



Another Reason to Teach Complementary and Alternative Medicine

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Authors' contributions

This work was carried out in collaboration between all authors. Author MH designed the study and developed the Magdeburg courses. Author KW performed the initial statistical analyses of the Magdeburg work and prepared this for discussion at the European Congress of Integrative Medicine. Author MR designed the Oxford Course and performed the comparative analyses. Author MR managed the literature searches and wrote the first draft of the manuscript. All authors read, contributed to and approved the final manuscript.

Research Article

Received 11th April 2012
Accepted 12th November 2012
Published 8th December 2012

ABSTRACT

Aims: To ascertain whether studying Complementary and Alternative Medicine, in any capacity, can influence attitudes to patients, over and above simply learning the subject in question.

Study Design: Pilot study using Questionnaires before and after two different courses of study.

Place and Duration: Magdeburg University, Germany; Oxford Deanery School of General Practice, England.

Methodology: Ten attitudinal statements were scored before and after the teaching of two different CAM courses, one at Magdeburg University, Germany and one at High Wycombe Hospital, England, part of Oxford Deanery. Twelve medical students participated in Germany and six junior doctors in England.

Results: Significant changes ($P = .02$ for the Magdeburg Course; $P = .03$ for the Oxford Course) were demonstrated in both groups, in that participants moved away from a purely biomedical view of patients towards more holistic, patient-centred attitudes.

Conclusion: This finding adds another reason why teaching Complementary and Alternative Medicine (CAM) to trainees is a valuable thing to do.

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Keywords: Teaching CAM; medical students; junior GPs; professional attitudes

1. INTRODUCTION

Until the middle of the nineteenth century, with the advent of cellular biology, Hippocrates' theory of humoral medicine had been pre-eminent in medical teaching for twenty two hundred years [1]; indeed, it was also central to European, Arabic and Asian medical systems [2]. The longer it was practiced and taught, the more ancient, respectable and unquestionable was its status [3]. The social milieu of medicine never allowed any sustained questioning of the theory, the practical outworking of which caused enormous morbidity and mortality, and very little medical benefit [4]. New ideas were mostly rejected, the advance of medicine slow and medical dogma held sway in medical schools [5].

Nowadays we live in the age of evidence-based medicine. If it can't be proved with a study then it isn't true. But how does it occur to anyone what to study? Sometimes the path of research is obvious based on the emerging data, but more often it involves thinking new ideas and talking to new people. Or indeed thinking old ideas, and talking to old people.

For example, Traditional Chinese Medicine (TCM) is a complete medical system, whose first origins appear in written form over 4000 years ago in the Yellow Emperor's Inner Canon [6] (not that longevity itself indicates authenticity, as noted above!). Based on the notion that the body is made up of complex interconnected systems, it is not unlike modern Western medicine. Some elements of TCM are familiar, such as herbalism and dietary manipulation, whilst there are others which, until recently, were completely alien, such as acupuncture and moxibustion [7]. All these treatments are now open to the rigours of modern evidence based medicine and there have been notable successes, such as the herb artemesia (wormwood) which was first written about as an antimalarial in the 4th century AD by Ge Hong [8]. The derived drug, artemisin is currently the most potent anti-malarial known [9]. Many Western drugs have similar herbal histories of course [10,11,12]. The term 'integrative medicine' is used to encompass the best of CAM and western medicine, recognizing that all treatments have pros and cons and that all should be subject to ongoing research, development and testing. Indeed, in China, medicine is practised typically as Traditional Chinese and Integrative Medicine (TCIM) [13].

