

First year medical students' perceptions and use of complementary and alternative medicine

S. M. Greenfield, M. A. Innes, T. F. Allan, A. M. Wearn

Department of Primary Care & General Practice, University of Birmingham, Birmingham B15 2TT, UK

SUMMARY. Objectives: To explore First Year medical students' rating of CAM therapies following a core teaching session. To determine the influence of student gender and previous experience of CAM and therapist/teacher gender and professional background on ratings. Design: Survey; self-administered questionnaire following a teaching session. Setting: First Year medical students Behavioural Science module CAM teaching session, University of Birmingham Medical School, UK. Results: One hundred and fifty (71.0%) students completed a questionnaire. 56 (37.3%) students had previous experience of CAM, particularly where a family member already used it ($P = <0.001$). Aromatherapy (29/56, 51.7%) and homoeopathy (17/56, 30.3%) were the most common therapies listed. Females were more likely than males to have used aromatherapy ($P = 0.038$) or reflexology ($P = 0.007$). Students using aromatherapy were more likely to have self treated ($P = 0.01$). Of 82 episodes of CAM use, most (67/82, 81.7%) were stated to have been helpful. Hypnotherapy ($P = 0.003$) and aromatherapy ($P = 0.015$) were most helpful. Following the teaching session students rated therapies observed on a 10 point scale, 1 (extremely sceptical) to 10 (totally convinced). All were rated above the mid-point; highest rated was chiropractic (median score = 8), lowest, reflexology (median score = 5.06). Students who had previously used hypnotherapy gave it higher scores ($P = 0.018$). Students whose family used CAM were more likely to rate aromatherapy highly ($P = .027$) and to give homoeopathy a low score ($P = 0.003$). Conclusions: A short CAM teaching session early in the curriculum can inform students about the relationship of CAM with current medical practice. It can be used as a 'taster' prior to selection of Special Study Module choices in later years. © 2002 Elsevier Science Ltd. All rights reserved.

INTRODUCTION

Medical students in the UK increasingly have the opportunity to learn about complementary medicine (CAM)^{1,2} due to positive recommendations about the inclusion of familiarisation courses within medical training.¹⁻⁴ Studies which have examined medical students' attitudes to the possibility of introducing teaching about CAM¹⁻¹⁰ all suggested that CAM teaching would be well accepted, apart from one study in which student opinion was uncertain.¹¹

The gradual introduction of CAM into the undergraduate medical curriculum means that it is now possible to assess students' actual experiences. Evaluations have been carried out on Special Study Modules (SSMs) and consist of personal reports from individual students or teachers¹⁷⁻¹⁹ and course evaluations.^{12,20-22} Whilst they generally confirm student satisfaction, in SSMs numbers are small and represent the views of students who have positively selected CAM from a range of options. The views of medical students who have experienced CAM as part of core teaching have not

Dr S.M. Greenfield,
Department of Primary
Care & General Practice,
University of Birmingham,
Birmingham B15 2TT. E-mail:
s.m.greenfield@bham.ac.uk

yet been surveyed and it has been suggested these views would reflect a more accurate perspective.¹⁷

Medical student attitudes to CAM may be shaped by other influences outside the formal curriculum.¹¹ There has been debate about the content of CAM courses and about who, whether medically trained, lay CAM therapists, or both, should deliver the teaching.^{23,24,21} In terms of medical education in general, it has been suggested that medical students favour the biomedical approach²⁵ and that the most powerful role models, and for male students in particular, are male hospital consultants.²⁶ Medical students may well prefer CAM teaching to be delivered by medically qualified practitioners.¹⁴

For today's medical undergraduates, the continuing increase in interest in CAM among the general population and within primary care^{27,28,6} means that students will have already been exposed to CAM either within their family, in the media, from personal use or in their GP surgery. It is therefore likely that students will arrive at medical school with health beliefs and behaviours around CAM derived from their lay experience. Previous experience of CAM has been shown to be correlated with positive attitudes to CAM by students^{17,11} and in response to questions asking about hypothetical situations female students had more positive attitudes to the scientific status of CAM, to teaching it in medical school and to the use of CAM in the NHS.¹¹ In a comparison of First Year dental, medical, nursing and physiotherapy students some types of behaviour and attitudes related to CAM varied by gender, ethnicity, family use, or having a family member who was a health-care professional.¹⁶ Attitudes to CAM have also been shown to vary by political affiliation¹¹ but not by student locus of control.⁹ There were however no significant gender differences in the way Second Year students rated either CAM generally or homoeopathy before and after a CAM Special Study module.²⁰

The questionnaire survey described in this paper set out to explore First Year medical students rating of CAM therapies assessed after a core teaching session and to determine the influence of student gender and previous experience of CAM, and therapist/teacher gender and professional background on therapy ratings.

