

## SPECIAL REPORT

# Degrees in homeopathy slated as unscientific

Alternative therapies are now a degree subject at some British universities. But do they deserve these credentials? Jim Giles reports.

As debate rages in the United States over whether intelligent design should be taught in science classes, another topic that many researchers see as a pseudoscience is claiming scientific status within the British education system.

Over the past decade, several British universities have started offering bachelor of science (BSc) degrees in alternative medicine, including six that offer BSc degrees in homeopathy, a therapy in which the active ingredient is diluted so much that the dose given to the patient often does not contain even a single molecule of it. Some scientists are increasingly concerned that such courses give homeopathy and homeopaths undeserved scientific credibility, and they are campaigning to get the label removed (see Commentary, page 373).

Many scientists and advocates of evidence-based medicine feel that giving homeopathy scientific status is unjustified. Aside from the fact that there is no known mechanism by which this treatment could work, they argue that the evidence against it is conclusive. Of the many rigorous systematic reviews conducted in the past decade, only a handful have produced evidence, marginal at best, in favour of homeopathy, with the authors in each case stating that the data were weak. Several reviewers found no effect, and a prominent study suggesting that homeopathy does work (L. Linde *et al.* *Lancet* **350**, 834–843; 1997), and which is frequently cited by homeopaths, has had its methodology extensively criticized since publication.

But homeopaths involved in the university courses — those that were willing to speak to *Nature*, at least — argue that they teach students scientific principles, including the critical analysis of evidence.

Finding out exactly what is taught in the courses is not straightforward. Ben Goldacre, a London-based medical doctor, journalist and frequent critic of homeopathy, says that several universities have refused to let him see their course materials. “I can’t imagine what they’re teaching,” he says. “I can only imagine that they teach that it’s OK to cherry-pick evidence. That’s totally unacceptable.”

Pharmacologist David Colquhoun of University College London has had the same problem, and is now using freedom-of-information legislation to get access to course materials after having numerous requests refused. The University of Central Lancashire and the University of Salford both declined requests to talk to *Nature* or share details of their homeopathy degrees.

One university that is willing to discuss its teaching is the University of Westminster in London. Brian Isbell, head of Westminster’s department of complementary therapies, defends the BSc description, arguing that as with all of the university’s complementary therapy degrees, students also have to study the health-sciences model of disease, so that they can “work safely and effectively within the healthcare system”. Students are required to do research and produce critiques of the literature. Reading lists include papers from sources such as *Homeopathy*, a journal published by the Faculty of Homeopathy, a members’ association for professional homeopaths based in Luton. But the lists also include recent studies that are critical of homeopathy and conventional guides to doing and evaluating healthcare research.

One assignment asks students to critique a paper that assessed the health changes reported by patients suffering from a range of chronic diseases when they attended follow-up appointments after receiving homeopathic treatment at a hospital in Bristol. Almost three-quarters of the 6,500 patients reported that their condition had improved (D. S. Spence *et al.* *The Journal of Alternative and Complementary Medicine* **11**, 793–798; 2005).

The paper generated significant media coverage when it was published, but its methodology has been widely criticized. No control group was used, prompting Colquhoun to note that the study is not even capable of showing that homeopathy was producing a placebo effect. So what happens when students critique the paper? Do they get full marks for showing that it provides no evidence at all for homeopathy?

Not quite, says Isbell, who says the paper was chosen precisely because of the controversy over



Homeopathic medicine is big business, but giving it the status of a science degree is controversial.

its methodology. Students would be expected to discuss the problems with the lack of controls and to suggest ways to run better studies. But Isbell says that the Bristol researchers still collected useful ‘outcome measures’ — basically a set of reports from individual patients about how they improved. “It doesn’t have the rigour of other methods,” Isbell says, “but it is part of the picture.”

The differing opinions over the paper highlight an issue at the centre of the dispute about the evidence for homeopathy, and which explains in part why lecturers feel they can teach the subject as science. For advocates of evidence-based medicine, the double-blind randomized clinical trial (in which neither the doctor nor the patient knows who is getting active treatment and who is getting a placebo) is the best form of evidence available to practitioners. When regulators take decisions on drug safety, for example, they usually rely on such studies. But for homeopaths, there is a serious flaw in this approach.