Why should students, and indeed doctors, learn about complementary and alternative medicine? There are many reasons. Firstly, it may help our patients. Modern doctors should humbly recognize that Western medicine treats people imperfectly in many areas; indeed as doctor's graduate from medical school, they are often told, "*Half of what you learned in medical school is wrong; we just don't know which half.*" Indeed, a year following publication in the NEJM, this Fig. has already been measured at 13%! [14]

There will undoubtedly be aspects of most areas of CAM that encourage healing in people, both as a placebo and otherwise [15]. Hence, to avoid appearing ignorant to well-informed patients it is wise to be FAMILIAR with potential CAM treatments. In Germany, in particular, a majority of doctors are already thus [16]. Indeed, studies show that use of CAM in some countries is very high; visits to a CAM practitioner (definitions vary) are, for example, 44% per year in Australia [17] and 27% in Ireland [18]. In some countries CAM use even exceeds the use of conventional, Western biomedicine [19]. The use of CAM is increasing in all developed countries and many commentators feel it reflects dissatisfaction with Western medical services [20]. Indeed, many health insurance companies will now fund the use of

some CAM treatments, particularly acupuncture [21]. Switzerland recently passed a referendum vote allowing the funding by insurance companies of homeopathy and other CAM treatments [22].

When doctors are asked their reasons for offering non-standard medical treatments their answers are often not just because they believe the therapy can help [23]. In general, both doctors and patients describe three main (linked) things that people seem to appreciate about CAM in general: more time together; a better relationship; more consideration of the patient as a whole person [24,25]. These are also among the ideals of good general practice [26,27]. Indeed CAM, as expounded by Barret et al using the "HEAL" framework [28], is often perceived as more holistic and empowering (HE of HEAL) by patients but with worse access and legitimacy (AL). These latter two points reflect, of course, commonly cited skepticism with CAM [29]. Interestingly, one often fails to read about convictions of efficacy among the reasons that GPs practise CAM; students themselves however, value highly evidence of efficacy, and the skills to assess that evidence above other goals [30,31,32].

There are an increasing number of universities that offer CAM courses, such as in Portugal [33], Brazil [34] and Canada [35]. In America, teaching ranges from two standard hours for individual CAM subjects to twenty hours for students pursuing extra courses [36]. Some medical schools in Germany also offer longer courses of study, for example, TCIM in the University of Heidelberg [37]. Magdeburg University also offers a course in Homeopathy [38], as well as one in TCIM [39]. Both courses are popular and enjoyed by students; the TCM course was found to stimulate a positive change in their attitude towards CAM in general (64%; 29% no change). This may seem unsurprising given that the students were a self-selected group, however it is contrast to data for the homeopathy course [40].

Before and after tests can easily demonstrate knowledge acquisition, but in the long run, effects on attitudes may be more beneficial [41]. This is the focus of this short study. We asked whether studying CAM can help transfer to trainees two of its central premises; holism and patient-centredness [24,25,28]. We did this in a simple way by using a before and after questionnaire in which different aspects of patient-centredness are examined.

2. METHODOLOGY

The basis of this study was the use of a "Physician Attitudes" questionnaire before and after a course of study. This was done both at Magdeburg University with medical students, and in the Oxford Deanery for trainee GPs. In Germany it was presented on the morning of the first day and repeated on the afternoon of the fourth day. In Oxford, it was done twice on the same day. In essence it examines one's 'personal physician profile' ie those thoughts and attitudes that make up what a person feels is important about being a doctor. The statements were based on the original work of Uwe Koch [42]: his early work, published in German in the late 1970s, analysed the basis for professionalism in doctors ie the attitudes and beliefs that underpin how doctors behave. The ten statements used in the questionnaire were picked as they illustrate well a spectrum of interaction, which at one end regards the doctor-patient relationship like an engineer to a sports car, and at the other as a counsellor with his client. They were used in this way to enable us to evaluate the courses, not just from the point of view of broadening knowledge, but on whether it affected something more fundamental in our learners, that is, the more subconscious beliefs which lead to our active behaviours in all aspects of life, notably professional [43]. Learners were asked to mark a cross along a line from one to four. One signified complete agreement and four complete

rebuttals, analogous to a Likert scale [44]. The relevant statements are written in the results section.