METHOD

The Behavioural Science Module at Birmingham Medical School runs throughout the first two years and includes a two hour small group session on CAM at the end of the first semester of Year 1. This is split into two separate one hour blocks during which all First Year medical students, divided into groups of approximately 30 students, observe two from a range of seven complementary ther-

Table 1 Therapies observed by students by therapist gender and professional orientation

Therapy	Therapist gender	Professional orientation
Acupuncture	M	medically qualified
Alexander technique	M	lay therapist
Aromatherapy	F	lay therapist
Chiropractic	M	lay therapist
Homoeopathy	F	medically qualified
Hypnotherapy	F	medically qualified
Reflexology	F	lay therapist

apies. Each one hour teaching block consists of an explanation of the therapy, its main principles and evidence base and a practical demonstration. The therapies demonstrated during the teaching session described in this paper which took place in December 1999, are shown in Table 1. At the end of the session, after they had observed both therapies, students completed a questionnaire containing open and closed questions which asked about their own and their family's previous use of CAM, the treatment route and efficacy of any therapies used and their rating of the two therapies they had seen (see Table 2). A range of student socio-demographic details (age, gender, whether any members of their family were health professionals) were also collected.

Data were analyzed using SPSS. Since the socio-demographic data are non-normally distributed, non parametric methods of analysis were used including Mann-Whitney, Kruskal-Wallis, χ^2 and Fishers Exact tests of proportions.

RESULTS

Student characteristics

One hundred and fifty of the 211 Year 1 students (100, 47.4% male and 111, 52.6% female) returned a questionnaire (71.0% response rate) and of these 143 (95.3%) had completed all questions. 86 students (57.3%) were female, 63 (42.0%) were male and one student did not identify their gender. Their ages ranged from 17–22. Half the students (72, 50.4%) were aged 18 or under, 2 (1.4%) were over the age of 20 and three students did not give their age. Fifty students (35.0%) came from a family in which someone worked as a health professional.

Students' previous experience and use of CAM

Fifty-nine students (39.3%) said a member of their family used CAM and fifty-six students (37.3%) had already used some form of CAM themselves. In an open question students were asked to list any therapies they had used and of the twelve therapies mentioned aromatherapy and homoeopathy were the most common (see Table 3). Although

Table 2 Student questionnaire	
Behavioural science module I09a S08 complementary therapy questionnaire for year 1 students	
We are interested in finding out your views on complementary therapies both from your past experience and from what you have seen today and would be grateful if you could complete this questionnaire. Your responses will be anonymous so please be as honest as possible.	
1. Please circle	Female Male
2. What is your age in years?	<input style="width: 50px; height: 20px;" type="text"/>
3. In your family:	
a) Does anybody use complementary therapies?	Yes No
b) Does anyone work as a health care professional?	Yes No
4. Which complementary therapies have you used personally?	
i.	
ii.	
iii.	
iv.	
5. For each of the therapies you used:	
a) please say whether you found it helpful?	
i.	
ii.	
iii.	
iv.	
b) did you self treat or consult an experienced therapist?	
i.	
ii.	
iii.	
iv.	
6. Please score your opinion of each of the two therapies you saw on a scale of:	1 (extremely sceptical) to 10 (totally convinced)
Acupuncture	<input style="width: 50px; height: 20px;" type="text"/>
Alexander Technique	<input style="width: 50px; height: 20px;" type="text"/>
Aromatherapy	<input style="width: 50px; height: 20px;" type="text"/>
Chiropractic	<input style="width: 50px; height: 20px;" type="text"/>
Homoeopathy	<input style="width: 50px; height: 20px;" type="text"/>
Hypnotherapy	<input style="width: 50px; height: 20px;" type="text"/>
Reflexology	<input style="width: 50px; height: 20px;" type="text"/>
7. Do you have any questions or concerns about complementary medicine arising from this session?	