When a patient visits a homeopath, the practitioner asks questions that go beyond the symptoms and probe other aspects of the


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however, that the emphasis homeopaths place on individually tailored treatment makes designing such trials “a bit of a challenge”.

For advocates of evidence-based medicine, such arguments are equivalent to admitting that homeopathy is nothing more than a strong placebo effect brought on by an attentive practitioner. If the treatment cannot work unless the patient and practitioner believe in it, then it cannot be due to the physical properties of the remedy. Homeopaths disagree, insisting that the remedy itself does have an effect independent of the practitioner. But by ruling out what scientists consider the best mechanism available to test this assertion, it is hard to see how homeopaths will ever convince their opponents.

So where does this leave scientific opposition to homeopathy degrees? Outside Britain, even in France and Germany where homeopathy is relatively popular, the topic is taught in universities only as a small part of a medical degree and is not classed as a science — a compromise that most academics seem happy with.

But in Britain, the number of BSc degrees in alternative medicine has grown over the past decade. They are generally run by ‘new’ universities — institutions that emphasize vocational rather than academic training, but have been given university status over the past 15 years as part of the government’s drive to provide equal opportunities for higher education. Alternative medicine is not the only surprising subject to be classified as science (see “A science subject?”), but Colquhoun and Goldacre argue that degrees in complementary medicine are particularly harmful because they lead patients to believe that they are being treated by a scientifically trained practitioner.

The critics seem to have little chance of getting the BSc label removed from these courses any time soon. The few organizations that could pressure universities to reclassify the courses have little interest in the debate. Universities UK, the body that represents the country’s higher-education institutes, says that it has not discussed the matter and that decisions about how to describe courses are up to the individual universities. The Quality Assurance Agency for Higher Education, the body charged with safeguarding academic standards, also says that it does not get involved in questions about what constitutes science, and that universities are entitled to set their own courses.

So *Nature* contacted the universities of Westminster, Central Lancashire and Salford for an official response from the institution on whether they think the BSc tag is justified for their homeopathy courses. All declined to comment. ■

**Additional reporting by Declan Butler, Michael Hopkin, Katharine Sanderson and Sophie Sigler.**

patient’s life, such as whether they are feeling stressed or unhappy. The result is an individualized treatment that takes longer than the ten or so minutes that the patient would get with a government-funded family doctor. This personal interaction is critical to homeopathy, both in tailoring the medicine and in gaining the patient’s confidence. Homeopaths say that if there is a chance that the patient might receive a placebo at the end of it, the necessary trust can break down.

“Trying to do what I do in that context didn’t work very well,” says Clare Relton, a practising homeopath who is conducting research into homeopathy at the University of Sheffield and has taken part in a clinical trial designed to assess homeopathic treatments for chronic fatigue syndrome. “I found it difficult to build a therapeutic relationship,” she says. Relton argues that homeopathy is scientific, but that the problem of trust means that double-blind trials aren’t the best way to measure its effectiveness. Instead, she and other homeopaths prefer to rely on more qualitative methods, such as case studies and non-blinded comparisons of treatment options. These, they say, provide ample evidence that homeopathy works.

Similar attitudes to homeopathic teaching

are evident outside Britain. “I definitely think homeopathy can, and should, be evaluated within the context of double-blind, placebo-controlled, randomized clinical trials,” says Ellen Hughes, who teaches complementary therapies to medical students at the University of California, San Francisco. She concedes,

## A science subject?

You can earn a BSc degree in quite a few subjects that wouldn’t conventionally be called science. Here are a few:

### **Geography with Mountain Leadership**

Staffordshire University

### **Hospitality Management**

Manchester Metropolitan University

### **Police Studies**

Buckinghamshire Chilterns University College

### **Adventure Recreation**

Harper Adams University College, Newport

### **Community Health and Leadership Studies**

Sheffield Hallam University

### **Sports Event Management**

Leeds Metropolitan University