Two extended study CAM courses are offered annually in Magdeburg University, one in Traditional Chinese Medicine and one in Homeopathy. Both are practical-based two weekend courses (56 hours total) for a small number of undergraduate 5th year medical students (maximum 15; in this study 12 participated in the TCM course). The TCM course encompassed the following: Qi, Yin and Yang; the five change phases (wood, fire, earth, metal, water); TCM diagnostics (pulse, tongue, face, body surfaces); the meridian system; acupuncture; herbal medicine. As well as more didactic teaching techniques (lectures, videos, literature reviews), there was also small group work, practical Chinese herb medicine preparation and even genuine acupuncture (on each other!)

In Oxford the teaching was directed at final year GP trainees. It was simply a 6 hour day consisting of several sections:

- 10 am Discussion centred around the Journal: Focus on Alternative and Complementary Medicine.
- 11 am Reflexology and Anesthesiology presentation, demonstration and discussion facilitated by a local practitioner.
- 1 pm Hypnotherapy presentation, demonstration and discussion facilitated by a local practitioner.
- 2 pm Discussion and debate about acupuncture, recent guidelines and trials, facilitated by the Program Director.
- 3pm Further discussion centred around the Journal: Focus on Alternative and Complementary Medicine.

The junior doctors were asked to score the same ten statements on a four point scale from 1 (complete agreement) to 4 (complete disagreement). The same questionnaire was given to the same 6 doctors afterwards. They were not told they would have to repeat the questionnaire at the start. The same ten statements were used as for the German medical students, directly translated from the German but adapted to make them understandable in English. As such some of them are not structured in the same way as if they were originally written by native English speakers. However, it was felt the statements were transparent enough for the purposes of the study. Moreover, the young doctors were offered opportunity for clarification, but none was sought.

These were the statements that were used:

- 1) Without knowledge of a patient's life and lifestyle treatment is incomplete.
- 2) It is most important for a doctor that he remains true to his principles.
- 3) I quickly become impatient with some patients.
- 4) Authority simply belongs to the doctor.
- 5) I will always ask myself: what have I done for my patients today?
- 6) Not human nearness but technical skills help the patient.
- 7) Healing is: organic restoration.
- 8) As a doctor one should demonstrate no emotional participation.
- 9) As a doctor one should avoid personal contact with the patient.
- 10) Patients who do not constantly ask questions are dearest to me.

Ethical approval was not sought as the study did not involve patients. All students were aware of the potential for research based on the teaching and there were no objections.

Statistical significance in the data was assessed with T tests using the MatLab statistical processing toolbox (version 7).

3. RESULTS

After the TCM course in Magdeburg several attitudinal changes were shown (Fig. 1); in particular, the two statements “Healing is: Organic Restoration” and “Not human nearness, but technical skills help the patient” were much more strongly rebutted after the course (the change was significant at $P = .008$). There were however, no significant changes seen after the course in homoeopathy ($P = .34$).

Interestingly the other statement which showed most change was “it is most important for a doctor that he remains true to his principles.” Students rebutted this more after the course.