Table 3 CAM therapies previously used by students				
Therapy	No. (%) of students who had previously used (n = 56)	Male No. (%) (n = 20)	Female No. (%) (n = 35)	P
Aromatherapy	29 (51.7)	7 (35.0)	22 (86.8)	0.038
Homoeopathy	17 (30.3)	*6 (30.0)	10 (28.5)	NS
Hypnotherapy	9 (16.7)	3 (15.0)	6 (17.1)	NS
Acupuncture	6 (10.7)	2 (10.0)	4 (11.4)	NS
Reflexology	6 (10.7)	0 (0)	6 (17.1)	0.007
Massage	6 (10.7)	2 (10.0)	4 (11.4)	NS
Alexander technique	3 (5.3)	1 (5.0)	2 (5.7)	NS
Chiropractic	3 (5.3)	2 (5.7)	1 (5.0)	NS
Herbal medicine	3 (5.3)	2 (5.7)	1 (5.0)	NS
Kinesiology	1 (1.7)	0 (0)	1 (2.8)	NS
Physiotherapy	0 (0)	0 (0)	1 (2.8)	NS
Meditation	1 (1.7)	0 (0)	1 (2.8)	NS

*One student did not declare their gender.

most students (35/56, 62.5%) had used only one therapy (range 1–4), five students (8.9%) had used at least three. Students were more likely to have personally used CAM if a family member already used it (Fishers exact, $P < 0.001$) and lack of family use was positively associated with non-use of CAM by students ($z = -36$, $P < 0.001$).

More female students (35/56, 62.5%) than male had previously used some form of CAM, although the difference was not significant. However, female students were significantly more likely to have used aromatherapy or reflexology than male students (Table 3). Neither students' personal usage of CAM nor family usage were positively associated with having a health professional in the family.

For each of the therapies they had already used students were asked to state whether they had found it helpful and whether they had self treated or consulted a therapist. Fifty-three (94.6%) of the 56 students who had used CAM gave details of the treatment route they had used. Twenty-two of these students (41.5%) had used self-treatment alone, 21 students had consulted a therapist (39.6%) and 10 students (18.8%) had used both treatment routes. There were no significant differences in the treatment routes used by male and female students. Out of 82 individual episodes listed, 38 (46.3%) had been by self-treatment only and 40 (48.8%) with a therapist alone, for 4 (4.8%) episodes the treatment route was not stated. For those therapies which can be used for self-treatment, it appeared, although the numbers are small, that students using aromatherapy were more likely to have used this treatment route (Table 4). For most episodes (67/82, 81.7%) the therapy was stated to have been helpful, for seven episodes (8.5%) it had not been helpful, and for eight episodes (9.8%) students said they were unsure whether it had been helpful or not. Hypnotherapy (Mann-Whitney, $z = -2.994$,

$P = 0.003$) and aromatherapy (Mann-Whitney, $z = -2.436$, $P = 0.015$) were said to have been most helpful. There was no significant difference in perceived helpfulness of therapy by treatment route or student gender.

Rating of therapies seen by students during the teaching session

Students were asked to rate each of the therapies they had observed on a scale of 1 (extremely sceptical) to 10 (totally convinced). Table 5 shows that whilst all therapies were rated above the mid point of the scale, the most highly rated therapy was chiropractic and the lowest reflexology. In general there were no significant differences in the way male and female students, or students who came from a family where there was a health professional, rated therapies. However, students who came from a family where someone used CAM were significantly more likely to rate aromatherapy highly and to give homoeopathy a low score. There was no significant relationship between students' previous use of a particular therapy and the rating scored they gave that therapy, apart from hypnotherapy. Here students who had previously used this CAM themselves tended to give it higher scores although the numbers were small. There was no significant difference in the way students rated therapies according to either the gender of the therapist who gave the demonstration or whether they were a medically qualified or lay therapist.

DISCUSSION

The rates of CAM use among the medical students surveyed confirms that it is more extensive than previously shown.^{11,12} This no doubt reflects the increasing interest in CAM among the general population in recent years,^{29,28} and its gradual acceptance by the medical profession.^{3,4,6} However, CAM use by this group of students who were learning about CAM within a core teaching session was lower than those of SSM students,²⁰ who had specifically chosen to study CAM and presumably had a interest in the area. CAM users tend to have higher educational levels²⁷ and student use was three times greater than within a similar age group in the general population.²⁸

Overall the types of therapies students had personally used were similar to the therapies used by the general population.^{27,28} The popularity of individual therapies differed in a number of respects from patterns of usage by the general public.²⁸ For example among the medical students surveyed use of hypnotherapy was higher and herbal medicine lower. It may be that the popularity of certain therapies varies by age group as Ernst's²⁸ figures relate to the total adult population and direct comparison is not possible. In addition, the two most

