

Commentary

Commentary on ‘Is there a place for science in the definition of osteopathy’?

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Abstract

This comment on Nicholas Lucas and Robert Morans’ editorial in the December 2007 edition of *Int J Osteopath Med*, argues that osteopathy (and medicine) is not and cannot be a science as health care practice has different internal aims from those of science. Science provides a particular kind of information, but this information is only part of the body of knowledge that constitutes osteopathy. Osteopathy along with other health care professions is a praxis, which entails a range of knowledge, skills and abilities that lie outside of science.
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In their editorial in the *International Journal of Osteopathic Medicine* Nicholas Lucas and Robert Moran make a helpful and timely contribution to the debate about osteopathic identity, the nature of osteopathy and the role of science.¹ One of the reasons that it is timely is because osteopathy is coming under increasing pressure to justify its existence as a distinct profession. In the USA, where osteopathy is practised as osteopathic medicine (which entails a range of orthodox medical procedures, including obstetrics, surgery and pharmaceuticals), the pressure is to demonstrate why there is a need for two medical professions when both claim to treat the same problems, and where osteopathic manipulative treatment—allegedly the ‘distinctive’ part—is used by only 50% of osteopathic physicians on 5% of patients.^{2–4} In the UK and other parts of Europe, the pressure is to show why the professions of osteopathy, physiotherapy and chiropractic should remain distinct when they each claim to treat similar kinds of problems, using broadly similar approaches to treatment.

Lucas and Moran argue that osteopathy cannot be defined either by what is done, or (in entirety) by its philosophy, and

conclude with a plea to remember science, arguing that scientifically validated knowledge should underpin osteopathic theory and practice. In support they quote A. T. Still’s definition of osteopathy as ‘a science’. I strongly support the idea that the science we use should be good science, but I don’t think the issue is either as straightforward or as uncontroversial as they suggest.

The relationships between knowledge, professional identity and practice are complex. Defining which criteria should be used to identify ‘distinctiveness’ is not self-evident: for example, is distinctiveness related to theory, practice or values? That is, does osteopathy have a distinct theory not shared by other practices;^a does it have its own special techniques and process that are only found in osteopathy; or does it hold particular values that guide the behaviour and decision-making of osteopaths distinct from other health care professionals?

In addition the work of ‘science’ in Lucas and Morans’ argument is not clear; it could be used to validate outcome by scrutinising the claims of osteopaths, or it could be used in a more general way to provide a theoretical foundation. In either of

^a Historically, the ‘osteopathic lesion’ or ‘somatic dysfunction’ has provided this kind of theory.

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these latter cases, the place of values is left unresolved. There are therefore two clear themes: the distinctiveness or identity of osteopathy and the role of science in validating osteopathic claims.

However, for this commentary, I wish only to make two points that apply not only to osteopathy, but, arguably, to all health care practices, including medicine: the first concerns the relationship between science and osteopathy and the second, the nature of health care practice—what kind of endeavour it might be.

1. The role of science in health care

The initial question therefore is whether medicine is a science.^b It is clearly true that since the 19th Century, Western medicine has been wedded to science as its validating source. What isn't always clear is what kind of relationship that marriage is. Is medicine a science in its own right or does it merely rely on reductive scientific explanations? In other words, is there a true science of medicine, or can the scientific parts of medicine be reduced to other sciences such as biology, physics, chemistry, and their derivatives?

A further question that is usually asked by those investigating this topic concerns the 'internal aims' of medicine and science, i.e., what is the primary purpose of each. If the 'internal aims' of science are the same as those of medicine, then it is likely that medicine is a science. According to Munson, the internal aim of science is "the acquisition of knowledge and understanding of the world and the things that are in it." while the internal aim of medicine is "to promote the health of people through the treatment or prevention of disease."⁵ These are obviously very different kinds of activities; developing a body of knowledge, as a primary purpose doesn't map easily onto treating disease, even though one may inform or be applicable to the other.

It could be that 'treating or preventing disease' is simply the application of medical or scientific bodies of knowledge. But applying scientific knowledge for a given purpose (treating or preventing disease) doesn't make the process into a science. Science can be applied to analyse and improve performance in sport, for example, but it doesn't make rugby, athletics or swimming into a science. The issue then is whether medicine is no more than applied science, as in some forms of engineering, for example, or more like a sport in the sense that it entails more than science. That issue will form a later part of this paper.

It is true that science is both a body of knowledge (scientific knowledge) and a method (the process by which that knowledge is acquired) so perhaps medicine is a scientific *method* rather than a distinct body of knowledge. The problem for this hypothesis is that medical practice is fundamentally different from scientific practice. Science methodology is carefully controlled to minimise variables, while medical practice deals

with an array of variables related to individual patients; scientific work is reproducible by other researchers, while most medical work focuses on individual patients in a specific, non-replicable situation. In recent years the emphasis on patient-centred care and the trend towards being holistic across a variety of practices means that individuality and taking account of variables is a key part of health care, particularly primary care. In other words, far from eliminating variables, modern health care practice actively encourages taking them into account.

For knowledge to be 'scientific' it must be acquired using scientific methods. This means that medical practice itself, because it does not use scientific methods (though it may use scientific knowledge), cannot produce scientific knowledge unless it specifically sets out to use scientific methods, for example, when deliberately collecting clinical data from practice for scientific analysis. This doesn't mean that practice is devoid of critical reflection—that should be a given, but critical reflection on its own is not a scientific method and does not necessarily produce scientific knowledge. However, it may lead to better practice as I hope to show later.

It is also important to remember that science develops its primary knowledge through induction; by examining a large number of items that display similar behaviour and none that don't, it is induced that all items of that kind display similar behaviour. Once this hypothesis has been tested a number of times with the same outcome, it may be added to the general body of knowledge and designated (provisionally) as true. This truth is assumed to apply to events that have been observed and to those that haven't, to events in the past and to those in the future, even though it is based on a limited number of examples. What makes it 'true' is not that it comes from some revered authority, whether a guru or a text, but because it is obtained using a method that is reproducible and confined to examining the effects of a controlled number of factors. So scientific knowledge is assumed to be true when the way in which that knowledge was obtained is in accordance with strict scientific principles.

What 'true' means in this context also depends on what someone's conception of science is: for the positivist, scientific truth correlates with how something really is in nature; for the realist it is an hypothesis offering the best explanation based on what we know so far; and for the relativist it is no more than a statement that fits with our general cosmological view of the World.

The problem for the claim that medicine (and osteopathy) is a science, is that medicine does not work by induction but by deduction. Where science examines a number of examples and makes a truth claim identifying common features—for example, if x examples of disease A are associated with condition Y and disease A is rarely found to occur outside of condition Y, we assume that Y is the condition required for A to develop—the physician uses such truth claims to apply to one particular example. So when Dr Smith is consulted by Bert who smokes, Dr Smith refers to his knowledge base that includes the information that lung cancer is strongly related

^b For the purposes of the argument all references to 'medicine' apply equally to osteopathy.

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