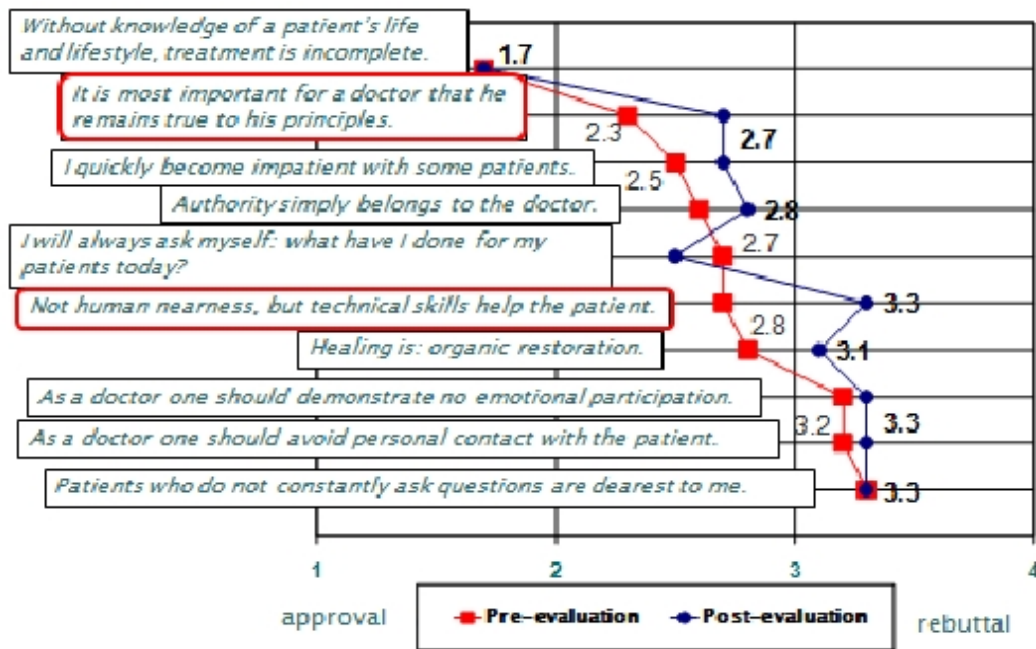


Fig. 1. Degree of approval or rebuttal of the ten “physician profile” statements questioned before and after a weekend course in TCM for 12 medical students in Germany

Twelve responses were received. On average, all showed a change in the direction away from a pure biomedical viewpoint and this change is statistically significant for the series as a whole at $P = .02$. The greatest changes illustrated above (which contribute most to the significant result) are the decreased agreement with the 2nd statement, the 6th statement (both ringed in red) and the 7th statement. No other statements showed a significant change by themselves.

Similar results were seen when the same questionnaire was used in Oxford as below.

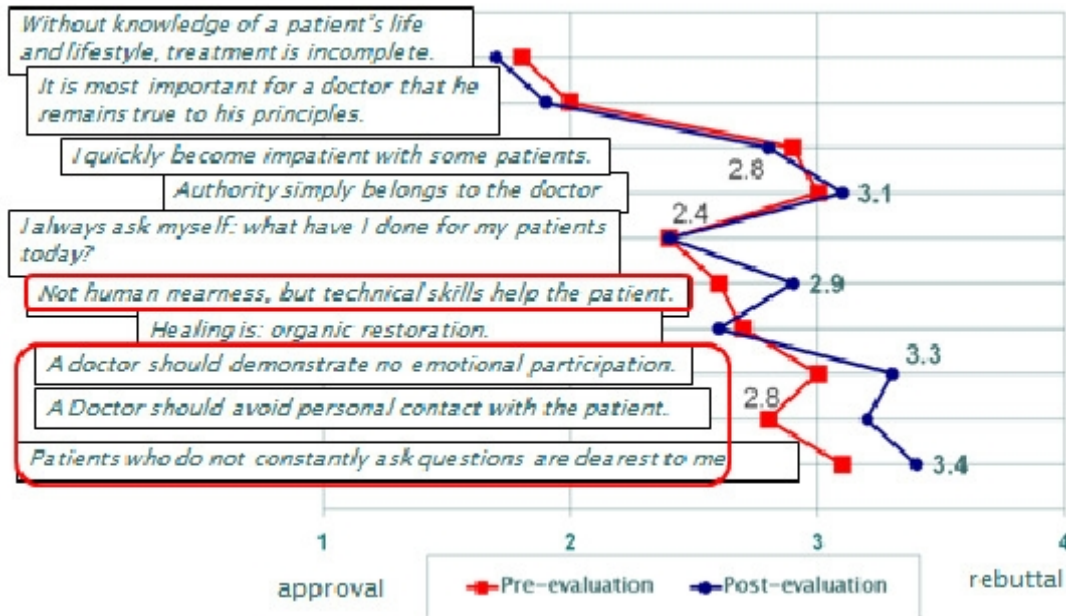


Fig. 2. Degree of approval or rebuttal of the ten “physician profile” statements questioned before and after a day’s CAM study for 6 Junior GPs in England

