation in intellectual ability is the result of nature as well as nurture. A lack of susceptibility to hypnosis is thus not surprising and contributes to the problems of assessing hypnotic therapeutic response.

The RCT is designed to aid treatment of disease in a mechanistic sort of way, but as if this were not enough, the whole picture can be distorted by the influence of the psyche. The patient's beliefs, perceptions, prejudices, thoughts and attitudes are all part of the delicate interplay between mind and body that can frustrate even the most well-meaning practitioner. Communication between patient and clinician can be difficult and in a vulnerable situation such as a consultation the patient can be highly perceptive of a lack of empathy, for example Ambady *et al*, 2002, showed that a surgeon's tone of voice was an indicator of malpractice history. When *mens sana in corpore sano* begins to falter there is always the dilemma of which to tackle first – body illness or mental health? Obviously some situations call for immediate attention to the body, but unless the mind is helped, healing, recovery and rehabilitation can be delayed, sometimes for years.

The systematic review

Setting up a trial, seeking ethics approval, finding funding, recruiting patients, gathering and coordinating results and writing a paper are hard work and frequently undervalued by those who have never done it. Then, there is the problem of finding a journal for the publication, preferably one enjoying the status of 'high impact'. The American Statistical Association, 2016, recently has published a statement on statistical significance and *P*-values. The president, Jessica Utts said 'Over time it appears the *P*-value has become a gatekeeper for whether work is publishable, at least in some fields. This apparent editorial bias leads to

the "file-drawer effect," in which research with statistically significant outcomes are much more likely to get published, while other work that might well be just as important scientifically is never seen in print. It also leads to practices called by such names as "*p*-hacking" and "data dredging" that emphasize the search for small *P*-values over other statistical and scientific reasoning'.

So, having a *P* value of ≥ 0.05 is not only weak significance but also bad news for the would-be author.

A new class of tribulation has emerged that did not exist before the Internet that of the systematic review. This can be done by anyone having a reasonably good personal computer, a reasonably fast broadband connection and a cookbook of statistics. This is not to denigrate systematic reviews which can have a powerful effect on the ethical practice of medicine in all its forms, conventional, complementary and alternative such as Elkins *et al*, 2007. On the other hand, a systematic review can be dismissive and destructive when it labels trials as under-powered, narrow or answering the wrong question. It is possible that amongst the discarded and unpublished research work, there are gold nuggets of useful information, leading to unnecessary repetition by another worker who, lucky to get a paper published, is given undue credit. A single systematic reviewer could, by highly selective filtering of trial results, cause surprise and dismay amongst successful users of hypnotherapy. For example, Pelissolo, 2016, found that in work published between 1980 and 2015, 'evidence is negative or insufficient to support the efficacy of hypnosis in chronic anxiety disorders'.

Many workers give up the idea of an RCT and settle for an audit that probably will never be accepted for publication. Finally, *reductio ad absurdum*, there is the case report or anecdote, often dismissed as insignificant, but consider the history of AIDS. Case reports have often triggered responses from workers all over the world. Much of the working basis of hypnotherapy is empirical or anecdotal in origin although there have been many attempts to put hypnosis in a true scientific perspective (Maclaughlan *et al*, 2013; Hasan *et al*, 2014; Lee *et al*, 2014).

Trial design

Patients can be fickle, recalcitrant and all have problems that seem to differ from each other. How then should a trial of hypnotherapy for a specific problem such as smoking or dental phobia be designed? The advantages of randomisation are clear: elimination of bias, facilitating blinding of treatment identities from both participants and investigators and allowing calculation of probabilities. The process of randomisation itself is problematic – ethical issues may not be easy to overcome when the trial population has a serious therapeutic need and it is clearly absurd that neither patient nor therapist knows whether hypnosis be used. It is possible to do sham surgery (Sihvonen *et al*, 2013) and acupuncture (Moffet, 2009), but the concept of sham hypnosis is hard to grasp as any therapy involving talking (and listening) to a patient by an empathetic practitioner may be beneficial. Many of the trials compare standard treatment measures such as pain relief by drugs or other methods (like acupuncture, exercise) with hypnotherapy. This

approach makes ethics decisions easier and permits cross-over design without compromising the patients' well-being.

Placebo effects

Any beneficial (but sometimes deleterious – nocebo) effect of a therapy, otherwise inexplicable, has been branded 'placebo' for centuries usually in a pejorative sense and attributed to quackery. However, there are many clinicians who view the placebo effect with a kinder eye, taking the attitude that whatever the patient senses has done them good probably has had a real effect and there is nothing wrong or unethical with that. Nevertheless, this can add to the complexity and analysis of the trial results.

Summary

Applications in dental practice are well known, but few have been subjected to rigorous RCT scrutiny:

General patient relaxation, improving the treatment experience for patient, operator and assistants

Specific dental phobias such as needles, sound of drill, surgery environment

Complementing the use of nitrous oxide (Whalley and Brooks, 2009)

Encouraging compliance with oral hygiene regimes

Improving tolerance for orthodontic appliances

Modification of unwanted oral habits, for example bruxism (poor evidence – Lobbezoo *et al*, 2008)

Modification of the use of anaesthetics, analgesics and sedation (Gyulaházi *et al*, 2015; Wolf *et al*, 2016)

Replacing or supplementing pre-medication (Calipel *et al*, 2005)

Controlling salivary flow and bleeding (Abdeshahi *et al*, 2013; Satz *et al*, 2014)

Treating chronic facial pain/temporomandibular disorders (Abrahamsen *et al*, 2008, 2009)

Disadvantages of hypnotherapy are well recognised. There is a wide variation in primary susceptibility to hypnosis, but slow response can be overcome with multiple sessions and possibly a change of therapist. This, of course, adds to the expense of a technique that is by its nature a one-to-one commitment. The results often can be spectacular, but in others, there is a need for frequent reinforcement. The very capriciousness of human nature throws doubt on whether hypnosis can ever be regarded as a standard treatment modality except in a limited number of conditions such as irritable bowel syndrome (Lee *et al*, 2014). All patients, given adequate dosage, are susceptible to general anaesthetic agents such as sevoflurane or propofol. Unfortunately, however hard one tries, the number of patients who could achieve a level of hypnosis that could match surgical anaesthesia is miniscule. Nevertheless, anaesthetists should always use hypnotic suggestions because there is usually a sedation phase that could be exploited (and in some regrettable instances, intra-operative awareness).

From the perspective of strict RCT evidence, hypnotherapy does not appear to do well, but empirically, it is valuable as a safe non-drug therapy in the holistic care of sufferers of a wide range of diseases both physical and

mental. Mendoza and Capafons, 2009, stated that 'Overall, the findings of research indicate that hypnosis used as an adjunctive to other medical or psychological interventions increases the efficacy and/or efficiency of these interventions'. Let us therefore use hypnosis as an easily learned technique that has a well-founded place in compassionate medicine.

Conflicts of interest

None to declare.

Author contributions

The work is based on my personal experience of hypnosis, hypnosis research and therapy. It contains references to other published work as the result of on-line searches of medical databases.

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