Table 4 Treatment route for CAM therapies used by students

Therapy	Self treatment (N = 38) No. (%)	Therapist (N = 39)* No. (%)	χ^2
Acupuncture		5 (12.8)	NS
Alexander technique		2 (5.1)	NS
Aromatherapy	18 (47.3)	8 (20.5)	0.01
Chiropractic		3 (7.6)	NS
Herbal medicine	2 (5.2)		NS
Homoeopathy	11 (28.9)	5 (12.8)	NS
Hypnotherapy	3 (7.8)	6 (15.3)	NS
Kinesiology		1 (2.5)	NS
Massage	3 (7.8)	3 (7.6)	NS
Meditation		1 (2.5)	NS
Physiotherapy		2 (5.1)	NS
Reflexology	1 (2.6)	3 (7.6)	NS

*one student stated they had consulted a therapist but did not specify for which therapy.

Table 5 Students' rating on a scale of 1 (extremely sceptical)–10 (totally convinced) of therapies observed during the teaching session and factors significantly associated with differences in rating

Therapy	Number of students who had observed therapy	Median score	Range	Previous use of CAM	Family use of CAM
Chiropractic	35	8.00	1–9	NS	NS
Hypnotherapy	41	7.00	1–10	.018	NS
Aromatherapy	41	7.00	2–9	NS	.027
Acupuncture	43	7.00	1–10	NS	NS
Homoeopathy	25	6.00	1–9	NS	.003
Alexander Technique	33	6.00	1–9	NS	NS
Reflexology	64	5.06	1–9	NS	NS

popular therapies reported by students, aromatherapy and homoeopathy, are readily available over the counter and reasonably straightforward to use (and were more likely to have been used by the students) for self treatment. Students were almost equally likely to have self-treated and to have visited a CAM practitioner and the outcome of treatment was similarly positive in each case.

Family use of CAM and student gender appeared to influence attitudes and behaviour related to CAM in a number of ways, although having a healthcare professional within the family did not seem to be positively associated with the CAM use of the student. Family use of CAM was the strongest predictor of student use and reflects the important role of the family in transmitting health behaviour and attitudes.³⁰ It is well documented that women are more likely than men to use CAM.^{27,28} Among the medical students studied, although more women had used CAM than men, there were no significant gender differences in overall use. However the data did support the view that some therapies, in this study aromatherapy and reflexology, may tend to be more gender specific.²⁸

Although medical students in a study by Furnham et al.¹¹ did not show significant differences in attitudes to a range of five CAM therapies, they had not seen the therapies demonstrated in a teaching session. In the current study students did differentiate between the therapies they had observed in terms of perceived efficacy. There was some slight indication that family use of CAM or previous use of a therapy may influence the way students subsequently rate CAM, but student gender or having a healthcare professional in their family did not appear to affect the way students rated the therapies. Their attitudes towards all the CAM therapies they had observed were positive, and there was no relationship between the gender or professional background of the therapist who gave the demonstration and student rating. Chiropractic was rated highest and it may be that this was the therapy which fitted in best with the medical model and their other concurrent learning during Year 1 of the medical course. Overall students rated therapies in a broadly similar way to other stud-

ies where medical students were asked of which therapies they would consider learning the basic principles.^{14,20} Rating was also similar to a recent study of the general public (which included some students) in which they rated the efficacy of therapies using a 10 point scale.³¹ The students in this study demonstrated a considerable use of CAM which reflects the social acceptability of this type of medicine. Medical curricula should reflect this. Students responded positively to a short introductory session on CAM located within a core teaching module in their first term at medical school. This type of introduction can be used as a 'taster' prior to selection of SSM choices in later years of the medical course. More extensive familiarisation courses may be most successful using as primary examples, therapies which medical students can easily understand in the context of their orthodox training. Medical students need to be exposed to the range of therapists who deliver CAM treatment to give them an accurate picture of current practice.^{2,21} The response of the medical students in the current study confirms that there is a teaching role for both medically qualified and lay therapists.