All 6 attendees at the day answered the questionnaire. These results, despite following only a single day’s teaching, also show a move away from the pure biomedical viewpoint. Interestingly, the junior doctors showed no change regarding the statement “it is most important for a doctor that he remains true to his principles.” Statements 3 and 4 showed also no change but were already scored much lower than the scores the medical students gave. The statements ringed in red however showed increased rebuttal after the day’s teaching. One of these, “not human nearness but technical skills help the patient” was similarly rebutted by the undergraduate students. The other three were more relational based statements; it appears that these three statements had a higher starting point than with the medical students and that the “after” data then became more similar. The series as a whole showed a change significant at $P = .03$.

3.1 Discussion

It appears that over the course of the two weekends (and the intervening weeks of their conventional study) medical students in Magdeburg revised, to a small degree, some of their beliefs about the doctor’s role that is their profile of a personal physician. A similar result was seen for junior doctors in general practice training in Oxford after a single day’s teaching, a format which was very different to the weekend study courses in Magdeburg. In particular the course for the medical students was longer, and more practical. This is important as it suggests the actual structure and content of the course is not the crucial issue. Indeed there is scant advice in the literature about how to set up courses in CAM teaching (Cueller et al’s advice for nurses being a notable exception [45]).

Demographically, there were more women in both cases (Magdeburg medical school entry is about 70% women, a similar Fig. to the proportion of GP trainees in Britain). The German medical students were younger, aged 23-24, whereas the junior GPs were aged 27-28 years old. This reflected their level of training, in that the German students were soon to embark on their first year as junior doctors whereas the English participants had practised four years as junior doctors already. One would naturally expect differences in attitudes to CAM between these groups given that they are discordant in age, culture and level of training. This was not examined, firstly due to the small subject number and also because an increasing scepticism of CAM is already known to develop through scientific training, among doctors, pharmacy students and even psychology students [46,47,48] Interestingly studies have shown German students to be surprisingly skeptical of CAM, despite the popularity amongst patients and doctors [48]. This does not mean (nor should it) that they do not desire to learn about CAM [49].

It is, of course, also a moot point whether medical education at Oxford and Magdeburg are broadly representative of learners in their respective countries. Opinions regarding CAM are different amongst students at Newcastle and University College London for example [50]. Despite this, the results are still likely to be generalisable, especially considering that they encompass two very different educational regimes. For example, Welsh medical students, drawn from all over Britain feel they should be taught more CAM subjects [51].

It appears that many doctors practise CAM because of their desire to connect better with patients, to give them more time and treat them more as people, not machines [23,24,25,28]. It is thus pertinent to note that “not human nearness, but technical skills help the patient” (a very unholistic statement!) was the one which students and doctors changed their opinion about most during the courses of study, from being mostly equivocal to stronger disagreement.

The other statement which showed most change with students was “it is most important for a doctor that he remains true to his principles.” This was meant to imply that doctors should come with a spirit of open-mindedness to patients and medicine in general. It was not intended to mean that doctors should have no underlying moral framework, which is something that the students hopefully understood. The junior doctor’s opinions stayed the same concerning this statement.

The junior doctors also showed a significant change in the final three relational based statements, which were initially firmly rebutted, but more so after the days study. Indeed their responses became more aligned to the student’s. Why this should be so is an interesting question. Does it demonstrate that classical teaching pushes them in the biomedical direction?

Together with the other, more modest changes in their ‘personal physician profile’ it would seem studying CAM can help students to value more the doctor-patient relationship. Indeed this is why many doctors say they practise CAM themselves. This important result reinforces one of the central aims of a modern medical teaching [52]. At this stage it is best to regard this as a hypothesis, as the effect may only be small. By itself, of course, this would not be a sufficient reason to embark on a course of study of CAM; given that there are many other good reasons, however, it does add weight to the case that all trainees would benefit from such teaching.

