

# Defining 'complementary and alternative medicine'

## DISCUSSION

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### ABSTRACT

The topic of complementary and alternative medicine (CAM) is controversial. CAM is a confusing term used to encapsulate a broad range of health-related practices. In this article we explore several CAM practices including homeopathy and manipulation therapies such as osteopathy and chiropractic. We examine the difficulty in understanding the meaning of the term CAM and argue that the term is unhelpful and should be avoided in the education of healthcare professionals. Medical educators should be careful to highlight the heterogeneity of health-related practices and treat each practice as an individual entity without the need for the umbrella term CAM.

The topic of complementary and alternative medicine (CAM) is controversial. Debate surrounding CAM is largely driven by the unclear efficacy of many practices, a perceived potential risk of harm and a perception that financial motivations of CAM practitioners may influence their treatment recommendations. But what exactly is CAM? The term CAM is often used to describe a broad range of health-related practices which are thought to lie outside the realm of 'conventional' medicine. (1) In 2005, a national survey of the general population in England found that approximately 1 in 4 adults had used some form of CAM and around 1 in 8 adults had consulted a CAM practitioner during the previous 12 months. (2) Given the significant proportion of adults accessing CAM, it is important that healthcare professionals are able to discuss CAM with patients. To do this we must first have a clear understanding of what CAM is and its role, or lack of, in treating patients.

There are many health-related practices typically described as CAM, including acupuncture, aromatherapy, manipulation therapies (osteopathy and chiropractic) and homeopathy. (1) Professional opinion of these practices is varied. For example, homeopathy draws extensive criticism due to the pseudoscientific concepts underpinning it and the weak evidence of efficacy. (3-5) In the UK, Chief Medical Officer Dame Sally Davies and Chief Scientific Advisor Sir Mark Walport have both made their opinions of homeopathy clear, describing homeopathy as "*rubbish*" and "*nonsense*" respectively. (6,7) Osteopathy and chiropractic, on the other hand, are both regulated at a government level, and the National Institute for Health and Care Excellence (NICE) recommends manual therapy (including spinal manipulation, mobilisation and soft tissue massage) for the management of low back pain. (8) The clear heterogeneity of these practices raises the question of whether it is appropriate to group them together under the umbrella term 'CAM'. Evidence suggests that certain treatments offered by chiropractors and osteopaths can be useful for the treatment of low back pain, (8) therefore surely these treatments can simply be defined as 'medicine'?

The National Center for Complementary and Integrative Health (NCCIH) makes a distinction between the terms 'complementary' and 'alternative'. (1) They state that "*if a non-mainstream practice is used together with conventional medicine, it's considered 'complementary'*" and "*if a non-mainstream practice is used in place of conventional medicine, it's considered 'alternative'*". This distinction is also found on the Cancer Research UK website. (9) These definitions are vague and therefore open to interpretation. What is 'mainstream' or 'conventional' in one region of the world may be very different in another region. Assuming that for a health-related practice to become 'conventional' in the UK it should have demonstrated efficacy in the face of rigorous scientific investigation, it could be suggested that 'conventional' has been substituted for 'evidence-based'. One might therefore infer that 'non-conventional' has been substituted for 'non-evidence based'. However, this relies heavily on the assumption that all 'conventional' or 'mainstream' medicine in the UK is evidence-based. This may be an un-wise assumption to make given the shortfalls of the evidence-based medicine movement. In a BMJ editorial, Greenhalgh et al. described evidence-based medicine as "*a movement in crisis*" due to various factors including "*evidence biases and the hidden hand of vested interests*". (10) Pharmaceutical companies play an important role in funding medical research, however the influence of pharmaceutical companies on healthcare practices and public health policy is a concern. (11) Examples of

financial conflicts of interest include consultant fees and honoraria related to new medicinal products or technologies. These conflicts of interest have the potential to influence medical research and individual clinical practice, undermining evidence-based medicine. (12)

Despite randomised controlled trials (RCTs) being regarded as the highest level of evidence in the hierarchical 'evidence pyramid', they are not without their limitations. RCTs may produce misleading results due to various forms of statistical bias inherent in their design. RCTs may also not be representative of 'real life' patients in that participants may be highly selected in terms of characteristics such as age and comorbidity. It is also critical to differentiate between statistical and clinical significance. An RCT of a new treatment that shows a highly statistically significant difference in outcome, but a small treatment effect size, is unlikely to affect clinical practice. Publication bias also influences dissemination of evidence; a clinical trial which shows a statistically significant treatment benefit is more likely to be published than a 'negative' trial, despite the scientific value of both. (13) A notable proponent of evidence-based medicine, Ben Goldacre, recently published a study highlighting that over half of all clinical trials registered on the EU Clinical Trials Register (EUCTR) did not comply with the European Commission's requirement that all trials must publish trial results to the EUCR within 12 months of completion. (14) Despite the delays in publishing clinical trial data, the volume of new evidence published daily in peer-reviewed journals is overwhelming. (15) As clinicians, we therefore rely on reputable organisations such as NICE and other national societies to evaluate the evidence-base for a particular treatment and provide guidance on how this treatment should or should not be integrated into clinical practice. Complicating the matter further, the assessment of evidence performed by NICE (in the context of the 'free at the point of delivery' healthcare system that is the NHS) considers treatment cost and the relative benefit in terms of quality of life years (QALY) gained. Whilst critiquing the strength of evidence for CAM, it is important to keep in mind the shortcomings that exist even within mainstream, 'evidence-based' medicine.

A further issue with the term CAM is that defining something as an 'alternative medicine' implies that it is indeed a 'medicine', and therefore has proven efficacy above and beyond the placebo effect. Given the weak evidence base of many CAM practices, (16) the use of the term 'medicine' may be misleading for patients and healthcare professionals. It could be argued that the potential placebo effect conferred by a treatment of unclear efficacy may warrant the use of the term 'medicine'. (17) However, this is problematic, as we would therefore have to accept that any health-related practice intended to treat, or perceived to have efficacy by the patient, is 'medicine'. This seems unsatisfactory and contradicts the mantra of evidence-based medicine.

An essential component of undergraduate medical education is teaching medical students to critically appraise literature to determine the evidence-base for treatments and guide clinical practice. However, teaching of the evidence-base of health-related practices that are currently described as CAM may be subject to several barriers. For example, medical educators may dismiss certain treatments due to personal biases, inadequate understanding of the evidence-base or a perception that teaching about

specific treatments gives these treatments 'undeserved credibility'. (18) The contrary can be true, teaching medical students about pseudoscience is important and may improve their ability to identify health-related practices with weak evidence bases. By confronting specific health-related practices and examining the evidence, educators can help to 'dispel pseudoscience and promote scientific scepticism, while avoiding the unhealthy extremes of either uncritical acceptance or cynicism.' (19)

In conclusion, the ambiguity of the term CAM is unhelpful and oversimplifies a highly heterogeneous group of health-related practices with significantly different evidence bases. There is a risk that these practices are perceived by healthcare professionals as having a shared illegitimacy. As a result, evidence-based treatments may be dismissed or underutilised. Every health-related practice should be treated as an individual entity and evaluated as such, without the need for a blanket term. Medical educators should be careful to highlight the heterogeneity of health-related practices and avoid using the term CAM in the teaching of healthcare professionals.

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