REFERENCES

1. Morgan D, Glanville H, Mars S, Nathanson V. Education and training in complementary and alternative medicine: a postal survey of UK universities, medical schools and faculties of nurse education. *Complement Ther Med* 1998; 6: 64–70.
2. Zollman C, Vickers A. Complementary medicine and the doctor. *BMJ* 1999; 319: 1558–1561.
3. British Medical Association. *Complementary Medicine: New Approaches to Good Practice*. Oxford: Oxford University Press, 1993.
4. General Medical Council. *Tomorrow's Doctors*. London: General Medical Council, 1993.
5. Foundation for Integrated Medicine *Integrated Healthcare: a way forward for the next five years?* Foundation for Integrated Medicine, London, 1997.
6. House of Lords. *Complementary and alternative medicine*. London: Stationery Office, 2000.
7. Furnham A. Medical students' beliefs about nine different specialties. *BMJ* 1986; 293: 1607–1610.
8. Halliday J, Taylor M, Reilly D. Medical students and complementary medical therapies. *Complement Ther Med* 1990; 1: 32–33.

32 *Complementary Therapies in Medicine*

9. Furnham A. Attitudes to alternative medicine: a study of the perceptions of those studying orthodox medicine. *Complement Ther Med* 1993; 1: 120–126.
10. Perkin MR, Percy RM, Fraser J. A comparison of the attitudes shown by general practitioners, hospital doctors and medical students towards alternative medicine. *Journal of The Royal Society of Medicine* 1994; 87: 523–525.
11. Furnham A, Hanna A, Vincent CA. Medical students' attitudes to complementary medical therapies. *Complement Ther Med* 1995; 3: 212–219.
12. Barker S. An evaluation of the complementary medicine module for third year medical students. MSc dissertation. Southampton: University of Southampton; 1997.
13. Gibbs T. Changes in medical education. *British Homoeopathic Journal* 1997; 86: 152–155.
14. Rampes H, Sharples F, Maragh S, Fisher P. Introducing complementary medicine into the medical curriculum. *Journal of the Royal Society of Medicine* 1997; 90: 19–20.
15. Furnham A, Yardley L, Fahmy S, Jamie A. Health beliefs and preferences for medical treatment: a comparison between medical and social science students. *Complement Ther Med* 1999; 7: 101–109.
16. Walford S. Use and perceptions of complementary therapies by dental, medical, nursing and physiotherapy students. Intercalated BMedSci Project Report. Birmingham: University of Birmingham; 2000.
17. Owen D. Familiarizing medical students with complementary and alternative medicine: encouraging new attitudes and ideas. *Complement Ther Med* 1999; 7: 38–41.
18. Barker S, Horn S, Owen D. An evaluation of the complementary medicine module for third year medical students. *Medical Education* 2000; 34: 159.
19. Owen D, Lewith G, Stephens C, Bryden H. Can doctors respond to patients' increasing interest in complementary and alternative medicine? Commentary: Special study modules and complementary and alternative medicine—the Glasgow experience. *BMJ* 2001; 322.
20. Greenfield S, Wearn A, Hunton A, Innes M. Considering the alternatives: a special study module in complementary therapy. *Complement Ther Med* 2000; 8: 1–6.
21. Lewith GT, Owen D. Complementary medicine: the Southampton undergraduate experience. *Complement Ther Med* 2000; 8: 202–206.
22. Owen D, Lewith G. Complementary and alternative medicine (CAM) in the undergraduate medical curriculum: the Southampton experience. *Medical Education* 2001; 35: 73–77.
23. Harris G. Complementary therapies: their role and place within undergraduate medical education. *Complement Ther Med* 1995; 3: 167–170.
24. Goodman J. Complementary medicine in the medical curriculum. *Journal of The Royal Society of Medicine* 1997; 90: 178.
25. Sinclair S. *Making Doctors*. Oxford, Berg, 1997.
26. Allen I. *Doctors and their careers. A new generation*. London. Policy Studies Institute, 1994.
27. Zollman C, Vickers. Users and practitioners of complementary medicine. *BMJ* 1999; 319: 836–838.
28. Ernst E, White A. The BBC survey of complementary medicine in the United Kingdom. *Complement Ther Med* 2000; 8: 32–36.
29. Siahpush M. Postmodern values, dissatisfaction with conventional medicine and popularity of alternative therapies. *Journal of Sociology* 1998, 34; 1: 58–70.
30. Scambler A, Scambler G, Craig D. Kinship and friendship networks and women's demand for primary care. *Journal of the Royal College of General Practitioners* 1981, 26: 746–750.
31. Furnham A. Does experience of the 'occult' predict use of complementary medicine? Experience of, and beliefs about, both complementary medicine and ways of telling the future. *Complement Ther Med* 2000; 8: 266–275.