As a general rule, both sets of trainees (junior doctors and medical students) showed that after a short period of study that they had changed their views to be less biomedically focussed and more holistic in their views of patient care, as well as more patient-centred. It is hard to say what it is about studying CAM which promotes this, but it is possible that learners were influenced by attitudes that are often found in CAM practitioners. Indeed, users of CAM seem to prioritise patient-centredness more than non-users (75% v 55%) [53]. The essence of holism is considering all aspects of a patient's life as contributing both to illness and to healing. This is different to patient-centredness which is more concerned with good listening skills, empathy and the goal of concordance (not compliance [54]) in treatment. Indeed a doctor can be patient-centred and still perform in a classical biomedical manner as many patients actually prefer this [53]. Moreover some information is more readily gained in this manner [55].

The responsible doctor ought to do his best to keep abreast of developments in CAM as well as conventional medicine. Furthermore, medical schools and specialty training schools have a duty to prepare their students for all aspects of medical practice and hence students should be taught the rudiments of as many areas of CAM as possible. This is not to say that all areas of CAM should be blindly accepted, but that an inquiring, open-minded attitude might enable good practice and research and, where appropriate, integration in its best sense.

There are many potential further areas of study. The important conclusion, that studying CAM makes doctors behave in a more patient-centred way and value holistic care more merits further research, notably to analyse why this is so. Teaching Chinese Medicine seems to have this effect particularly; which other aspects of CAM have a similar effect on trainee attitudes? Should courses be broad-based or based on single areas?

Does studying CAM make doctors more patient-centred? Are students absorbing the premises and attitudes of CAM practitioners? This merits further research. Such courses tend to be very practical whereas most university teaching in Germany tends to be lecture-based which appeals more to theorist learning styles; most psychologists these days tend to believe that we all exhibit the different learning styles to a greater or lesser extent [56]. Whether or not different learning styles do actually exist [57], it is possible that one of the reasons for appeal and success in CAM teaching is its emphasis on the practical (a gross generalisation, of course) as a learning method [58].

It should be noted that many other interventions aimed at improving patient-centredness via communication skills training have not proven very successful [59,60,61]. Knowing how important it is to patient satisfaction [62] (and hence complaints and legal recourse [63]), any means to increase this should be promoted. Equally, it should also be noted that as well as many studies showing no physical benefit from CAM use [15,62], there are some that show psychological harm [64], not benefit, so caution must be observed.

It would also be noteworthy to perform a follow-up study of students or doctors who have studied CAM and TCM in particular. Most importantly, will the patient-centred effects and the attitudinal changes regarding the doctor-patient relationship be long-lasting? In addition, does studying other areas of CAM have similar effects on student attitudes in both the short and long-term?

Given the small numbers involved in these studies, although statistical significance was shown, it would appear wise to regard these as pilots. They may indicate likely areas of truth

which would benefit from a larger study, which could be rolled out to whole year groups across medical schools or deaneries.

4. CONCLUSIONS

In conclusion, although in both studies the number of respondents was small, it appears that studying complementary and alternative medicine, in any format, encourages both students and junior doctors to adopt more patient-centred attitudes such that they value more the doctor-patient relationship and view their patients in a more holistic manner. This should be an extra incentive for educators to teach CAM to their learners, since as well as encouraging integration in its best sense; it will help also learners develop into exemplary physicians.

CONSENT

All Junior GPs and trainees understood the reasons for the questionnaire and the study design. All gave verbal consent.

ETHICAL APPROVAL

This was looked into but assurance was given that it was not needed for such a study.

COMPETING INTERESTS

Professor Herrmann is a practitioner and teacher of Homoeopathy and receives funding from Omoeon (Society for the Advancement of the Teaching of Homoeopathy). No conflicts of interest for Dr. Reed or Frau Werwick.

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